TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

HENDERSON PROPERTY

Report prepared for Timaru District Council
by
Mike Harding and Mark Davis
June 2012

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: ..... Ashley Henderson
Valuation References: 24710/115.00
Address: ..... Parke Road, Temuka 7986.
Location:..... North of Orari River mouth, South Canterbury coast.
Ecological District:..... Low Plains Ecological District.
TDC Land Type:..... 'Plains'
Land Environment: ..... N1.2c (eastern South Island plains).

ECOLOGICAL CONTEXT:

The property covers gently sloping, low-lying land just north of the mouth of the Orari River adjacent to the South Canterbury coast east of Temuka. The property lies in Low Plains Ecological District.

It is likely that the original vegetation of this area was predominantly wetland and coastal (dune) vegetation adjacent to the stream/lagoon, grading inland to grassland, wetland, treeland or forest, depending on disturbance history. Widespread loss of indigenous vegetation in this part of Timaru District makes it difficult to determine the precise nature of the original vegetation. The area described in this report was part of the Orari River floodplain prior to construction of stop-banks along the river.

Hendersons Lagoon/wetland is an important area of open water and wetland habitat on the South Canterbury coast. It provides regionally important habitat for migratory, wading and coastal birds. A detailed survey of indigenous fauna was not possible during this survey, though the values of the lagoon/wetland are recognised by its earlier listing as a Site of Significant Wildlife Interest (SSWI).

SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation and habitat on the property comprises areas of rushland and other wetland vegetation at the lagoon margins and at other nearby low-lying sites. This vegetation and habitat is an integral part of a larger area of lagoon and wetland vegetation and habitat Ownership of some of this land is unclear (AMF and/or UCL?), though it lies adjacent to Crown land along its coastal margin.

The property was surveyed as part of the District-wide survey of Significant Natural Areas by ecologist Mark Davis during February 2012. One relatively large area (SNA 110) is regarded as a Significant Natural Area (SNA) when assessed against the District Plan criteria. This area includes parts of the lagoon/wetland that lie on adjacent land.

This SNA is illustrated on the attached 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 draining, 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.


Henderson Property
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110c
110a
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TIMARU DISTRICT SNA SURVEY SNA 110

Area Name: Henderson Lagoon
Location (NZMS 260 map ref.): 2383294-5662142
Ecological District: Low Plains
Surveyors: Mark Davis

Property: Ashley Henderson
Nearest Locality: Clandeboye
Area Size (ha): 9.63 **Altitude (m):** 2
Survey Time: 10 hours **Survey Date:** 02-02-12 and 03-02-12

General Description:

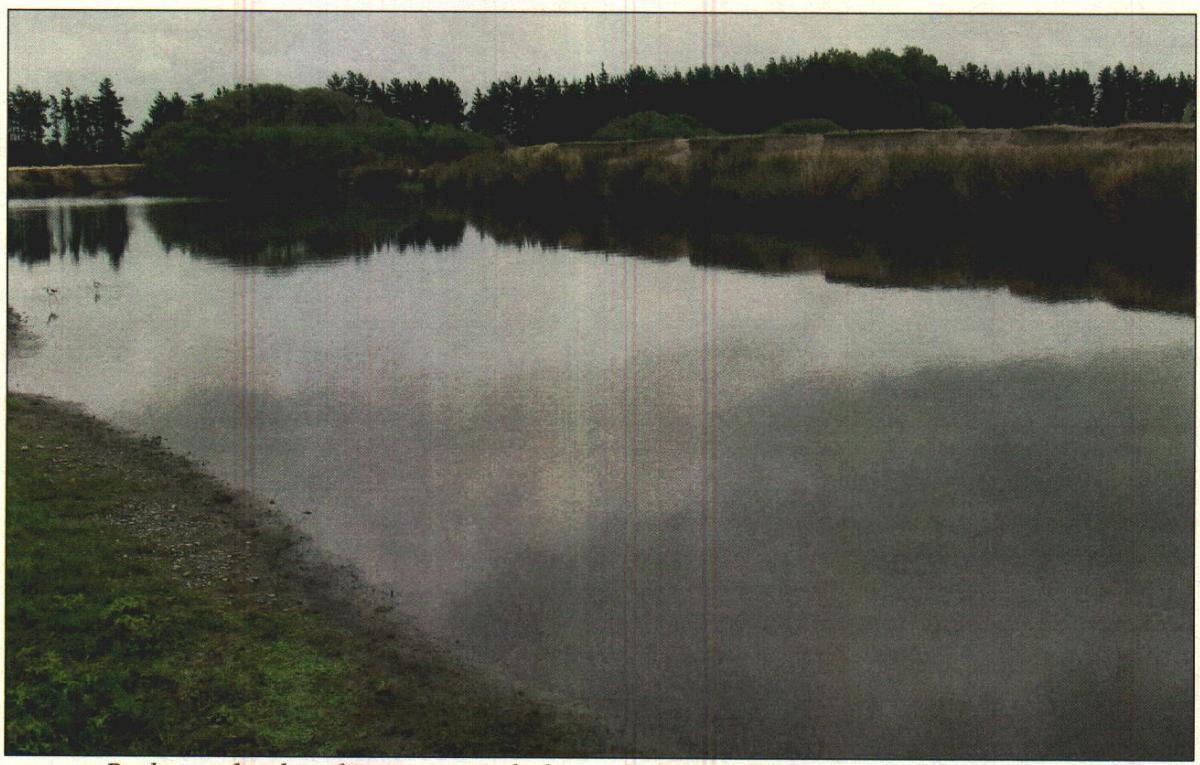
The wetlands that form this SNA are isolated remnants of the Orari River, formed when the river flowed to the north prior to construction of stop banks. The main wetlands are former river channels containing open water and truncated by coastal erosion, so that they resemble ox-bow wetlands. Smaller wetlands, including ephemeral wetlands, occur in depressions and former meander channels. The SNA lies partly on the property, and on other land associated with the property (AMF/UCL/Maori Reserve?). It adjoins sand dunes to the southeast, the lagoon to the north and east and farmland on other boundaries.

Plant Communities:

Three main plant communities or habitats are present in this SNA and these are described below. Naturalised (exotic) species are indicated with an asterisk*.

Rushland

The main horseshoe shaped lagoon supports a discontinuous and narrow zone of rushes on its south-facing margin (at map reference 2382283-5662282), where tall *Juncus edgariae* occurs at the base of a two-metre scarp. The sedge *Carex virgata* is common in this community. Other native plants include *Carex buchananii*, *Limosella lineata,* spike sedge and *Crassula sinclairii.* Floating sweetgrass* and ryegrass* are dominant around the rushes. Other exotics include jointed rush*, soft rush* and creeping buttercup*. The wetland is not fenced from adjoining paddocks and, further north, cultivation has occurred as close as five metres to the wetland margin. A southern dead-end arm of the lagoon contains *Juncus edgariae*, *Carex geminata* and a substantial patch of lake clubrush. Some parts are particularly weedy with much willow weed*, monkey musk*, water speedwell* and water plantain*. A drain extends from this section southwest to the edge of the property. The drain supports a narrow riparian zone of wetland vegetation with a similar but less-diverse range of species compared with the open water wetlands further north.



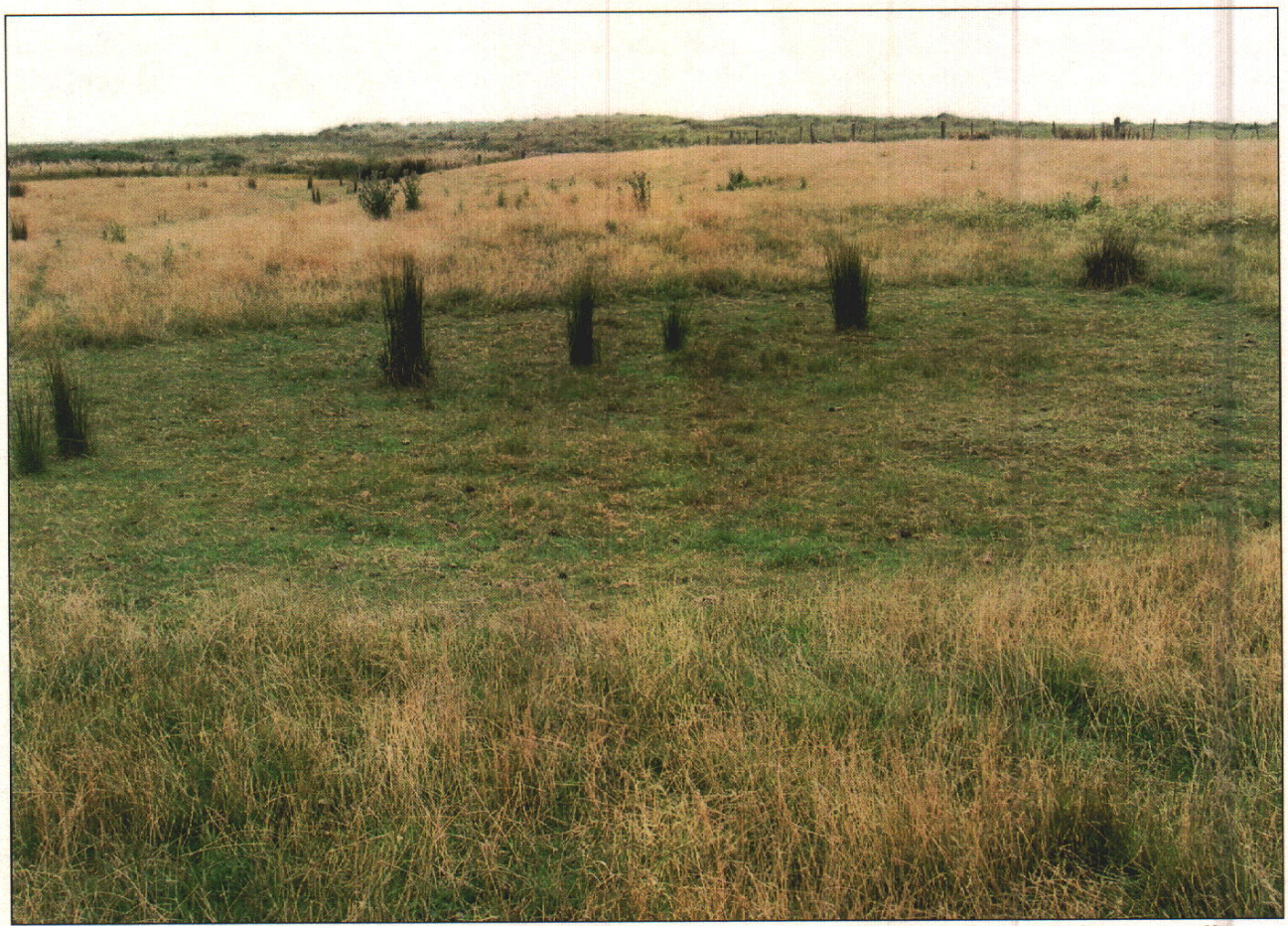
Rushes and sedges fringing part of a larger lagoon, with crack willow (background) and a weedy shoreline turf in left foreground

The main rushland community occurs further northeast, though some open water and wetland vegetation are present within the eastern corner of the property. The vegetation is dominated by *Juncus edgariae*, *Carex geminata* and *Carex virgata.* Also present is soft rush*, saltmarsh ribbonwood (uncommon), flax and lake clubrush. The exotic grasses, tall fescue*, Yorkshire fog*, tall oat grass* and ryegrass*, are prominent. Other exotics present are white clover*, Californian thistle*, stitchwort* and lotus*. Several crack willow* trees are scattered along the water's edge. Patches of gorse* near the fence have been sprayed. This community is separated from the adjoining paddock by a fence, though Ashley Henderson advises that the wetland has been previously grazed by sheep to control rampant rush growth.

A similar community occurs south and west of a group of macrocarpa* trees at the eastern corner of the property and in a narrow channel between the southern ends of the main lagoon. Sprayed gorse* occurs near the macrocarpa. Additional weeds present in this wetland are bindweed* and blackberry*.

Herbfield

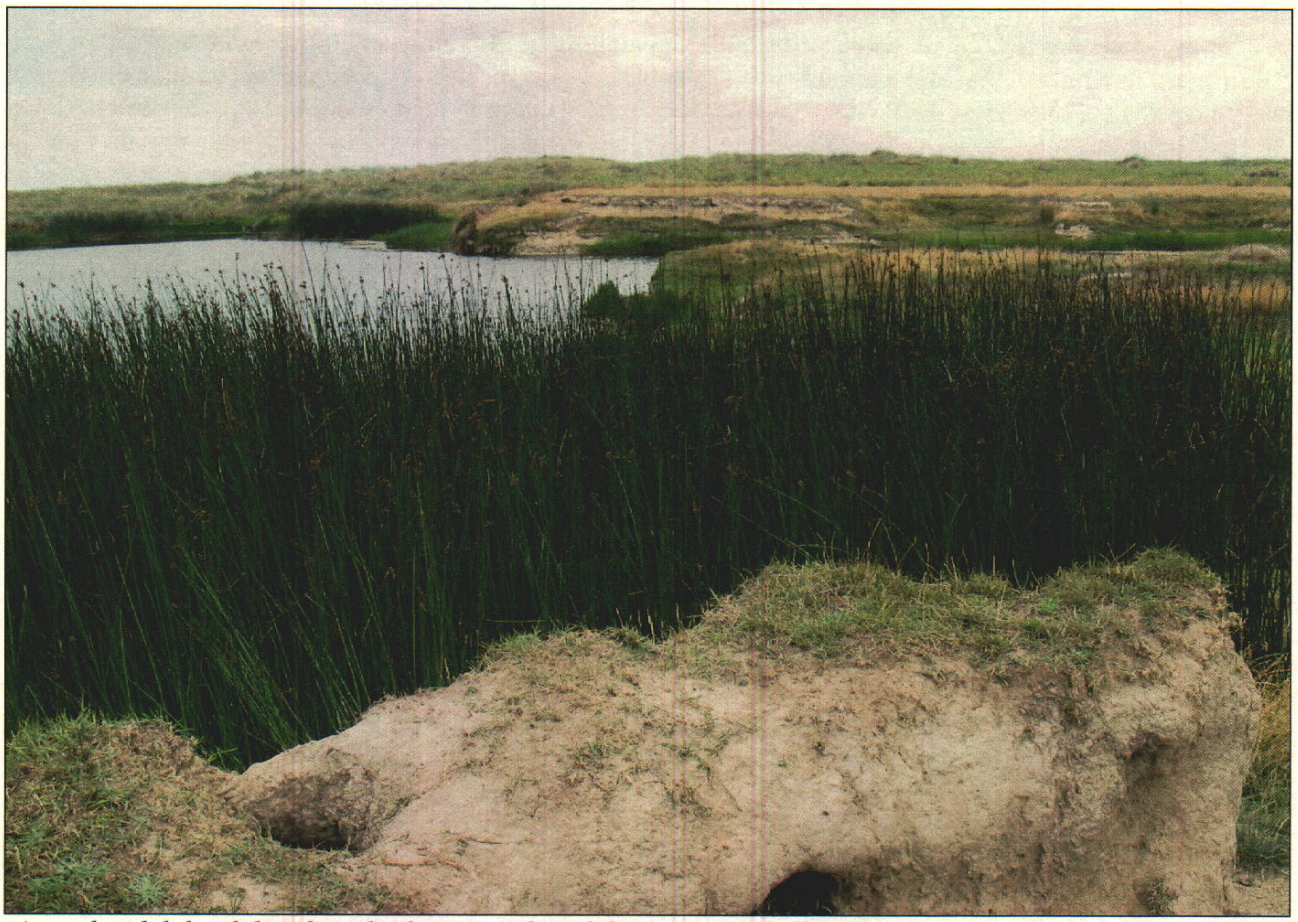
The main herbfield communities are associated with a small open-water wetland (approximately 80m x 20m) at map reference 2383191-5662086. This wetland occurs in a natural depression, perhaps associated with the former course of the Orari River, and is contained by two-metre scarps. Herbfield on the gently sloping shores and higher platforms of this depression supports *Hydrocotyle sulcata*, *Rorippa palustris*, *Centipeda cunninghamii, Selliera radicans*, *Lilaeopsis novae-zelandiae*, arrow grass, orache*, bachelor's button, *Callitriche petriei, Myriophyllum triphyllum,* marsh foxtail* and toad rush*. At one locality, the threatened (nationally endangered) plant *Isolepis basilaris* is present. In addition to herbfield, sedges, rushes and other plants occur in patches around the wetland. These include three square, *Bolboschoenus caldwellii*, *Juncus edgariae*, spike sedge, *Carex buchananii*, *Carex geminata* and lake clubrush. Exotic species present are catsear*, broad-leaved dock*, *Rumex crispus**, willow weed*, monkey musk*, buck's horn plantain*, water plantain* (one plant) and exotic grasses on dry spurs. A small depression immediately northeast of the wetland contains *Bolboschoenus caldwellii* and the intervening ridge supports *Carex geminata* and tall fescue*. Ashley Henderson advises that this wetland has, over the years, been cultivated, flooded and grazed, illustrating the resilience and hardiness of the indigenous species present.



A small ephemeral wetland within pasture, with a range of turf species, including Lobelia perpusilla

Another herbfield occurs on part of the western shoreline of the main lagoon at map reference 2382948-5662150. Prominent plants include *Limosella lineata,* starwort*, *Crassula sinclairii*, jointed rush*, *Lilaeopsis novae-zelandiae*, *Callitriche petriei,* marsh foxtail*, toad rush*, *Rorippa palustris*, *Hydrocotyle sulcata*, *Isolepis cernua*, *Polygonum persicaria** and celery-leaved buttercup*. Less commonly present are water speedwell* and silverweed. Patches of *Carex geminata* occur further up the gentle slope along with widespread exotics, including *Poa annua**, ryegrass*, white clover*, Californian thistle* shepherd's purse* and stinging nettle*. The turf is not fenced from the adjacent paddock. Despite being relatively weedy, the turf retains a good diversity of native species. Several large crack willow* trees occur upstream.

Smaller patches of herbfield are associated with a few shallow channels and depressions within farmed paddocks. Some are dominated by *Centipeda cunninghamii*, with *Leptinella dioica,* toad rush*, *Oxalis exilis*, *Poa annua**, white clover* and marsh foxtail*. Less commonly present are *Limosella lineata, Lilaeopsis novae-zelandiae,* spike sedge, sea spurrey, starwort*, *Polygonum persicaria**, *Plantago major** and catsear*. The largest habitat of this type is approximately 75m x 5-8m and occurs at map reference 2383174-5662243. A similar community occurs in a small depression at map reference 2383179-5662149. The dominant plant here is the at-risk (naturally uncommon) *Lobelia perpusilla.* Other prominent plants present are marsh foxtail*, *Lilaeopsis novae-zelandiae*, *Centipeda cunninghamii*, spike sedge, *Leptinella dioica* and *Oxalis exilis*. Less commonly present are *Selliera radicans,* white clover*, arrow grass and *Juncus edgariae*. This is an impressive turf that is dominated by native herbs. A similar but weedier turf occurs adjacent to this depression and also supports *Lobelia perpusilla.*



A pond with lake clubrush in the foreground, and three square, Bolboschoenus caldwellii and some excellent turfs. The nationally endangered sedge Isolepis basilaris occurs here.

Grassland

Exotic pasture south of the wetland turf soon merges into low sand dunes dominated by marram grass*. Other plants present are scattered gorse* (mostly sprayed), Californian thistle*, yarrow*, *Poa annua**, catsear*, white clover* and shore convolvulus. Closer to the beach shore convolvulus becomes more common, but marram grass* remains very dense and tree lupin* is common.

A small low-lying area occurs at map reference 2382853-5661976 where several farm tracks merge near the drain. It consists of several undulating depressions that Ashley Henderson advises were formed following use of the area as a dump for drain and roadside spoil. The area is small and dominated by exotic grasses such as creeping bent*, marsh foxtail* and *Poa annua**. Other prominent exotics include buck's horn plantain*, jointed rush*, white clover*, *Rumex crispus** and *Polygonum persicaria**. A number of native plants are present, including patches of *Carex buchananii*, scattered *Carex virgata*, *Carex gaudichaudiana*, *Juncus edgariae*, mosses, spike sedge, *Isolepis cernua*, *Carex flagellifera* (uncommon) and *Eleocharis gracilis*.

Birds/Fauna Observed:
Pukeko were observed in most of the wetlands and their footprints were seen in others. Black swan, paradise shelduck and mallard/grey duck were abundant in open water habitats, especially the large lagoon. All open water habitats are used by ducks, including the drain. Seven pied stilt were observed on the western turf, and two welcome swallows were seen near the adjacent farm bridge. Ashley Henderson advises that a number of other bird species have been observed here over the years, including white heron, bittern, grey duck and banded dotterel (all threatened species).

At the eastern corner of the property, there are open sand patches on a low dune ridge. Driftwood is scattered through the area and may provide habitat for katipo spiders. No katipo were observed but katipo have been observed previously on adjacent land. A DOC-monitored katipo breeding site is present north of the beach gateway (Ashley Henderson, *pers.comm.*).

Notable Flora, Fauna and Habitats:
All the wetlands are notable as habitats for birds, including pukeko, and some provide habitat for waders. The occurrence of patches of lake clubrush is notable as this species is relatively uncommon in coastal wetlands of the Low Plains Ecological District. The turf plant communities are notable as habitats for a diverse range of native herbs, including the nationally endangered *Isolepis basilaris*, at-risk *Lobelia perpusilla* and *Eleocharis gracilis*, none of which appear to have been recently recorded in coastal wetlands of the Low Plains Ecological District.

Notable Plant and Animal Pests:
The main plant pest present is crack willow which is scattered along the margins of the main lagoon. Gorse is present in many localities in or close to wetlands and on the dunes, but the great majority of plants have been sprayed. Blackberry is present on the edge of a wetland immediately south of the group of macrocarpa trees. Tree lupin* and marram grass* are present in the dunes.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The wetlands on this property are largely unfenced and certainly none are perimeter fenced. If the wetlands were fenced, the fences should include a buffer zone between the wetlands and the adjoining farm paddocks to prevent damage from stock and to minimise inflows of nutrients and sediments. The dunes form a natural buffer for the wetlands, largely preventing vehicle access from the adjoining beach where off road vehicle use is widespread. The dunes may not protect the wetlands from coastal erosion.

Condition and Management Issues:
Stock exclusion from the wetlands is a key issue for their protection. It would be a significant undertaking to fence the wetlands because of their relatively long boundaries, and the need to provide alternative stock water. While there is no doubt about the benefits of excluding stock from the wetlands, the benefits for the herbfield (turf) communities are less certain. If the turfs were not grazed, it is possible that aggressive weeds (e.g. marsh foxtail and creeping bent) could spread and out-compete some of the native plants. However, continued stock access will physically damage the turfs, increase their nutrient levels and continue to encourage the spread of exotic weeds.

Ideally, fencing is needed to at least manage stock access, as some sheep grazing may be beneficial. If this were to occur, its effectiveness should be evaluated by careful monitoring. It is also possible that grass herbicide could control or remove exotic grasses from the turfs, as no native grasses appear to be present. Willows should be removed from the wetlands, though this would require cooperation from adjacent landowners. Gorse is being controlled by the landowner but vigilance will be needed to prevent it spreading into the wetlands.

Continued restriction of vehicle access from the beach is important, as vehicles could cause considerable damage to the wetlands.

Property Owner Comment:

Ashley Henderson provided detailed written comments on the draft report, especially regarding land tenure, history of land management, and the birdlife observed here over the years. These comments have been included in this property report. Mr Henderson is continuing with his weed control, fencing and planting efforts around the lagoon.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	The wetland and turf vegetation is largely representative of the original vegetation. The open water provides representative bird habitat.
Rarity	H	The SNA lies in an acutely-threatened land environment; wetlands are a nationally rare ecosystem. The area provides habitat for populations of nationally-endangered and at-risk plant and bird species.
Diversity and pattern	M/H	A relatively diverse range of plant communities and habitats are present.
Distinctiveness/special features	M/H	The presence of several wetland types in an intensively farmed area is notable; the turfs are of special interest.
Other Criteria		
Size/shape	M	There are some larger wetlands within the SNA but they are mostly long and narrow.
Connectivity	M/H	The wetlands are close to each other and the main one is part of a larger lagoon.
Long-term Sustainability	M/H	Continued plant pest control and careful controls on grazing will probably be required to maintain ecological values.

***Note**: The above assessment applies to the wetlands within the property boundaries. Some rankings would be higher if wetlands within legal roads and other land parcels were included.*

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

Sympathetic land management and the resilience of plant communities have allowed the wetlands and habitats to survive in an area where land use change has been dramatic. The lower lying parts of the SNA have only limited potential for further development.

Discussion:

The property contains a number of wetlands associated with former channels of the Orari River. While most of the wetlands do not appear to have direct surface-water connections, they are likely to have ground-water connections. The wetlands retain important ecological values as they support native plant communities containing a diverse range of freshwater and salt tolerant species. Some contain the nationally endangered *Isolepis basilaris* and at-risk *Lobelia perpusilla*. If more time was spent surveying the communities a greater number of indigenous species would be found, including perhaps more *Isolepis basilaris* and *Lobelia perpusilla*. The wetlands also provide valuable habitat for waterbirds, pukeko and, to a lesser extent, waders. Importantly, they are an integral part of the wider Orari wetland complex and have been previously recognised as part of a Site of Significant Wildlife Interest (SSWI).

These wetland plant communities easily meet the Timaru District Plan criteria for a Significant Natural Area (SNA). The area lies within an acutely-threatened land environment, wetlands are a nationally rare ecosystem, the wetlands support populations of threatened plant species and provide important habitat for native birds, and they are relatively large.

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
arrow grass	*Triglochin striatum*
bachelor's button	*Cotula coronopifolia*
bindweed*	*Calystegia* sp
blackberry*	*Rubus fruticosus*
broad-leaved dock*	*Rumex obtusifolius*
buck's horn plantain*	*Plantago coronopus*
Californian thistle*	*Cirsium arvense*
catsear*	*Hypochoeris radicata*
celery-leaved buttercup*	*Ranunculus sceleratus*
crack willow*	*Salix fragilis*
creeping bent*	*Agrostis stolonifera*
creeping buttercup*	*Ranunculus repens*
flax	*Phormium tenax*
floating sweetgrass*	*Glyceria fluitans*
gorse*	*Ulex europaeus*
jointed rush*	*Juncus articulatus*
lake clubrush	*Schoenoplectus validus*
lotus*	*Lotus pedunculatus*
macrocarpa*	*Cupressus macrocarpa*
marram grass*	*Ammophila arenaria*
marsh foxtail*	*Alepecurus geniculatis*
monkey musk*	*Mimulus guttatus*
orache*	*Atriplex patula*
ryegrass*	*Lolium perenne*
saltmarsh ribbonwood	*Plagianthus divaricatus*
sand spurrey*	*Spergularia rubra*
sea spurrey	*Spergularia media*
shepherd's purse*	*Capsella bursa-pastoris*
shore bindweed	*Calystegia soldanella*
silverweed	*Potentilla anserinioides*
soft rush*	*Juncus effusus*
soldier's button*	*Cotula australis*
spike sedge	*Eleocharis acuta*
starwort*	*Callitriche stagnalis*
stinging nettle*	*Urtica* sp.
stitchwort*	*Stellaria graminea*
three-square*	*Schoenoplectus pungens*
toad rush*	*Juncus bufonius*
tree lupin*	*Lupinus arboreus*
water plantain*	*Alisma plantago-aquatica*
water speedwell*	*Veronica anagallis-aquatica*
white clover*	*Trifolium repens*
willow weed*	*Polygonum persicaria*
yarrow*	*Achillea millefolium*