



# **TIMARU DISTRICT**

121982

## **SIGNIFICANT NATURAL AREAS SURVEY**

### **PIT ROAD (TIMARU DISTRICT COUNCIL)**



**Report prepared for the Timaru District Council by Mike Harding  
March 2011**

# TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

## PROPERTY REPORT

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### PROPERTY DETAILS:

**Owner:** ..... Timaru District Council  
**Valuation Reference:** ..... n/a  
**Address:** ..... PO Box 522, Timaru 7940.  
**Location:** ..... On the south side of Pit Road, near Coopers Creek.  
**Ecological District:** ..... Low Plains/Geraldine  
**TDC Land Type:** ..... Plains  
**Land Environment:** ..... At boundary of L1 (southern lowlands) and N2 (eastern South Island plains).

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### ECOLOGICAL CONTEXT:

The property lies at the boundary of the Low Plains and Geraldine ecological districts on a recent alluvial surface (low terrace) of the Orari River and/or Rangitata River floodplain. The original vegetation of this area would probably have been kanuka-kowhai forest/treeland or matagouri shrubland on stable alluvial surfaces and grassland-herbfield-mossfield on very recent surfaces. The indigenous fauna would have been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area.

Indigenous vegetation at this site comprises areas of grassland and mossfield/stonefield. Grassland plant communities at the site have a high component of naturalized (exotic) plant species; mossfield-stonefield communities have a higher indigenous component. A large part of the site has been planted with pine trees, which are now 7-8 years old. However, the site does not appear to have been cultivated or subjected to intensive grazing. The site therefore represents a rare example of a lowland alluvial surface at which indigenous grasses, herbs and mosses have been able to survive or recolonize. The site supports the largest known population of *Muehlenbeckia ephedroides* in this part of the ecological district.

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### SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas in January 2011. The survey was prompted by a request from Timaru District Council (Gary Foster) to provide information to accompany a proposal to create a lizard reserve at the site (including the excavated gravel pit). One large area (SNA 114), that includes almost all the un-excavated parts of the site, is regarded as significant when assessed against the District Plan criteria. The parts of the area that have not been planted in pines, or where pines are smaller, are more significant than areas of taller pines.

This SNA is illustrated on the attached aerial photograph and described in greater detail in this report. This SNA meets the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19), though will require conservation management (including removal of pine trees) to maintain its ecological values in the long term (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed under Final Considerations (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, spraying with herbicides and over-planting. SNAs encompass most, but not necessarily all, areas of vegetation and habitat which meet the Interim Definitions.

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.



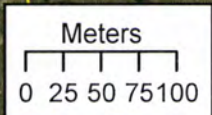
*The single plant of Coprosma acerosa (or C. brunnea) at the reserve*



# Pit Road Reserve



1:5,000



<b>Area Name:</b> Pit Road	<b>Property:</b> Timaru District Council
<b>Location (central map reference):</b> K37: 723-858	<b>Nearest Locality:</b> Coopers Creek
<b>Ecological District:</b> Low Plains	<b>Area Size (ha):</b> 10.7 <b>Altitude (m):</b> 170
<b>Surveyors:</b> Mike Harding and Nick Head (part of survey)	<b>Survey Time:</b> 3½ hours <b>Survey Dates:</b> 17-01-11 19-01-11

### General Description:

This SNA lies on a remnant (uncultivated) terrace surface adjacent to Coopers Creek, on the south side of Pit Road. The SNA comprises most un-excavated parts of a larger block (c.23 ha) of Council-owned land; the remainder of the block is a pit formed by the extraction of gravel. A substantial part of the un-excavated terrace surface is planted with 7-8 year-old pine trees.

### Plant Communities:

Four main plant communities are present. These plant communities are described separately below, though they inter-grade with one another. Naturalized (exotic) species are indicated with an asterisk\*.

#### Grassland:

Grassland is the most extensive plant community and dominates sites with deeper soils. It grades to mossfield/stonefield and supports some species typical of that community. Pines have been planted over most of the grassland, though grassland remains (for the time) dominant between the rows of young pine trees.



Typical grassland sward, with *Elymus solandri* (centre).

The grassland community is dominated by Chewings fescue\*, sweet vernal\*, browntop\* and *Rytidosperma clavatum*. Other grasses present are *Rytidosperma merum*, *Elymus solandri* and occasional swards of cocksfoot\* and tall oat grass\*. Scattered through most parts of this grassland community are moss and creeping pohuehue (*Muehlenbeckia axillaris*). Patchily distributed throughout is the 'at risk' (declining) low-shrub, *Muehlenbeckia ephedroides*.

Other grassland species present and patchily distributed in this community are catsear\*, narrow-leaved plantain\*, sheep's sorrel\*, stonecrop\*, yarrow\*, mouse-ear hawkweed\*, white clover\*, viper's bugloss\*, woolly mullein\* and Australian sheep's bur\*. Native species present are patotara, wire moss, woolly moss and lichens, including *Chondropsis semiviridis*. Rarely present are *Geranium sessiliflorum* var. *novaezelandiae* and *Coprosma atropurpurea*. Four plants of fescue tussock are present within the pine trees at the southwest part of the reserve, in the vicinity of NZMS 260: 2372103E-5685607N. Additional fescue tussock plants are present at the eastern edge of the reserve.

Scattered plants and clumps of broom\* are present throughout. Occasionally present are gorse\* and prickly Moses\*. Low bushes of matagouri are present at the southwest part of the reserve and occasionally elsewhere. One plant that closely resembles the 'at risk' (declining) shrub *Coprosma acerosa* is present beside the northern edge of the planted pines at the eastern boundary of the reserve (NZMS 260: 2372437E-5685480N; indicated by the blue dot on Figure 2). Planted trees of macrocarpa\*, cedar\* and Cootamundra wattle\* are present at the reserve boundary. Elder\*, male fern\* and (interestingly) prickly shield fern and necklace fern are present in the shelter of an open shed near the reserve entrance.

#### Mossfield/stonefield:

This community is present at stony free-draining sites on the un-excavated terrace. It is best represented between the planted pines and the pit edge, along the northwest (Pit Road) boundary of the reserve and at the southeast corner of the reserve. This community is also present at locations throughout the planted pines, though is more affected there by naturalized grasses.



*Mossfield/stonefield*

This low-stature community is dominated by moss (including woolly moss) and creeping pohuehue. Other widespread and common species are *Muehlenbeckia ephedroides*, patotara, wire moss, *Carex breviculmis* and *Chondropsis semiviridis*. Scattered through this community, at varying densities, are grasses: browntop\*, sweet vernal\*, Chewings fescue\*, *Rytidosperma clavatum*, *Rytidosperma merum* and *Elymus solandri*.

Occasionally present, and patchily distributed, are the following indigenous species: *Geranium sessiliflorum* var. *novaezelandiae*, *Dichondra repens*, *Coprosma atropurpurea*, *Oxalis exilis* and *Acaena inermis*. A prostrate native broom, *Carmichaelia corrugata*, was observed at two locations.

Other species present depending on disturbance history are tall oat grass\*, cocksfoot\*, silvery hair grass\*, vulpia hair grass\*, mouse-ear hawkweed\*, yarrow\*, viper's bugloss\*, catsear\*, sheep's sorrel\*, narrow-leaved plantain\*, Australian sheep's bur\*, white clover\*, stonecrop\*, haresfoot trefoil\*, St John's wort\* and broom\*.

#### Pit-side grassland/herbfield:

The sides of the excavated pit are in most places loose stones and soil at the angle of repose (c.30°), with small steeper banks at the tops of the slope. Vehicle tracks traverse the pit sides at several locations. Plant communities on the pit sides range from a dense sward of naturalized grasses to open stonefield.



*A large clump of Muehlenbeckia ephedroides at the terrace edge.*

Open stony communities are dominated by moss, mouse-ear hawkweed\* and catsear\*. Other species commonly present are king devil hawkweed\*, tall oat grass\*, Chewings fescue\*, yarrow\*, St John's wort\*, viper's bugloss\*, haresfoot trefoil\*, creeping pohuehue, woolly moss, *Chondropsis semiviridis*, *Muehlenbeckia ephedroides* and creeping pohuehue.

The small banks at the pit edge are frequently dominated by *Muehlenbeckia ephedroides*, creeping pohuehue, patotara and/or moss. Present at some locations are *Coprosma atropurpurea* and *Carex breviculmis*.

At other locations the pit sides are dominated by a dense sward of naturalized grasses, predominantly Chewings fescue\*, tall oat grass\*, cocksfoot\* and browntop\*. Also present here and on piles of rubble are scattered plants of broom\*, hawthorn\*, oak\*, silver wattle\*, gorse\*, tree lupin\*, foxglove\*, oxeye daisy\*, velvety nightshade\*, nodding thistle\* and occasionally young pine\* and Douglas fir\* trees.

Pit-floor stonefield/herbfield:

Most parts of the pit floor are dominated by naturalized grasses. However, the higher southwest part of the pit supports a more intact stonefield/herbfield community that is included within this SNA.

Open parts of this area are dominated by narrow-leaved plantain\*, browntop\* and moss. Other species present are Chewings fescue\*, mouse-ear hawkweed\*, catsear\*, viper's bugloss\*, woolly mullein\*, haresfoot trefoil\*, sheep's sorrel\*, sand spurrey\*, sweet vernal\*, *Lachnagrostis lyallii*, *Elymus solandri*, patotara, moss, wire moss, lichens (including *Chondropsis semiviridis*) and occasionally young browsed broom\* plants.

Denser patches of vegetation on this western pit floor are dominated by creeping pohuehue, *Muehlenbeckia ephedroides*, browntop\*, Chewings fescue\*, mouse-ear hawkweed\* and moss. Also present are *Rytidosperma*, narrow-leaved plantain\*, viper's bugloss\*, Australian sheep's bur\*, yarrow\* and tall oat grass\*.



*Pit-floor plant community, with Muehlenbeckia ephedroides*

Additional indigenous plant species present on boulder piles at the pit margins are *Dichondra repens*, *Oxalis exilis* and *Epilobium microphyllum*.



**Birds/Fauna Observed:**

Native bird species observed at the site were grey warbler, fantail, Australasian harrier and, flying overhead, paradise shelduck and southern black-backed gull. Common skink was observed and the area appears to include favourable lizard habitat.

**Notable Flora, Fauna and Habitats:**

The most important feature of this area is that it is a large terrace surface that appears to have not been cultivated. Pines have been planted on most of this surface but are not yet old enough to have completely displaced the grassland community. The other important feature of the site is that it supports the largest known population in Timaru District of an at-risk (declining) plant species, *Muehlenbeckia ephedroides*.

Also notable is the presence of another at-risk (declining) plant species, *Coprosma acerosa* agg., and a number of locally uncommon indigenous plant species, some of which have not been previously recorded in this part of the District: *Rytidosperma merum*, *Geranium sessiliflorum*, *Coprosma atropurpurea*, *Carmichaelia corrugata* and *Acaena inermis*. More thorough surveys are likely to reveal the presence of other uncommon plants at the site, including orchid species, which were not flowering at the time of this survey.

No attempt was made to survey lizards, as a separate lizard survey is proposed. However, the area (including the excavated pit) appears to provide favourable lizard habitat.

**Notable Plant and Animal Pests:**

Naturalized grasses and herbs are the most dominant plant pests present, especially Chewings fescue and narrow-leaved plantain. There are a number of other woody and non-woody plant species present that pose a threat to the area, the most important of which is probably broom. Woody weeds have been controlled at the site (Gary Foster, *pers.comm.*), notably broom, gorse and hawthorn. Animal pests were not surveyed, though hares were observed.

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

This SNA is very large for a remnant grassland site. It is fenced from adjacent properties and buffered by its size. However, the integrity of most of the site is severely compromised by the presence of planted pine trees.

**Condition and Management Issues:**

The site is in relatively good condition, though imminently threatened. The main threats are the increased dominance of invasive naturalized grasses and the presence of planted pine trees. Priority management actions to protect and maintain indigenous plant communities at the site are removal of the young pine trees and control of naturalized grasses. Controlled periodic grazing by sheep (with monitoring) may be an effective method of containing the naturalized grasses.

**Property Owner Comment:**

A more detailed assessment of ecological values, with recommendations for reserve management, has been prepared for the reserve. Council proposes to manage the reserve as a lizard sanctuary. Reserve management, including monitoring of grassland health, has been discussed with Gary Foster.

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## ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

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Primary Criteria	Rank	Notes
Representativeness	M/H	Parts of the site support good examples of mossfield/stonefield communities representative of the ecological district; other parts of the site support highly modified grassland communities that are less representative.
Rarity	H	Uncultivated terraces are very rare in the ecological district. This site supports the largest known population of an at-risk species ( <i>Muehlenbeckia ephedroides</i> ) in this part of the ecological district. One other at-risk species ( <i>Coprosma acerosa</i> agg.) and several locally-uncommon plant species are present.
Diversity and pattern	M	Two main plant communities are present (grassland and mossfield/stonefield). Both communities have greater species diversity than other sites in the area.
Distinctiveness/special features	M	The area is likely to provide important habitat for lizards.
<b>Other Criteria</b>		
Size/shape	H	A very large site for the ecological district.
Connectivity	L/M	Isolated from other sites, though smaller areas with similar values are present nearby.
Long-term Sustainability	L/M	The indigenous plant communities over much of this site will be almost entirely displaced if the planted pines are permitted to grow to maturity.

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

Historic coincidence appears to have allowed the survival of indigenous plant communities at this site. Council ownership of the land, the cessation of gravel extraction and grazing of that remaining area by sheep (rather than intensive farming) appear to have enabled the indigenous terrace-surface grasslands to survive. Most parts of the site are now threatened by pine trees and probably compromised by lack of grass control.

### Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are that it is a large terrace surface that appears to have not been cultivated and still supports remnant grassland and mossfield/stonefield plant communities. The site supports the largest known population in Timaru District of an at-risk (declining) plant species, *Muehlenbeckia ephedroides*, one other at-risk species (*Coprosma acerosa* agg.) and a number of locally uncommon indigenous plant species, some of which have not been previously recorded in this part of the District (*Rytidosperma merum*, *Geranium sessiliflorum*, *Coprosma atropurpurea*, *Carmichaelia corrugata* and *Acaena inermis*). The area is likely to provide important habitat for lizards.

### Scientific names of species cited by common name in this report

(Note: this is not a complete species list; it is a list only of species cited by common name in this report)

Common Name .....	Scientific name
(* = naturalised species)	
Australian sheep's bur*	<i>Acaena agnipila</i>
broom*	<i>Cytisus scoparius</i>
browntop*	<i>Agrostis capillaris</i>
catsear*	<i>Hypochoeris radicata</i>
cedar*	<i>Cedrus</i> sp.
Chewings fescue*	<i>Festuca rubra</i> ssp. <i>commutata</i>
cocksfoot*	<i>Dactylis glomerata</i>
Cootamundra wattle*	<i>Acacia baileyana</i>
crack willow*	<i>Salix fragilis</i>
creeping pohuehue	<i>Muehlenbeckia axillaris</i>
Douglas fir*	<i>Pseudotsuga menziesii</i>
elder*	<i>Sambucus nigra</i>
fescue tussock	<i>Festuca novae-zelandiae</i>
foxglove*	<i>Digitalis purpurea</i>
gorse*	<i>Ulex europaeus</i>
haresfoot trefoil*	<i>Trifolium arvense</i>
hawthorn*	<i>Crataegus monogyna</i>
kahikatea/white pine	<i>Dacrycarpus dacrydioides</i>
kanuka	<i>Kunzea ericoides</i>
Kentucky bluegrass*	<i>Poa pratensis</i>
king devil hawkweed*	<i>Hieracium praecaltum</i>
kowhai	<i>Sophora microphylla</i>
male fern*	<i>Dryopteris filix-mas</i>
matagouri	<i>Discaria toumatou</i>
matai/black pine	<i>Prumnopitys taxifolia</i>
mouse-ear hawkweed*	<i>Hieracium pilosella</i>
narrow-leaved plantain*	<i>Plantago lanceolata</i>
necklace fern	<i>Asplenium flabellifolium</i>
nodding thistle*	<i>Carduus nutans</i>
oak*	<i>Quercus</i> sp.
oxeye daisy*	<i>Leucanthemum vulgare</i>
patotara	<i>Leucopogon fraseri</i>
pine*	<i>Pinus</i> sp.
prickly shield fern	<i>Polystichum vestitum</i>
sand spurrey*	<i>Spergularia rubra</i>
sheep's sorrel*	<i>Rumex acetosella</i>
silvery hair grass*	<i>Aira caryophyllea</i>
silver wattle*	<i>Acacia dealbata</i>
St John's wort*	<i>Hypericum perforatum</i>
stonecrop*	<i>Sedum acre</i>
sweet vernal*	<i>Anthoxanthum odoratum</i>
tall oat grass*	<i>Arrhenatherum elatius</i>
totara	<i>Podocarpus totara</i>
tree lupin*	<i>Lupinus arboreus</i>
velvety nightshade*	<i>Solanum chenopodioides</i>
viper's bugloss*	<i>Echium vulgare</i>
vulpia hair grass*	<i>Vulpia bromoides</i>
white clover*	<i>Trifolium repens</i>
wire moss	<i>Polytrichum juniperinum</i>
woolly moss	<i>Racomitrium</i> sp.
woolly mullein*	<i>Verbascum thapsus</i>
yarrow*	<i>Achillea millefolium</i>