

Part A: WETLAND RECORD SHEET

Wetland name: Brooklands Lagoon
Region: Canterbury Plains ER, Low Plains ED
Altitude: <5 m

Date: March 2010
GPS Ref.: E1576200 N5193400
No. of plots sampled: Overview only

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Estuarine	Tidal	Saltmarsh	Estuary
Estuarine	Supra-tidal	Saltmarsh	Estuary
Palustrine	Permanent	Swamp	Floodplain

Estuary consisting of river delta mud and sand flats and saltmarsh behind a sand dune barrier. Majority (>75%) of wetland area is un-vegetated. Of the vegetated wetland area, 94% is estuarine saltmarsh habitat, with small areas of adjoining riverine and palustrine freshwater wetland habitats.

Field team: Mark Parker, Frances Schmechel

Indicator	Indicator components	Specify and Comment	Score 0– 5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	River mouth diversion; stopbanks, drains have changed natural wetland extent and hydrology.	1	3.3
	Water table depth	No detectable changes within current wetland area.	5	
	Dryland plant invasion	Low	4	
Change in physico-chemical parameters	Fire damage	Occasional localised fires	4	2.7
	Degree of sedimentation/erosion	High levels of sediment deposition have affected much of Brooklands Lagoon.	2	
	Nutrient levels	Elevated as result of catchment land use and hydrological changes.	2	
	Von Post index	Not assessed.		
Change in ecosystem intactness	Loss in area of original wetland	Estimated 50-75% of original wetland extent lost since European settlement	2	3
	Connectivity barriers	Low	4	
Change in browsing, predation & harvesting regimes	Damage by domestic or feral animals	Not grazed. Low level of feral animal damage.	4	3
	Introduced predator impacts on wildlife	Usual suite of mammalian predators likely to be present, plus domestic cats and dogs. No known control programmes.	2	
	Harvesting levels	Eel, flounder, whitebait fishing; duck and goose shooting.	3	
Change in dominance of native plants	Introduced plant canopy cover	Exotic grass, gorse, willows	4	3.5
	Introduced plant understorey cover	Exotic grass and herbs	3	
Total wetland condition index /25				15.5

¹ Assign degree of modification as follows: 5=v. low/ none, 4=low, 3=medium, 2=high, 1=v. high, 0=extreme

Main wetland vegetation types:

	Area
• Sea rush rushland	44 ha
• Three square reedland	39 ha
• Oioi restiad rushland	22 ha
• Native primrose turf	2.4 ha
• Tall fescue grassland	1.3 ha

Native fauna:

Brooklands Lagoon is a wetland of national significance for water birds. This value comes from its large size, habitat diversity and bird species diversity. It is a particularly important wintering habitat. Threatened species using the area include banded dotterel, wrybill, black-fronted tern and bittern (O'Donnell, 2000).

Native fish species present include eels, flounder, yellow-eyed mullet and inanga (Daly 2004).

Pressure	Score²	Specify and Comment
Modifications to catchment hydrology	4	Clearance of native vegetation, drainage, urban development, river engineering, surface and groundwater abstraction.
Water quality within the catchment	3	Probable moderate pollution.
Animal access	2	Stock excluded from area. Control of some pest species.
Key undesirable species	2	19/43 listed species thought to be present.
% catchment in introduced vegetation	4	Over 75% of catchment in introduced vegetation.
Other pressures	3	Further abstraction from Waimakariri River and intensification of land use in catchment.
Total wetland pressure index /30	18	

²Assign pressure scores as follows: 5=extreme, 4=very high, 3=high, 2=moderate, 1=low, 0=none

Part B: Ecological significance assessment

The site is assessed against criteria developed for the Proposed Canterbury Regional Policy Statement (Wildland Consultants Limited, 2011)

Criteria	Rank	Notes
Representativeness	High	Estuary hydrological processes modified but ecological functioning still intact. Extensive areas of native saltmarsh vegetation and tidal mud/sand flat habitats.
Rarity / Distinctiveness	High	Indigenous wetland vegetation and habitats in coastal land environment that retains < 20% of indigenous cover. Estuary habitats relatively rare in Canterbury. Supports threatened species such as wrybill, banded dotterel, black-fronted tern.
Diversity and pattern	High	Unvegetated sand and mud flats, saltmarsh, freshwater wetland habitats all present. High native bird species diversity.
Naturalness	Moderate	Reduction in pre-settlement wetland area and hydrological modification, but remaining wetland supports largely native vegetation/habitats.
Ecological Context	High	Link in chain of coastal wetlands. Seasonally important habitat for migratory fish and birds. Direct link to river and marine ecosystems.

Brooklands Lagoon is assigned an overall ecological significance ranking of **High**.

References:

- Clarkson BR, Sorrell BK, Reeves PN, Champion PD, Partridge TR, Clarkson BD (2004) *Handbook for monitoring wetland condition. Coordinated Monitoring of New Zealand Wetlands*. A Ministry for the Environment Sustainable Management Fund Project (5105)
(Describes the assessment method generally. In particular, Table 5 was used to determine the indicator scores and Table 6 for the pressure scores)
- Daly, A 2004. Inventory of instream values for rivers and lakes of Canterbury New Zealand. A desktop review. Environment Canterbury Report U04/13.
- O'Donnell CFJ. 2000. The significance of river and open water habitats for indigenous birds in Canterbury, New Zealand. Environment Canterbury Unpublished Report U00/37.
- Wildland Consultants 2011. Guidelines for the application of ecological significance criteria for indigenous vegetation and habitats of indigenous fauna and wetlands in Canterbury. Contract Report No. 2289c prepared for Environment Canterbury.