

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

BRODIE/ECAN PROPERTY
(SOUTH BRANCH RANGITATA RIVER)



Report prepared for the Timaru District Council by Mike Harding
May 2011

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: RK & LM Brodie (lessees); Environment Canterbury (owner)
Valuation Reference: adjacent to 24710/011.01
Address: Brodie Road, Rangitata Island, Temuka 7986.
Location: Within the flood channel of South Branch Rangitata River, south of Old Main South Road.
Ecological District: Low Plains
TDC Land Type: Plains
Land Environment: L1 (southern lowlands).

ECOLOGICAL CONTEXT:

The property lies on a recent alluvial surface within the floodplain of South Branch Rangitata River. The original vegetation of this area would probably have been kanuka-kowhai forest/treeland or matagouri-*Coprosma* 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.

Vegetation at this site comprises areas of indigenous mossfield and grassland with scattered to dense patches of exotic (gorse-dominated) shrubland and scrub. Indigenous plant communities at the site are not very diverse, but are dominated by indigenous species, notably mosses and lichens and danthonia (*Rytidosperma*) grasses. The site has not been cultivated or subjected to intensive land uses. It therefore represents a rare example of a lowland alluvial surface at which indigenous mosses, herbs and grasses have been able to survive or recolonize. The site supports a small population of *Muehlenbeckia ephedroides* (a declining species) and a rare occurrence of kanuka.

SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas in May 2011. Two large areas (SNA 112a and 112b), which include all un-cleared parts of the site, are regarded as significant when assessed against the District Plan criteria.

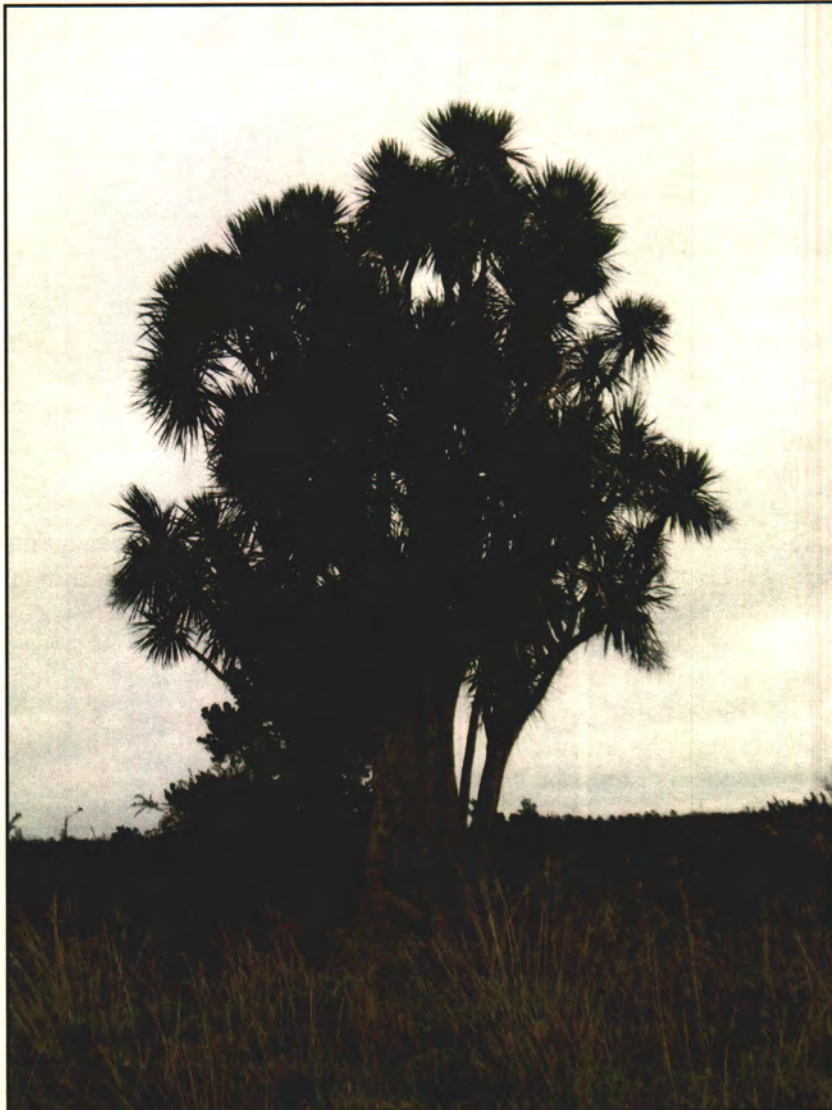
These SNAs are illustrated on the aerial photograph and described in greater detail in this report. These SNAs meet the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19), though will require conservation management to maintain their ecological values in the long term (criterion 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.

SIGNIFICANT TREES ON THE PROPERTY:

Two large old cabbage trees are present at the edge of the flood channel, on the property boundary. These trees are significant as they are good examples of the trees originally present.





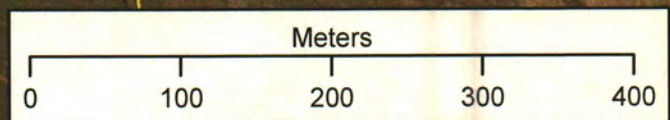
Brodie Property

Old Main South Road

112b

112a

1:5,000



TIMARU DISTRICT SNA SURVEY

SNA 112a & 112b

Area Name: Rangitata South Branch Channel

Ecological District: Low Plains

SNA 112a: Location (central map ref.): K38: 823-795

SNA 112b : Location (central map ref.): K38: 825-798

Surveyors: Mike Harding and Russell Brodie (part)

Property: Brodie/Ecan

Nearest Locality: Rangitata

Area Size (ha): 11.21

Area Size (ha): 4.07

Survey Time: 5 hours

Altitude (m): 85-90

Altitude (m): 85-90

Survey Date: 03-05-11

General Description:

These two SNAs lie within the channel of the South Branch Rangitata River. The very infrequent flood flows down this river channel have allowed mossfield, grassland and exotic scrub communities to develop. Nearly all other parts of the South Branch channel have been cleared of vegetation and are now cultivated and grazed intensively. The parcel of land within which these SNAs are located is administered by Environment Canterbury and leased to Mr Brodie. The two SNAs are separated by an area of deeper soils that has previously been cleared of exotic scrub. That area is now dominated by naturalized (exotic) plants and does not meet the District Plan's significance criteria.

Plant Communities:

The main indigenous plant communities present are mossfield and grassland. These plant communities are described for each SNA below. Naturalized (exotic) species are indicated with an asterisk*. The lateness of this survey precluded conclusive identification of the *Rytidosperma* grasses.

Southern Area (SNA 112a):

Stonier parts of this area support mossfield. This mossfield grades to grassland and then exotic scrub at areas with deeper soils.

Mossfield communities are dominated by three species of moss, *Racomitrium pruinosum*, *Hypnum cupressiforme* and *Polytrichum juniperinum*, lichens (predominantly *Cladia aggregata*) and varying densities of grasses. The most important grasses are *Rytidosperma* sp. (*clavatum*?) and sweet vernal*. Other species present are creeping pohuehue, patotara, sheep's sorrel*, subclover*, catsear* and browntop*.



Mossfield at SNA 112a

Other species occasionally present, depending on substrate, are narrow-leaved plantain*, mouse-ear hawkweed*, haresfoot trefoil*, field chickweed*, woolly mullein*, *Rytidosperma* sp (*merum*?), stonecrop*, Yorkshire fog* and seedlings of gorse* and broom*. Native scabweed, *Raoulia australis*, was observed at one location (E2382289-N5679620).

In hollows, or adjacent to areas of shrubland and scrub, this community becomes dominated by grasses, notably Chewings fescue*. Other species present are cocksfoot* and creeping pohuehue. The 'at risk' (declining) sub-shrub, *Muehlenbeckia ephedroides*, was observed at one location (E2382239-N5679511).

Scattered low plants of gorse* and occasionally broom* are present across these stony surfaces. Gorse forms a denser taller scrub community at areas with deeper soils. Broom* is also commonly present and occasionally dominant. Other species present but less common are sweet brier*, blackberry* and occasionally young pine* trees and cabbage tree. The scrub understorey is dominated by Chewings fescue* and occasionally creeping pohuehue.

At one location three remnant kanuka trees are present, at the edge of a raised island (E2382412-N5679487). One tree has four main trunks with diameters (at breast height) of 16, 17, 18 and 19cm; the second has three main trunks, with diameters of 6, 9 and 19cm; the third tree is dead. The trees are five to six metres tall. An area of bare ground is present beneath the kanuka trees, with scattered plants of velvety nightshade*, storksbill* and nodding thistle*.



Kanuka trees at SNA 112b

Northern Area (SNA 112b):

The northern part of this SNA supports grassland on a raised stony surface. Dominant species are *Rytidosperma* sp. (*clavatum*?), sweet vernal* and mosses. Other species present are sheep's sorrel*, storksbill*, browntop*, yarrow*, subclover*, haresfoot trefoil*, woolly mullein*, Australian sheep's bur*, shepherd's purse*, catsear* and seedlings of gorse* and broom*. A sparser community is present in the vicinity of the old machinery. Dominant species here are storksbill*, subclover*, narrow-leaved plantain* and *Rytidosperma* sp. (*clavatum*?). Other species present in this area are creeping pohuehue, Chewings fescue*, cocksfoot* and *Oxalis corniculata**. Exotic scrub dominated by gorse* and broom* is present at the margins of this area. Two large old cabbage trees are present alongside the airstrip, southeast of this area.



Rytidosperma grassland at the northern edge of SNA 112b

Birds/Fauna Observed:

Native birds observed during this brief survey were fantail, grey warbler, spur-winged plover, southern black-backed gull and harrier. Conditions were unsuitable for lizard observations, though Mr Brodie advises that skinks are present. The areas provide good lizard habitat.

Notable Flora, Fauna and Habitats:

Important features of these areas, and especially SNA 112a, are the extent of indigenous plant communities, the dominance of indigenous species (especially in the mossfield communities), presence of an 'at risk' (declining) species (*Muehlenbeckia ephedroides*), locally-uncommon species (*Raoulia australis* and kanuka), the habitat the areas provide for lizards and the size of the areas.

Notable Plant and Animal Pests:

Gorse, broom and naturalized grasses are the most important plant pests present. Gorse and broom have invaded areas with deeper soils, but are less invasive on the stonier surfaces. Introduced grasses are present throughout, though are more dominant on deeper soils and within the shade of gorse and broom. Introduced

herbs are present throughout, though are only dominant at disturbed sites. Animal pests were not surveyed, though rabbit and hare sign was observed throughout.

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

The main outer boundaries of these SNAs are the edge of the river channel; the inner boundaries (that separate the areas) follow a flood channel that has deeper soils, denser taller gorse and broom and recent clearance. The entire area is fenced as one paddock. These SNAs are isolated from other areas of indigenous vegetation, apart from small areas of indigenous grassland at nearby roadside locations. The SNAs are buffered to some extent by the presence of shallow stony soils, which are less favourable for development.

Condition and Management Issues:

The condition of these SNAs varies depending on soil depth, management history and the effects of plant and animal pests. Little information is available to guide management of lowland grassland sites. However, key management considerations are control (and removal) of woody plant pests (notably gorse and broom), and control of invasive introduced grasses and herbs. The SNA should be protected from cultivation, over-sowing and top-dressing. Management of the sites will need to accommodate occasional flood flows down the river channel and deposition of sediment during these events.

Property Owner Comment:

Years ago, a human skeleton (possibly pre-European) was found at the small island (near the kanuka trees).

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Mossfield communities are representative of the original plant communities; grassland communities are more modified. Both communities support representative plant species and are typical of the ecological district.
Rarity	H	Indigenous mossfield and grassland communities on un-cultivated lowland soils are now very rare. They are listed as a national priority for protection. SNA 112a supports an 'at risk' species (<i>Muehlenbeckia ephedroides</i>) and locally-uncommon species (<i>Raoulia australis</i> and kanuka).
Diversity and pattern	L/M	Plant species diversity is low, though not unusual for such sites.
Distinctiveness/special features	M	The lack of woody weed (gorse) invasion on the stonier surfaces is a interesting feature. The presence of undisturbed landform features (channels and islands) is notable.
Other Criteria		
Size/shape	H	Both SNAs are large for sites in Low Plains Ecological District.
Connectivity	L/M	The sites are isolated from other areas of indigenous vegetation, though are connected by infrequent flood flows down the South Branch channel.
Long-term Sustainability	L/M	Plant and probably animal pest control will be required to maintain ecological values in the long term.

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

These SNAs are part of an area that is the last remaining sizeable area of uncultivated soil in this part of the Low Plains Ecological District. The area has potential for development though also has considerable value for biodiversity protection and as a benchmark for monitoring. The area is affected by infrequent flooding; Mr Brodie advises that the last substantial flood was approximately 15 years ago, during which a substantial quantity of silt was deposited.

Discussion:

These areas meet the District Plan criteria for Significant Natural Areas. Important features of the areas are the extent of indigenous plant communities, the dominance of indigenous species (especially in the mossfield communities), presence of an 'at risk' (declining) species (*Muehlenbeckia ephedroides*), locally-uncommon species (*Raoulia australis* and kanuka), the habitat the areas provide for lizards and the size of the areas.

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>
blackberry*	<i>Rubus fruticosus</i>
broom*	<i>Cytisus scoparius</i>
browntop*	<i>Agrostis capillaris</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
catsear*	<i>Hypochoeris radicata</i>
Chewings fescue*	<i>Festuca rubra</i> ssp. <i>commutata</i>
cocksfoot*	<i>Dactylis glomerata</i>
creeping pohuehue	<i>Muehlenbeckia axillaris</i>
field chickweed*	<i>Cerastium arvense</i>
gorse*	<i>Ulex europaeus</i>
haresfoot trefoil*	<i>Trifolium arvense</i>
kanuka	<i>Kunzea ericoides</i>
kowhai	<i>Sophora microphylla</i>
matagouri	<i>Discaria toumatou</i>
mouse-ear hawkweed*	<i>Hieracium pilosella</i>
narrow-leaved plantain*	<i>Plantago lanceolata</i>
nodding thistle*	<i>Cardus nutans</i>
patotara	<i>Leucopogon fraseri</i>
sheep's sorrel*	<i>Rumex acetosella</i>
shepherd's purse*	<i>Capsella bursa-pastoris</i>
stonecrop*	<i>Sedum acre</i>
storksbill*	<i>Erodium cicutarium</i>
subclover*	<i>Trifolium subterraneum</i>
sweet brier*	<i>Rosa rubiginosa</i>
sweet vernal*	<i>Anthoxanthum odoratum</i>
velvety nightshade*	<i>Solanum chenopodioides</i>
woolly mullein*	<i>Verbascum thapsus</i>
yarrow*	<i>Achillea millefolium</i>
Yorkshire fog*	<i>Holcus lanatus</i>