

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

SEAVIEW GRANGE
(ANDERSON PROPERTY)
TAIKO



Report prepared for Timaru District Council by Mike Harding
February 2020

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owners: RM and HM Anderson
Valuation References: . 24820-10101
Location:..... Limestone Road, Taiko
Ecological District:..... Waimate Ecological District.
TDC Land Type:..... 'Soft Rock Hills and Downs'
Land Environments:..... Q2.1c and N3.3a

ECOLOGICAL CONTEXT:

The Seaview Grange (Anderson) property includes a prominent limestone ridge on the east side of Limestone Valley Road, approximately five kilometres south-east of Cave. It is on the true-left (east) side of the upper part of Taiko Stream. The property lies in Waimate Ecological District (McEwen, 1987). The limestone ridge and adjacent valley floor lie within the Q2.1c and N3.3a Level IV Land Environments (Leathwick *et al*, 2003).

It is likely that the original vegetation of this area was predominantly broadleaved forest or treeland dominated by broadleaf, kowhai, narrow-leaved lacebark, five-finger and lemonwood, with podocarps, such as matai and totara. Areas of exposed limestone supported a distinct plant community, dominated by rockland (bare rock) with a number of calcicolous plants (specialised limestone species), similar to that present today. Poorly drained sites, notably on valley floors, would have supported sedgeland and rushland (wetland) plant communities.

Today the original forest cover in this part of Waimate 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 and habitat on the property comprises rockland plant communities and associated shrubland associated with areas of exposed limestone (bluffs and rock pavement). Also present are areas of sedgeland at valley-floor wetlands. The property lies close to numerous other areas of remnant and regenerating indigenous vegetation, mostly on other limestone scarps. Together, these areas provide important habitat for a number of threatened limestone plant species.

Adjacent properties were surveyed as part of the District-wide survey of SNAs some years ago. This property was overlooked at that time due to priorities elsewhere in the District and time constraints.

Three Significant Natural Areas (SNAs) were identified on the Anderson property during this survey. They are listed and illustrated below, and described in detail in separate Site Assessment Reports (below).

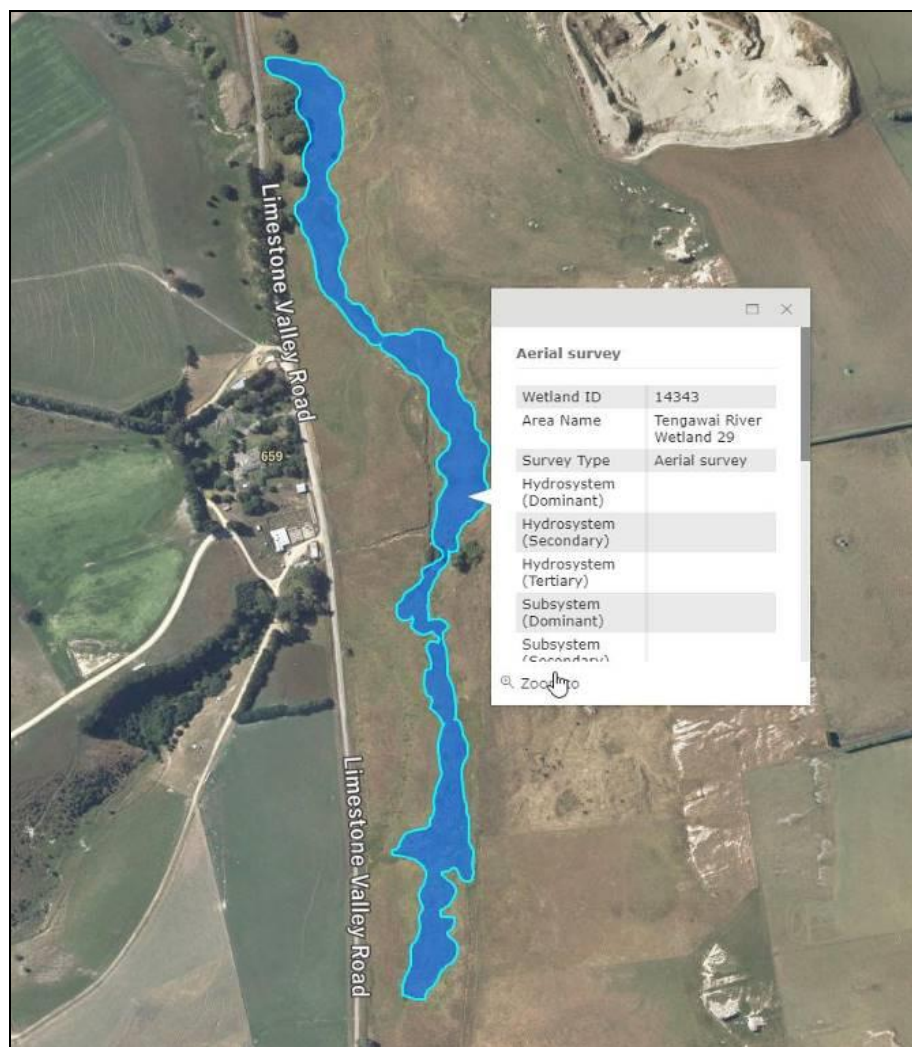
SNA No.	Central map reference (NZTM)	Size (ha.)
847	1441310E-5090525N	23.52
848	1441120E-5090640N	1.71
849	1441110E-5090240N	1.49



Boundaries of SNAs, 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 are proposed to be listed in the District Plan by way of a notified plan review.

Selecting boundaries for significant sites can be problematic, as vegetation boundaries are not precise (plant communities frequently grade from one type to another) and habitats of indigenous fauna are not easily determined through brief site surveys. In this assessment the limestone SNA site boundary (SNA 847) follows the extent of the exposed limestone and includes the scattered indigenous shrubs and cabbage trees on the associated slopes. The wetland SNA boundaries (SNAs 848 and 849) follow the extent of the sedgeland plant communities. However, the boundary of SNA 849 is less precise, as the field survey of this site was brief. Selection of this wetland SNA boundary was assisted by aerial survey data held by Ecan (below).



Tengawai River Wetland 29 (ID 19343) as mapped by aerial survey (Ecan).

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: Anderson Limestone	Property: RM and HM Anderson
Ecological District: Waimate	Nearest Locality: Taiko Flat
Central Map Reference: (NZTM): 1441310E-5090520N	Size: 23.52 ha
Surveyor: Mike Harding	Survey Time: 2 hours Survey Date: 22-01-2020

General Description:

This SNA lies on a prominent limestone ridge and associated west-facing slopes on the east side of the upper Taiko Stream valley. 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). The crest of the limestone scarp lies at an altitude of approximately 300m; the western boundary of the SNA on the lower slopes lies at approximately 240m. There are no substantial streams within the SNA, though water emerges via springs at the toe of the scarp slope. Wetlands below the slopes are described separately as SNAs 848 and 849.

Plant Communities:

Sparsely vegetated rockland¹ is the main plant community present, with grassland-shrubland-treeland present on adjacent slopes, as described below.

Limestone rockland:

This plant community is dominated by bare rock. Plants are confined to microhabitats in ledges, pockets or crevices, or to the shallow soils adjacent to the exposed rock. Dominant plant species are mostly naturalised (exotic) species, notably Chewings fescue (*Festuca rubra*), suckling clover (*Trifolium dubium*), cocksfoot (*Dactylis glomerata*), hard grass (*Catapodium rigidum*), mouse-ear chickweed (*Cerastium fontanum*), mouse-ear hawkweed* (*Pilosella officinarum*) and narrow-leaved plantain (*Plantago lanceolata*). Also common adjacent to the limestone are pasture grasses, Californian thistle (*Cirsium arvense*) and barley grass (*Critesion murinum*).

Indigenous plant species commonly present are mingimingi (*Coprosma propinqua*), native broom (*Carmichaelia australis*), pohuehue (*Muehlenbeckia australis*), ti/cabbage tree (*Cordyline australis*), blue tussock (*Poa colensoi*), limestone spleenwort (*Asplenium hyalii*), *Geranium socolateum*, *Colobanthus* aff. *brevisepalus* “limestone” and *Gingidia enysii*.

Indigenous species less commonly present are mahoe (*Melicytus ramiflorus*), matagouri (*Discaria toumatou*), five-finger (*Pseudopanax arboreus*), tree nettle (*Urtica ferox*), *Parietaria debilis*, *Colobanthus apetalus*, *Chenopodium allanii*, *Cardamine integra*, *Epilobium nummularifolium*, limestone gentian (*Gentianella calceolae* subsp. *taiko*), woollyhead (*Craspedia* sp.), pennywort (*Hydrocotyle* sp.), toatoa (*Haloragis erecta*), *Plantago novae-zealandiae*, *Senecio* aff. *glaucophyllus* “Mt Cass”, *Libertia ixioides*, *Dichondra repens*, blue wheatgrass (*Anthosachne solandri*), *Lagenophora* sp. (*pumila*?), maidenhair fern (*Adiantum cunninghamii*), *Geranium microphyllum* and *Azorella trifoliolatum*.

Exotic species less commonly present on or adjacent to the limestone are elderberry (*Sambucus nigra*), boxthorn (*Lycium ferocissimum*), black nightshade (*Solanum nigrum*), storksbill (*Erodium cicutarium*), yarrow* (*Achillea millefolium*), nodding thistle* (*Carduus nutans*), Scotch thistle (*Cirsium*

¹ Plant community names follow the method proposed by Atkinson (1985).

vulgare), dwarf mallow (*Malva neglecta*), woolly mullein (*Verbascum thapsus*), horehound (*Marrubium vulgare*), cleavers (*Galium aparine*), king devil hawkweed (*Pilosella piloselloides* subsp. *praealta*), hawksbeard (*Crepis capillaris*), white clover (*Trifolium repens*), sandwort (*Arenaria serpyllifolia*), hedge mustard (*Sisymbrium officinale*), Yorkshire fog (*Holcus lanatus*) and sweet vernal (*Anthoxanthum odoratum*).



Limestone boulders provide important habitat for calcicolous species, notably gentian and woollyhead.

Grassland-shrubland-treeland:

This plant community is dominated by pasture grasses and, in places, thistles. Scattered through this community are shrubs and individual patches of native broom and occasional ti/cabbage tree.



Native broom is relatively common on slopes below the limestone scarp.

Birds/Fauna Observed:

The only native bird species observed at or adjacent to the site during this brief survey were spur-winged plover (*Vanellus miles*) and Australasian harrier (*Circus approximans*). The only lizard species recorded from the site is Southern Alps gecko (*Woodworthia* “Southern Alps”), although southern grass skink (*Oligosoma polychroma* Clade 5) has been recorded on an adjacent property (Hermann Frank, *pers.comm.*).

Notable Flora, Fauna and Habitats:

Upper parts of the site, where limestone is prominent, lie in a Land Environment (N3.3a) within which indigenous vegetation is depleted to less than 10% of its former extent nationally. Other parts, on the slope, lie within a Land Environment (Q2.1c) within which indigenous vegetation is depleted to 20-30% 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 a relatively large number of indigenous plant species listed as ‘data deficient’, ‘at risk’ or ‘threatened’ nationally by de Lange *et al* (2018):

<i>Chenopodium allanii</i>	at risk; naturally uncommon
<i>Cardamine integra</i>	threatened; nationally critical
<i>Colobanthus</i> aff. <i>brevisepalus</i> “limestone”	data deficient
<i>Craspedia</i> sp.	data deficient
<i>Discaria toumatou</i>	at risk; declining
<i>Gentianella calcis</i> subsp. <i>taiko</i>	threatened; nationally critical
<i>Geranium microphyllum</i>	at risk; naturally uncommon
<i>Geranium socolateum</i>	threatened; nationally critical
<i>Gingidia enysii</i>	threatened; nationally endangered
<i>Senecio</i> aff. <i>glaucophyllus</i> “Mt Cass”	data deficient

The most important habitats for threatened plant species at this site are the large limestone boulders that lie on the slopes below the main limestone bluffs.

Condition and Management

Indigenous vegetation at this SNA is confined to small pockets and patches on the exposed limestone, and to scattered native broom and ti/cabbage tree on adjacent slopes. At all sites, native plants face strong competition from naturalised (exotic) species, notably grasses such as Chewings fescue, and herbs such as mouse-ear hawkweed, suckling clover and narrow-leaved plantain. Vegetation adjacent to the limestone is affected by grazing, trampling and increased fertility from animal faeces. Vegetation on the rock but within reach of farm animals is affected by browsing.

Despite these threats, there is sufficient habitat to support a good range of limestone plants and good populations of some of the most threatened species. Furthermore, grazing pressure on the slopes beneath the limestone bluffs is sufficiently light to allow the relatively palatable native broom to persist.

Other important threats to indigenous biodiversity at the site are the spread (or colonisation) of other plant pests such as boxthorn, which is already present, and stonecrop (*Sedum acre*) which is present elsewhere on South Canterbury limestone. The most important management issues at

the site are to avoid intensive grazing, avoid grazing by deer or cattle, remove the single boxthorn and elderberry trees, control of feral animals (such as possums), and monitor the populations of threatened plants, especially the limestone gentian.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that is typical/characteristic of the natural diversity of limestone substrates in this part 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 habitat for several 'at risk' and 'threatened' species, including three species listed as 'nationally critical'.
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. Indigenous vegetation within this Land Environment has been substantially depleted from its former extent. The site provides likely habitat for southern grass skink (an 'at risk' species). It supports good populations of three 'at risk' plant species, four 'threatened' plant species (including three 'nationally critical' species) and three 'data deficient' species. It is part of a more extensive limestone scarp system, which is regionally important for its threatened species populations.



Limestone gentian (upper) and Colobanthus (lower).



Geranium socolatum



Gingidia enysii



Senecio aff. glaucophyllus



Craspedia sp.

Area Name: Anderson Wetland 1	Property: RM and HM Anderson
Ecological District: Waimate	Nearest Locality: Taiko Flat
Central Map Reference: (NZTM): 1441120E-5090640N	Size: 1.71 ha
Surveyor: Mike Harding	Survey Time: 1 hour Survey Date: 22-01-2020

General Description:

This SNA lies on the lower slopes of a prominent limestone ridge on the east side of the upper Taiko Stream. It covers gently-sloping terrain at the base of the ridge adjacent to where a small spring emerges from the limestone slopes above. Those slopes comprise 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). The site has poorly-drained soils and supports a palustrine swamp, as defined by Johnson and Gerbeaux (2004). It lies at an altitude of approximately 220m.

Plant Communities:

The wetland system within this SNA comprises three areas of sedgeland/rushland separated by rough grassland. Each of these areas is described below. Naturalized (exotic) species are indicated with an asterisk*.

Northern sedgeland:

This area is dominated by a sedge (*Carex geminata*) and bog rush (*Schoenus pauciflorus*), with rautahi (*Carex secta*) and occasional emergent mingimingi (*Coprosma propinqua*). Other species commonly present are cocksfoot* (*Dactylis glomerata*), Yorkshire fog* (*Holcus lanatus*) and creeping buttercup* (*Ranunculus repens*). Less commonly present are Californian thistle* (*Cirsium arvense*) and Scotch thistle* (*Cirsium vulgare*).



Northern wetland.

Central sedgeland:

This central wet area is dominated by bog rush. Other species commonly present are *Carex sinclairii*, *Carex geminata*, creeping buttercup*, arrow grass (*Triglochin striata*), Yorkshire fog*, jointed rush* (*Juncus articulatus*), pennywort (*Hydrocotyle novae-zealandiae*) and occasional emergent mingimingi.

Southern sedgeland:

The southern wetland area is the most extensive. It is dominated by bog rush, *Carex sinclairii* and Yorkshire fog*. Other species present are mingimingi, water forget-me-not* (*Myosotis laxa* subsp. *caespitosa*), jointed rush*, arrow grass, white clover* (*Trifolium repens*), pennywort, monkey musk* (*Mimulus moschata*), *Epilobium insulare*, a native buttercup (*Ranunculus glabrifolius*), *Celmisia gracilenta*, *Dichondra brevifolia*, *Cardamine debilis* agg., a willowherb (*Epilobium* sp.), creeping buttercup*, hawkbit* (*Leontodon taraxacoides*), cocksfoot* and occasional Scotch thistle* and young ti/cabbage tree (*Cordyline australis*). Crack willow* (*Salix fragilis*) trees are present at the southern end of the wetland.



Southern wetland (distance); Central wetland (middle) with rough pasture between.

Grassland:

Areas between the three sedgeland/rushland plant communities are dominated by pasture grasses, notably Yorkshire fog* and Chewings fescue (*Festuca rubra*). Other species present are creeping buttercup*, jointed rush*, Californian thistle* white clover*, dock* (*Rumex obtusifolius*) and scattered plants of *Carex sinclairii* and bog rush.

Birds/Fauna Observed:

The only native bird species observed at or adjacent to the site during this brief survey were spur-winged plover (*Vanellus miles*) and Australasian harrier (*Circus approximans*).

Notable Flora, Fauna and Habitats:

The site lies within a Land Environment (N3.3a) within which indigenous vegetation is depleted to less than 10% of its former extent nationally (Cieraad *et al*, 2015). Wetlands are a national priority for protection of biodiversity on private land (MfE & DOC, 2007).

Condition and Management

Indigenous vegetation and habitat at this site are in moderate condition. All parts are grazed and some parts clearly affected by cattle trampling. Exotic species such as Yorkshire fog and jointed rush are locally common. However, indigenous species are dominant at the three main patches of sedgeland and shrubs of mingimingi are common. The adjacent stream channel appears to have been excavated in the past, though this does not appear to have significantly altered the hydrology (drainage) of the wetland. The most important management issues at the site are removal of grazing (especially cattle), removal of crack willow trees and control of any other woody weeds.

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. An ecosystem (wetland) that is a national priority for protection of biodiversity on private land
Diversity and Pattern	Yes	A relatively high diversity of indigenous species for a wetland in this part of the ecological district.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports indigenous vegetation in a wetland, which is a naturally uncommon and nationally-depleted ecosystem. Parts of the wetland support a relatively diverse range of indigenous plant species. The wetland is threatened by grazing and by invasion of exotic woody plants, such as crack willow. It one of the best examples of a palustrine swamp that I am aware of in this part of the district.



Southern sedgeland.



Arrow grass (Triglochin striata)

Area Name: Anderson Wetland 2	Property: RM and HM Anderson
Ecological District: Waimate	Nearest Locality: Taiko Flat
Central Map Reference: (NZTM): 1441110E-5090240N	Size: 1.49 ha
Surveyor: Mike Harding	Survey Time: 10 minutes Survey Date: 22-01-2020

General Description:

This SNA lies on the valley floor at the base of a prominent limestone ridge (SNA 847) and down-valley from a wetland (palustrine swamp) on the lower valley side (SNA 848). The valley-floor comprises sediment (silt and gravel) on the floodplain of Taiko Stream. The site is low-lying and supports a palustrine marsh, as defined by Johnson and Gerbeaux (2004). It lies at an altitude of approximately 80m.

Plant Communities:

This site was not closely surveyed, but viewed briefly from the margin. Most parts of the wetland support a sedgeland plant community dominated by *Carex coriacea*. Other plant species observed were *Juncus edgariae*, soft rush* (*Juncus effusus*), *Stellaria graminea** and Yorkshire fog* (*Holcus lanatus*).



Sedgeland, dominated by Carex coriacea, at SNA 849.

Notable Flora, Fauna and Habitats:

The site lies within a Land Environment (N3.3a) within which indigenous vegetation is depleted to less than 10% of its former extent nationally (Cieraad *et al*, 2015). Wetlands are a national priority for protection of biodiversity on private land (MfE & DOC, 2007).

Condition and Management

Indigenous vegetation and habitat at this site are in moderate to poor condition. All parts are grazed and probably affected by cattle trampling. Exotic species are present but an indigenous species (*Carex coriacea*) is dominant. The extent of the sedgeland plant community may be influenced by grazing pressure. Insufficient time was spent at the site to investigate other condition and management issues.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that is typical/characteristic of the natural diversity of valley-floor wetlands in this part of the ecological district.
Rarity/Distinctiveness	Yes	Indigenous vegetation that has been reduced to less than 20% of its former extent. An ecosystem (wetland) that is a national priority for protection of biodiversity on private land
Diversity and Pattern	No	A low diversity of indigenous species appears to be present, though further survey is required to confirm this.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports indigenous vegetation in a wetland, which is a naturally uncommon and nationally-depleted ecosystem. The wetland is affected by grazing and its extent may be influenced by grazing pressure. Ideally, this site should have been surveyed more closely. However, the attributes described above are sufficient to confirm its significance.

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