TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

GRIEVE PROPERTY MOUNT GAY

Report prepared for Timaru District Council by Mike Harding
June 2015

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: .....David and Aileen Grieve
Valuation Reference: ...24810/006.00
Address: .....Mount Gay Road
Location: .....Southeast slopes of Mt Gay, Opihi valley
Ecological District: .....Geraldine
TDC Land Type:.....'Soft Rock Hills and Downs'
Land Environments:.....N3.1a; N3.1d; Q2.2a

ECOLOGICAL CONTEXT:

The property lies on the upper southeast slopes of Mt Gay, between Raincliff and Totara Valley. It is in Geraldine Ecological District (McEwen, 1987). Limestone scarps on the property lie within the Q2.2a Level IV Land Environment as defined by Leathwick *et al* (2003). Other parts lie within the N3.1b and N3.1d land environments. Indigenous vegetation within these land environments is regarded as acutely-threatened or chronically under-protected (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 patches of forest, scattered trees (treeland), shrubland, herbfield and sparsely vegetated rockland associated with limestone bluffs. These habitats support populations of three 'at risk' (naturally uncommon) plant species, as listed by de Lange *et al* (2012), and several uncommon and yet to be described species restricted to limestone. The property lies near to areas of indigenous 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.

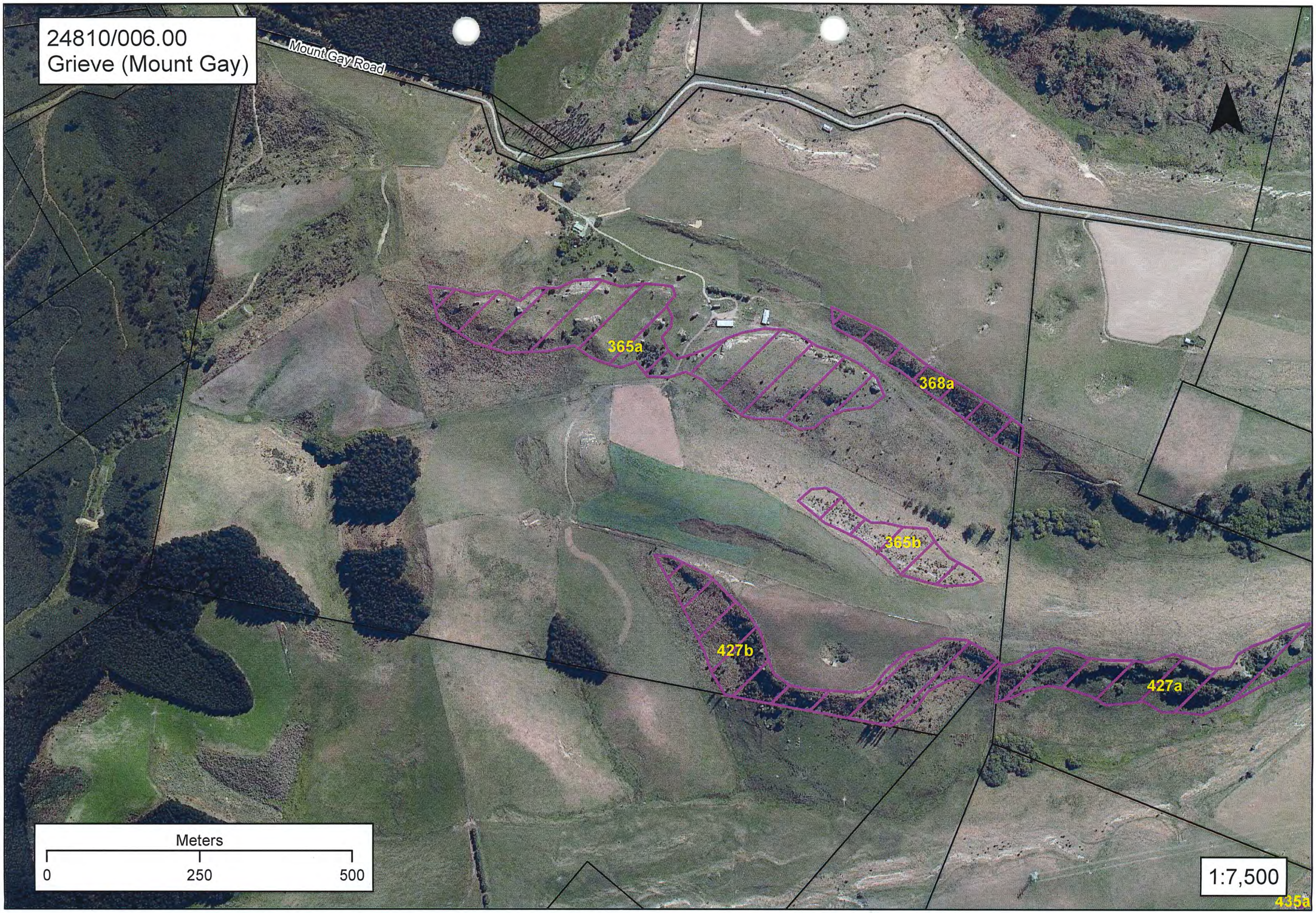
The property was surveyed as part of the District-wide survey of Significant Natural Areas during March 2015. Four areas, comprising approximately 14 hectares, are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below.

Area No.	Area Name	Map reference (NZTM)	Aprox. size (ha)	Vegetation/habitat type
365a		1437115E-5104785N	7.6	shrubland; herbfield; rockland
365b		1437485E5104476N	1.6	shrubland; rockland
368a		1437544E-5104733N	1.5	shrubland; herbfield
427b		1437388E-5104305N	4.2	forest; herbfield; rockland

The boundaries of these SNAs are illustrated on the aerial photograph and the values described on the SNA Forms in this report. Note that the boundaries of the SNAs are indicative, rather than precise. These areas meet the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19) and are considered to be sustainable in the long term, or sustainable with appropriate management (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed in the District Plan (pages B19-B20). It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat which meet the Interim Definitions in the District Plan. Clearance includes burning, track construction, spraying with herbicides and over-planting.

To assist with the protection and management of any SNA, landowners can apply to Council for financial assistance. Any questions regarding the protection, management and use of SNAs should be directed to the District Planner.


24810/006.00
Grieve (Mount Gay)
Mount Gay Road
N
365a
368a
365b
427b
427a
435a
Meters
0
250
500
1:7,500

TIMARU DISTRICT SNA SURVEY SNA 365a

Area Name: Mount Gay
Ecological District: Geraldine
Central map ref. (NZTM): 1437115E-5104785N
Surveyors: Mike Harding

Property: Mount Gay (Grieve)
Nearest Locality: Totara Valley
Area Size (ha): 7.6 **Altitude (m):** 280-320
Survey Time: 3 hours **Survey Date:** 12-03-15

General Description:

This SNA comprises the limestone outcrops just east of Mount Gay summit. It includes several separate areas of exposed limestone and areas of open grassland between those outcrops, although significant indigenous vegetation is generally confined to the outcrops and the area of lowland ribbonwood treeland.

Plant Communities:

Indigenous vegetation on or associated with the exposed limestone comprises small patches of trees, shrubland, herbfield/grassland and sparsely vegetated rock. This vegetation is described below. Naturalized (exotic) species are indicated with an asterisk*. Scientific names of species referred to by common name are listed at the end of this report.

Woody species commonly present on or associated with the limestone are broadleaf, mahoe, cabbage tree, mingimingi, native broom, barberry*, elderberry* and the climbers, pohuehue and native bindweed.

Other species present on limestone or on soils associated with the limestone are silver tussock, blue tussock, Chewings fescue*, cocksfoot*, toatoa, *Geranium* aff *brevicaule*, cardamine, *Einadia allanii*, *Epilobium nummularifolium*, *Gingidia enysii*, *Colobanthus* aff. *strictus*, *Colobanthus apetalus*, *Oxalis exilis*, *Stellaria gracilenta*, pennywort, *Hydrocotyle heteromeria*, narrow-leaved plantain*, mouse-ear hawkweed*, stonecrop*, white clover*, suckling clover*, sandwort*, hawksbeard*, cranesbill*, purging flax*, dwarf mallow*, black medick*, hairy nightshade*, black nightshade*, horehound*, Californian thistle*, nodding thistle*, woolly mullein*, sow thistle*, *Carex breviculmis*, *Asplenium lyallii* and hound's tongue fern.

Less commonly present are tutu, leafless lawyer, Himalayan honeysuckle*, gooseberry*, *Senecio quadridentatus* and burdock*. Additional species on south-facing slopes are woollyhead (*Craspedia* sp.), *Geranium microphyllum* and *Parietaria debilis*. Shrubland on adjacent slopes is dominated by matagouri, mingimingi and native broom, with silver tussock and pasture. Mistletoe is present on mingimingi.

An impressive stand of lowland ribbonwood trees is present at the centre of the site, between the two main areas of outcropping limestone. It comprises approximately 50 trees, all of which appear relatively old. Trunk diameters (at breast height) of most of the trees range between 25 and 65cm.

The stand of lowland ribbonwood at the centre of SNA 365a

Birds/Fauna Observed:

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

Notable Flora, Fauna and Habitats:

Important features of this area are: the presence of indigenous vegetation on limestone, a 'naturally uncommon' ecosystem listed as 'nationally vulnerable' (Holdaway *et al*, 2012); the presence of three 'at risk' (naturally uncommon) plant species (*Einadia allanii*, *Geranium microphyllum* and *Gingidia enysii*), four un-described limestone species (*Cardamine* sp., *Colobanthus* aff. *strictus*, *Craspedia* sp. and *Geranium* aff. *brevicaule*); the presence of a large stand of lowland ribbonwood (a locally-uncommon species); and the habitat the area provides for native birds.

Notable Plant and Animal Pests:

The most important plant pests on the limestone are barberry, elderberry, Chewings fescue, cocksfoot and exotic herbs such as narrow-leaved plantain, mouse-ear hawkweed and stonecrop. Animal pests were not surveyed.

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

The boundary of this site has been drawn to include the main areas of limestone and the stand of lowland ribbonwood. This includes areas of open pasture, which are not significant and would not be affected by rules about clearance of indigenous vegetation. It is a moderate-sized site, with most areas of indigenous vegetation buffered by their location on the limestone outcrops. It lies near to other areas of indigenous vegetation on limestone and is part of a network of bird habitat in the wider area.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M/H**	A typical example of indigenous vegetation on limestone that is representative of the ecological district.
Rarity	**H**	Limestone ecosystems are naturally uncommon; the site supports three 'at risk' and four un-described limestone plant species.
Diversity and pattern	**M/H**	A relatively high number of indigenous vascular plant species is present (34). The presence of adjacent shrubland and lowland ribbonwood treeland contributes to the diversity of the site.
Distinctiveness/special features	**M/H**	The lowland ribbonwood treeland is notable feature: this plant community has not been observed elsewhere in this part of the District.
Other Criteria		
Size/shape	**M/H**	A moderate-sized area that is buffered to some extent by its shape and the outcropping limestone.
Connectivity	**M**	Lies close to other areas of indigenous vegetation on limestone.
Long-term Sustainability	**M/H**	Control of invasive plant pests may be necessary to maintain the ecological values of the area in the long term.

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

The parts of this area which support indigenous vegetation have been set aside from development by the landowner. Most of these areas are on limestone outcrops or steep slopes that are unsuitable for development.

Discussion:

This site is a good example of indigenous vegetation on limestone and is typical of that remaining in this part of the ecological district. It has relatively high plant species diversity and supports a number of at risk or rare limestone plants. The stand of lowland ribbonwood trees is unusual and has not been observed elsewhere in this part of Timaru District.

the 'at risk' sub-shrub, Eianadia allanii

TIMARU DISTRICT SNA SURVEY

SNA 365b

Area Name:
Ecological District: Geraldine
Central map ref. (NZTM): 1437485E-5104476N
Surveyors: Mike Harding

Property: Mount Gay (Grieve)
Nearest Locality: Totara Valley
Area Size (ha): 1.6 **Altitude (m):** 250-270
Survey Time: 1 hour **Survey Date:** 12-03-15

General Description:

This SNA lies on a gently-sloping north-facing limestone scarp. It has an area of exposed rock and shrubland on the slopes below the scarp. It lies close to other areas of indigenous vegetation on limestone.

Plant Communities:

Shrubland and sparsely-vegetated rockland are present at the site. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

Scattered patches of shrubland occupy the slopes below the scarp. The shrubland is dominated by mingimingi with pasture grasses and thistles between. Other woody species present are matagouri, cabbage tree, elderberry*, barberry*, gorse* (mostly sprayed), mistletoe (on mingimingi), pohuehue and leafless lawyer.

The limestone scarp is sparsely vegetated. Species present are mingimingi, native broom, blue tussock, *Gingidia enysii*, *Geranium* aff. *brevicaule*, *Dichondra repens*, *Asplenium hyallii*, Chewings fescue*, cocksfoot*, horehound*, mouse-ear hawkweed*, yarrow*, narrow-leaved plantain* and woolly mullein*.

SNA 365b

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler, bellbird and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are: the presence of indigenous vegetation on limestone, a 'naturally uncommon' ecosystem listed as 'nationally vulnerable' (Holdaway *et al*, 2012); and the presence of one 'at risk' (naturally uncommon) plant species (*Gingidia enysii*) and one un-described limestone species (*Geranium* aff. *brevicaule*). It is a relatively rare example of native shrubland on a sunny (dry) slope in this part of the District.

Notable Plant and Animal Pests:

Elderberry, barberry and gorse are present, all of which pose some threat to the shrubland and rockland communities. Gorse has been sprayed at the site. Exotic grasses (notably Chewings fescue and cocksfoot) and herbs pose a threat to the rockland plant community. Animal pests were not surveyed.

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

This small area of indigenous vegetation is buffered by its location on steep slopes. It is fenced near the scarp crest, though is grazed as part of a larger paddock. It lies close to other areas of indigenous vegetation on limestone.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M**	Moderately representative indigenous vegetation typical of that remaining in this part of the ecological district.
Rarity	**M/H**	Indigenous vegetation on limestone is a naturally uncommon ecosystem. The site supports a good population of an 'at risk' plant.
Diversity and pattern	**L**	Indigenous species diversity is low.
Distinctiveness/special features	**M**	An uncommon example of indigenous vegetation on a dry slope.
Other Criteria		
Size/shape	**L/M**	A small area that is reasonably well buffered but narrow in shape.
Connectivity	**M**	Lies close to other areas of indigenous vegetation on limestone.
Long-term Sustainability	**M**	Some plant pest control may be necessary to maintain ecological values in the long term.

Property Owner Comment:

Mr Grieve is concerned about any restrictions on his ability to undertake weed control at the site.

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

This area lies on a limestone scarp and moderately steep slopes that have limited potential for farm development.

Discussion:

This area only just meets the District Plan criteria for a SNA. Notable features are the presence of indigenous vegetation on limestone, including an 'at risk' species (*Gingidia enysii*).

Gingidia enysii at SNA 365b

TIMARU DISTRICT SNA SURVEY SNA 368a

Area Name:
Ecological District: Geraldine
Central map ref. (NZTM): 1437544E-5104733N
Surveyors: Mike Harding

Property: Mount Gay (Grieve)
Nearest Locality: Totara Valley
Area Size (ha): 1.5 **Altitude (m):** 260-280
Survey Time: 1 hour **Survey Date:** 12-03-15

General Description:

This SNA lies on moderately-steep south-facing slopes near the eastern property boundary. It is a limestone scarp face, though has only small areas of exposed rock.

Plant Communities:

This SNA supports shrubland and herbfield on limestone soils. These plant communities are described below. Naturalized species are indicated with an asterisk*.

The shrubland is dominated by mingimingi and matagouri. Other woody species present are native broom, cabbage tree, elderberry* and mistletoe (on mingimingi). The ground cover is dominated by pasture grasses and Californian thistle*, except on or adjacent to exposed limestone where a number of native herbs are present, including *Lagenifera pumila*, *Colobanthus* aff. *strictus*, *Colobanthus apetalus*, *Epilobium nummularifolium*, *Geranium* aff. *brevicaule*, *Craspedia* sp., *Carex breviculmis*, and necklace fern.

Additional species present on areas of exposed rock are mahoe, *Blechnum chambersii*, maidenhair fern, *Asplenium lyallii*, *Dichondra repens*, *Stellaria gracilenta*, pohuehue and native bindweed.

Shrubland at SNA 368a

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of indigenous vegetation on limestone, a 'naturally uncommon' ecosystem listed as 'nationally vulnerable' (Holdaway *et al*, 2012) and the presence of three un-described limestone species (*Colobanthus* aff. *strictus*, *Craspedia* sp. and *Geranium* aff. *brevicaule*).

Notable Plant and Animal Pests:

Elderberry is the only woody plant pest present. This species does not pose a significant threat to the limestone plant communities at this site. Animal pests were not surveyed.

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

This narrow area is buffered by its location on moderately-steep south-facing slopes. It lies close to other areas of indigenous vegetation on limestone.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M**	A moderately representative plant community with species typical of steep scarp slopes in this part of the ecological district.
Rarity	**M/H**	Limestone ecosystems are naturally uncommon; supports good populations of three undescribed limestone plant species.
Diversity and pattern Distinctiveness/special features	**L/M**	Plant species diversity is relatively low.
Other Criteria		
Size/shape	**L/M**	A small area that is reasonably well buffered, but is long and narrow.
Connectivity	**M**	Lies close to other areas of indigenous vegetation on limestone.
Long-term Sustainability	**M**	The special limestone plants at this site are likely to persist under the existing management and grazing.

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

The steepness of the slope and presence of exposed rock limit the potential of this area for further development.

Discussion:

This area only just meets the District Plan criteria for an SNA. The presence of indigenous vegetation on limestone including rare limestone plant species is its main value. These values should persist under controlled sheep grazing, though may be threatened by cattle grazing.

The rare un-described limestone woollyhead (Craspedia sp.)

TIMARU DISTRICT SNA SURVEY SNA 427b

Area Name:
Ecological District: Geraldine
Central map ref. (NZTM): 1437388E-5104305N
Surveyors: Mike Harding

Property: Mount Gay (Grieve)
Nearest Locality: Totara Valley
Area Size (ha): 4.2 **Altitude (m):** 220-260
Survey Time: 2 hours **Survey Date:** 12-03-15

General Description:

This SNA lies on a large limestone scarp and the adjacent steep south-facing slopes at the southern boundary of the property. The limestone scarp extends onto the adjoining property (SNA 427a).

Plant Communities:

Plant communities present at this site are shrubland, forest patches, herbfield/grassland on steep slopes and sparsely vegetated rockland. These communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

Shrubland with some emergent trees is present on the steep slope below the scarp. It is dominated by mingimingi. Other woody species present are cabbage tree, matagouri, native broom, mistletoe (on mingimingi), leafless lawyer and pohuehue. Between the shrubland is grassland dominated by pasture grasses and in places Californian thistle* and silver tussock. Occasionally present (mostly at the east end) are gorse*, gooseberry* bracken, male fern* and blackberry*.

Forest patches are dominated by broadleaf. Other species present are cabbage tree, mahoe and pohuehue, The forest understorey is open. Species present are bittersweet*, hemlock*, native bindweed, *Libertia ixioides*, necklace fern and seedlings of broadleaf.

Steep slopes near the exposed limestone support a grassland/herbfield with a number of indigenous species, including woollyhead (*Craspedia* sp.), *Epilobium nummularifolium*, *Geranium* aff. *brevicaule*, *Geranium microphyllum*, *Dichondra repens*, *Lagenifera petiolata*, *Plantago lanceolata*, pennywort, *Carex breviculmis*, *Schizeilema trifoliolatum* and *Hydrocotyle moshata*.

The west end of SNA 427b

Species present on the scarp are broadleaf, mahoe, elderberry*, mountain akeake, mingimingi, native broom, native bindweed, *Poa* sp., *Asplenium lyallii*, *Blechnum chambersii*, maidenhair fern, woollyhead (*Craspedia* sp.), *Colobanthus* aff. *strictus*, *Colobanthus apetalus*, blue wheat grass, purging flax*, clover species*, narrow-leaved plantain*, mouse-ear hawkweed*, stonecrop*, yarrow*, Chewings fescue* and cocksfoot*.

Birds/Fauna Observed:
Native birds observed during this survey were bellbird, grey warbler, fantail, silvereye and harrier.

Notable Flora, Fauna and Habitats:
Important features of this area are: the presence of indigenous vegetation on limestone, a 'naturally uncommon' ecosystem listed as 'nationally vulnerable' (Holdaway *et al*, 2012); the presence of one 'at risk' (naturally uncommon) plant species (*Geranium microphyllum*), three un-described limestone species (*Colobanthus* aff. *strictus*, *Craspedia* sp. and *Geranium* aff. *brevicaule*); and the habitat the area provides for native birds.

Notable Plant and Animal Pests:
Elderberry, gorse, gooseberry and blackberry are the most important plant pests present in the shrubland, though none are common. Gorse has been recently sprayed at the site. Naturalized pasture grasses, notably Chewings fescue and cocksfoot, are the most important weeds on the limestone scarp. Animal pests were not surveyed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The scarp crest is fenced and the whole site lies within a larger paddock which does not appear to be intensively grazed. Plant communities are buffered to some extent by their location on the scarp and steep slopes. The central part of the scarp is protected from grazing by thick vegetation and the boundary fence.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M/H**	A good example of representative indigenous vegetation on limestone, typical of that remaining on larger scarps in this part of the District.
Rarity	**M/H**	Indigenous vegetation on limestone is a naturally uncommon ecosystem; supports one 'at risk' and three rare limestone plant species.
Diversity and pattern	**M/H**	Relatively high plant species diversity.
Distinctiveness/special features	**M**	The lack of grazing pressure and healthy shrubland/forest vegetation at the centre of the site are notable.
Other Criteria		
Size/shape	**M/H**	A moderate-sized site that is well buffered.
Connectivity	**M**	Lies close to other indigenous vegetation on limestone.
Long-term Sustainability	**M/H**	Some plant pest control may be required to protect ecological values in the long term.

Property Owner Comment:
Mr Grieve is concerned about any restrictions on his ability to undertake weed control at the site.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
This site lies on a high limestone scarp and the steep slopes below the scarp. It has very limited potential for farm development.

Discussion:
This area easily meets the District Plan criteria for a SNA. Important features are the presence of healthy indigenous plant communities on limestone, good populations of at risk and rare plant species and the habitat it provides for native birds.

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 (* = naturalised species)	Scientific name
barberry*	*Berberis glaucocarpa*
bittersweet*	*Solanum dulcamara*
blackberry*	*Rubus fruticosus*
black medick*	*Medicago lupulina*
black nightshade*	*Solanum nigrum*
blue tussock	*Poa colensoi*
blue wheat grass	*Elymus solandri*
bracken	*Pteridium esculentum*
broadleaf	*Griselinia littoralis*
burdock*	*Arctium minus*
cabbage tree/ti rakau	*Cordyline australis*
Californian thistle*	*Cirsium arvense*
cardamine	*Cardamine debilis*
Chewings fescue*	*Festuca rubra* ssp. *commutata*
cocksfoot*	*Dactylis glomerata*
cranesbill*	*Geranium pusillum*
dwarf mallow*	*Malva neglecta*
elderberry*	*Sambucus nigra*
gooseberry*	*Ribes uva-crispa*
gorse*	*Ulex europaeus*
hairy nightshade*	*Solanum physalifolium*
hawksbeard*	*Crepis capillaris*
hemlock*	*Conium maculatum*
Himalayan honeysuckle*	*Leycesteria formosa*
horehound*	*Marrubium vulgare*
hound's tongue fern	*Microsorum pustulatum*
kowhai	*Sophora microphylla*
leafless lawyer	*Rubus squarrosus*
lowland ribbonwood	*Plagianthus regius*
mahoe/whiteywood	*Melicytus ramiflorus*
maidenhair fern	*Adiantum cunninghamii*
male fern*	*Dryopteris filix-mas*
matagouri	*Discaria toumatou*
matai/black pine	*Prumnopitys taxifolia*
mingimingi	*Coprosma propinqua*
mistletoe	*Ileostylis micranthus*
mouse-ear hawkweed*	*Pilosella officinarum*
narrow-leaved plantain*	*Plantago lanceolata*
native bindweed	*Calystegia tuguriorum*
native broom	*Carmichaelia* aff. *australis*
necklace fern	*Asplenium flabellifolium*
nodding thistle*	*Carduus nutans*
pennywort	*Hydrocotyle novae-zelandiae*
pohuehue	*Muehlenbeckia australis*
purging flax*	*Linum catharticum*
sandwort*	*Arenaria serpyllifolia*
silver tussock	*Poa cita*
sow thistle*	*Sonchus oleraceus*
stonecrop*	*Sedum acre*
suckling clover*	*Trifolium dubium*
toatoa	*Haloragis erecta*
totara	*Podocarpus totara*

tutu	*Coriaria sarmentosa*
white clover*	*Trifolium repens*
woollyhead	*Craspedia* sp.
woolly mullein*	*Verbascum thapsus*
yarrow*	*Achillea millefolium*

Geranium aff. brevicaule: an un-described limestone species

References Cited

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