

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

RHODES PROPERTY
HADLOW GRANGE



Report prepared for Timaru District Council by Mike Harding
July 2015

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: Rhodes (Hadlow Grange)
Valuation References: 24840/108.00
Address: Hadlow Road, Timaru.
Location:..... Between Hadlow and Spur roads, Timaru Downs.
Ecological District: Makikihi Ecological District.
TDC Land Type:..... 'Soft Rock Hills and Downs'
Land Environment:..... N3 (eastern South Island undulating plains and hills).

ECOLOGICAL CONTEXT:

This part of the property covers moderately steep slopes between 40 and 100m in the headwaters of Oakwood Stream, on the Timaru Downs. Underlying rocks are Timaru Basalt, overlain by loess (Forsyth, 2001). It lies in Makikihi Ecological District (McEwen, 1987). The main gully on the property is within the Level IV Land Environment N3.1c (Leathwick *et al*, 2003), in which indigenous vegetation is regarded as 'acutely threatened' (Walker *et al*, 2005). Basalt cliffs are a 'naturally uncommon' ecosystem (Williams *et al*, 2007) and regarded as nationally 'vulnerable' (Holdaway *et al*, 2012).

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by matai and totara. Shrubland, treeland and tussockland may have occupied steeper slopes and disturbed sites. Rock bluffs supported specialised flora and mixed hardwood forest including kowhai.

Today the original forest cover of Makikihi Ecological District, within Timaru District, is substantially depleted. Few areas of indigenous vegetation remain and most of those are small and 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 a relatively large area of hardwood forest and associated shrubland and rockland (bluff) vegetation. The property was surveyed as part of the District-wide survey of Significant Natural Areas during June 2015. One area, comprising approximately four hectares, is regarded as a Significant Natural Area (SNA) when assessed against the District Plan criteria.

This SNA is illustrated on the aerial photograph and described in greater detail on the SNA Form in this report. Note that the boundaries of the SNA are indicative, rather than precise. This area meets the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19) and is 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,

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.

REFERENCES:

de Lange, PJ; Rolfe, JR; Champion, PD; Courtney, SP; Heenan, PB; Barkla, JW; Cameron, EK; Norton, DA; Hitchmough, RA. 2012. *Conservation status of New Zealand indigenous vascular plants, 2012*. Department of Conservation, Wellington, New Zealand. 70p.

Forsyth, PJ (compiler). 2001. Geology of the Waitaki area. *Institute of Geological and Nuclear Sciences 1:250,000 geological map 19*. Institute of Geological and Nuclear Sciences Limited, Lower Hutt.

Holdaway, RJ; Wisser, SK; Williams, PA. 2012. Status assessment of New Zealand's naturally uncommon ecosystems. *Conservation Biology* 26(4): 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 Ltd.

McEwen, WM (editor). 1987. Ecological regions and districts of New Zealand, third revised edition (Sheet 4). *New Zealand Biological Resources Centre Publication No. 5*. Department of Conservation, Wellington, 1987.

Walker, S.; Price, R.; Rutledge, D. 2005. New Zealand's remaining indigenous vegetation cover: recent changes and biodiversity protection needs. *Landcare Research Contract Report LC0405/038*.

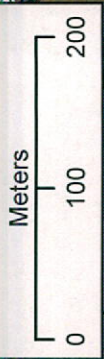
Williams, P.A.; Wisser, S.; Clarkson, B.; Stanley, M.C. 2007. New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework. *NZ Journal of Ecology* 31: 119-128.



The 'at risk' (declining) shrub, Teucrium parvifolium

Rhodes
Hadlow Downs
24840/108.00

536



1:5,000



Area Name: Hadlow Grange Gully
Ecological District: Makikihi
Central map ref. (NZTM): 1453040E-5086306N
Surveyors: Mike Harding

Property: Rhodes (Hadlow Grange)
Nearest Locality: Hadlow
Area Size (ha): 4.75 **Altitude (m):** 60-100
Survey Time: 3 hours **Survey Date:** 25-06-15

General Description:

This site lies in a steep-sided gully at the northern edge of the property, between Spur Road and Hadlow Road on the Timaru Downs. The rock cliffs at each side of the gully are exposures of Timaru Basalt (Forsyth, 2001). Slopes below the cliffs are strewn with large basalt boulders. Electricity lines and pylons follow the gully. A pylon-servicing road is present along the valley floor.

Plant Communities:

The main plant community present is low-stature indigenous hardwood forest, with associated shrubland, as described below. Naturalized (exotic) species are indicated with an asterisk*. Scientific names of plant species are listed at the end of this report.

Forest on northern (south-facing) slope:

The forest canopy on the south-facing slope is dominated by broadleaf and mahoe. Other canopy species are cabbage tree, matipo, elderberry* and pohuehue. Sycamore* is emergent from the forest canopy at the west end of the site and pine* trees emergent on upper slopes. The forest understorey is mostly open, especially on higher slopes at the base of the basalt bluff. Plant species present are *Coprosma crassifolia*, mahoe, matipo, spindle tree* and elderberry*. Common forest-floor species are common shield fern, bush lily and *Libertia ixioides*. Other species present are bidibid, cardamine, pennywort, hemlock*, black nightshade*, *Asplenium bookerianum*, *Asplenium appendiculatum*, necklace fern, hen and chickens fern, hound's tongue fern and male fern*.

A dense stand of Darwin's barberry* is present at the forest margin at the west (up-valley) end of the site; gorse* scrub is present at the eastern forest margin. Other species at the forest margin and at forest openings are Khasia berry*, mingimingi, native broom, Montpellier broom*, spindle tree*, koromiko, blackberry*, scrambling fuchsia, scrub pohuehue, native jasmine, lawyer, leafless lawyer, *Clematis foetida* and bracken. Additional species present along the stream are crack willow*, soft rush*, *Carex geminata*, pukio, *Hypolepis ambigua*, swamp kiokio and a single bush of *Teucrium parvifolium*.



The forest interior at rock-free sites on the northern slope.

Forest on southern (north-facing) slope:

The forest canopy on the north-facing slopes is in most places dominated by mahoe, broadleaf and matipo. Other canopy species are cabbage tree, mapou, lawyer, leafless lawyer and pohuehue. The forest understorey is open, in part because it is covered with large angular basalt boulders. Species present are *Coprosma crassifolia*, elderberry* and Khasia berry*. Forest floor species (mostly at boulder-free sites) are *Libertia ixioides*, velvety nightshade*, black nightshade*, common shield fern, hound's tongue fern, button fern*, necklace fern, *Asplenium appendiculatum*, cleavers* and hemlock*.

Plant species present at forest openings and at the forest margin are spindle tree*, Montpellier broom*, *Coprosma crassifolia*, mingimingi, native broom, Khasia berry*, gorse*, matagouri, toatoa, *Einadia triandra* and several shrubs of *Teucrium parvifolium*. Other plant species present on or at the base of the basalt bluff are boxthorn*, *Coprosma virescens*, poroporo, *Einadia allanii*, nettle*, horehound* and woolly mullein*. Additional species present at the eastern end of the site are several large trees of kowhai and one large clump of banana passionfruit*.

Three plant species at the site are listed as 'at risk' (de Lange *et al*, 2012): *Teucrium parvifolium* (declining), *Einadia allanii* (naturally uncommon) and *Coprosma virescens* (declining).



Forest on the southern (north-facing slope)

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, grey warbler, silvereye and fantail. The rocky ground may provide good habitat for lizards.

Notable Flora, Fauna and Habitats:

Notable features of this site are the presence of populations of three 'at risk' plant species (*Teucrium parvifolium*, *Einadia allanii* and *Coprosma virescens*), the diversity of plant species (at least 43 vascular species), the habitat the area provides for forest birds, and its relatively large size.

Notable Plant and Animal Pests:

A number of invasive plant pests are present, notably Darwin's barberry, Khasia berry, gorse, sycamore, Montpellier broom, boxthorn, banana passionfruit, spindle tree and pines. Of these, sycamore poses the greatest threat, as it can readily colonise and eventually overtop intact forest. The other plant pests are mostly confined to forest openings and forest margins, though several are very invasive at those locations, especially Darwin's

barberry, Montpellier broom, boxthorn, Khasia berry and gorse. Animal pests were not surveyed, though possum sign and dead possums were observed.

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

This site is located on steep and rocky slopes where vegetation has been protected from clearance. It is well buffered by these slopes and by its location in a deep gully. Pine plantation, gorse scrub and pasture are present at the eastern boundaries of the site.

Condition and Management

The forest canopy at most parts of the site is in good condition. The forest understorey appears more depleted though this is due in part to the rocky substrate. There are a lot of plant pests present, as can be expected for forest at this location. The most important management issues are removal or containment of the more invasive plant pests (sycamore, Darwin’s barberry and Khasia berry) and continued possum control. Removal of the banana passionfruit infestation would be prudent. Larger pine trees have been removed from lower slopes to prevent interference with the electricity lines.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Indigenous vegetation that is moderately representative of the original vegetation and typical of that remaining in this part of the ecological district.
Rarity	H	Indigenous vegetation in an ‘acutely threatened’ land environment and in a naturally uncommon ecosystem (basalt cliff). Supports populations of three ‘at risk’ plant species (<i>Teucrium parvifolium</i> , <i>Einadia allanii</i> and <i>Coprosma virescens</i>).
Diversity and pattern	M/H	Plant species diversity (43 vascular species) is relatively high compared with other sites in this part of the ecological district.
Distinctiveness/special features	M	The extensive exposure of basalt is a notable feature.
Other Criteria		
Size/shape	H	A moderate-sized site that is well buffered by its location.
Connectivity	L	Isolated from other similar sites.
Long-term Sustainability	M	Ongoing plant and animal pest control will be necessary to maintain ecological values in the long term.

H = High; M = Moderate; L = Low

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

This site has been informally protected by its location on steep rocky slopes. These rocky slopes limit the potential of the site for farming or forestry. The site is threatened by the presence of a number of invasive plant pests. However, judicious removal or containment of those pests would allow maintenance of ecological values.

Discussion:

This site easily meets the District Plan criteria for a significant natural area (SNA). It is one of the larger remnants of indigenous vegetation on the Timaru Downs and supports a good number of indigenous plant species, including three ‘at risk’ species. It provides useful habitat for native birds.

Einadia allanii (an ‘at risk’ plant species)



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)

banana passionfruit*	<i>Passiflora</i> sp.
bidibid	<i>Acaena</i> sp.
blackberry*	<i>Rubus fruticosus</i>
black nightshade*	<i>Solanum nigrum</i>
boxthorn*	<i>Lycium ferocissimum</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
bush lily	<i>Astelia fragrans</i>
button fern	<i>Pellaea rotundifolia</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
cardamine	<i>Cardamine debilis</i>
cleavers*	<i>Galium aparine</i>
common shield fern	<i>Polystichum richardii</i>
crack willow*	<i>Salix fragilis</i>
Darwin's barberry*	<i>Berberis darwinii</i>
elderberry*	<i>Sambucus nigra</i>
gorse*	<i>Ulex europaeus</i>
hemlock*	<i>Conium maculatum</i>
hen and chickens fern	<i>Asplenium gracillimum</i>
horehound*	<i>Marrubium vulgare</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
Khasia berry*	<i>Cotoneaster simonsii</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lawyer	<i>Rubus schmidelioides</i>
leafless lawyer	<i>Rubus squarrosus</i>
mahoe/whiteywood	<i>Melicactus ramiflorus</i>
male fern*	<i>Dryopteris filix-mas</i>
mapou	<i>Myrsine australis</i>
matagouri	<i>Discaria toumatou</i>
matai	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mingimingi	<i>Coprosma propinqua</i>
Montpellier broom*	<i>Teline monspessulana</i>
native bindweed	<i>Calystegia tuguriorum</i>
native broom	<i>Carmichaelia</i> aff. <i>australis</i>
native jasmine	<i>Parsonsia heterophylla</i>
necklace fern	<i>Asplenium flabellifolium</i>
nettle	<i>Urtica incisa</i>
pennywort	<i>Hydrocotyle novae-zelandiae</i>
pohuehue	<i>Muehlenbeckia australis</i>
poroporo	<i>Solanum laciniatum</i>
pukio	<i>Carex secta</i>
scrambling fuchsia	<i>Fuchsia perscandens</i>
scrub pohuehue	<i>Muehlenbeckia complexa</i>
soft rush*	<i>Juncus effusus</i>
spindle tree*	<i>Euonymus europaeus</i>
swamp kiokio	<i>Blechnum minus</i>
sycamore*	<i>Acer pseudoplatanus</i>
toatoa	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
velvety nightshade*	<i>Solanum chenopodioides</i>
woolly mullein*	<i>Verbascum thapsus</i>