

Christchurch District Plan Site of Ecological Significance

Site Significance Statement

Site name: Styx River Mouth Wetlands

Site number: SES/LP/20

Physical address of site:
399 Kainga Road, and 1109 Lower Styx Road
Brooklands
Christchurch 8083

Summary of Significance:

The Styx River Mouth Wetlands SES is significant because it contains a large area of wetland habitat vegetation that is representative of the Low Plains Ecological which provides important habitat for several threatened species.

Site Map



Additional Site Information

Central point: N5195374, E1574913

Area of SES (ha): 97.5 ha

Site Description

The Styx River Mouth Wetlands are an integral part of the wider Brooklands Lagoon wetland complex and comprise a mosaic of tidal saltmarsh, ephemeral ponds and freshwater wetland habitats that support extensive, diverse and regionally significant examples of native wetland vegetation. Wildlife values are high, and support notable populations of threatened bird species and nesting waterfowl.

Extent of Site of Ecological Significance

The Styx River Mouth Wetlands SES extends west from the mouth of the Styx River where it enters Brooklands Lagoon for a distance of approximately 2 kilometres, and is bounded in the north by the true right bank (TRB) of the Waimakariri River, and in the south by the base of the main river flood protection stop banks as shown on the location map.

Assessment Summary

The Styx River Mouth Wetlands Site has been evaluated against the criteria for determining significant indigenous vegetation and significant habitat of indigenous fauna listed in Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury, 2013) (see below) referring also to the Wildland Consultants (2013) Guidelines and advice from the relevant Specialist Ecologist Groups. Under these criteria the site is ecologically significant because it meets the representativeness (criteria 1 & 2), rarity/distinctiveness (criteria 3 & 4), diversity and pattern (criterion 7) and ecological context criteria (criteria 8 & 10).

Assessment against Significance Criteria

Representativeness

1. ***Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.***

The site is significant under this criterion.

Fifty species of indigenous vascular plants (Appendix 1) were recorded from the Styx River Mouth Wetlands between 1992 and 2002 (CCC Natural Areas Database; Appendix 1), including 8 trees and shrubs, 25 monocot herbs, 16 dicot herbs and one fern. These wetlands therefore contain regionally significant examples of native wetland vegetation (Grove 2009).

2. ***Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.***

The site is significant under this criterion.

The complex of tidal saltmarshes, saltmeadows, ephemeral ponds and freshwater wetlands around the mouth of the Styx River comprise the largest continuous area of wetland habitat remaining in Christchurch and are one of the best examples of tidal saltmarsh in Canterbury (Crossland 2008). At more than 97 hectares, the Styx River Mouth Wetlands complement a wider wetland complex (that includes Brooklands Lagoon) that in Canterbury is second only in area to those wetlands along the margins of Lake Ellesmere/Te Waihora (Meurk 1992). Therefore in this context the Styx River Mouth Wetlands are a relatively large example of their type in the Low Plains Ecological District.

Rarity/Distinctiveness

3. ***Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.***

The site is significant under this criterion.

The site contains wetland vegetation that has been reduced to less than 20% of its former extent in the Low Plains Ecological District. The Threatened Environment Classification reports that less than 10% of indigenous cover remains in the Low Plains Ecological District (See Walker *et al.* 2007; Lloyd *et al.* 2013).

4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.

The site is significant under this criterion.

The site supports several bird species listed as threatened under the Department of Conservation threat classifications system (Robertson et al. 2013) as listed by Grove (2009) and as recorded by the Project Ecologist (Antony Shadbolt) and CCC Ornithologist Andrew Crossland, including:

- White Heron Threatened/Nationally Critical
- Australasian Bittern Threatened/Nationally Endangered
- Marsh Crake At Risk/Relic
- Spotless Crake At Risk/Relic
- Black Cormorant At Risk/Naturally Uncommon
- Royal Spoonbill At Risk/Naturally Uncommon

The tidal section of the Styx River between the floodgates and Brooklands Lagoon is an important migratory pathway for the At Risk (Declining) inanga (*Galaxias maculatus*) (see Grove 2009).

5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.

Site not assessed under this criterion

6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

Site not assessed under this criterion

Diversity and Pattern

7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.

The site is significant under this criterion.

The Styx River Mouth Wetland area contains a diverse range of habitat types that are associated with tidal saltmarsh, ephemeral ponding, shrubland and freshwater wetlands, and Grove (2014) records 14 mapped vegetation types within the site (Appendix 2), including six native, five exotic and two native-exotic types.

Ecological Context

- 8. *Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.***

Assessment:

The site is significant under this criterion.

The tidal section of the Styx River between the floodgates and Brooklands Lagoon is an important migratory pathway for the At Risk (Declining) inanga (*Galaxias maculatus*) and other fish species (see Grove 2009).

- 9. *A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.***

Site not assessed under this criterion

- 10. *Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.***

The site is significant under this criterion.

Large stands of Raupo at the centre of the site were identified by Grove (2009) as critical breeding habitat for Australasian Bittern. These areas of raupo have since expanded significantly as a result of changes following the 2010/2011 earthquakes, thus increasing the significance of this area for this threatened species.

Site Management

Existing Protection Status

- Site is wholly contained within a CCC reserve

Threats and risks	Management recommendations	Support package options N/A
<ul style="list-style-type: none"> • Pest plant incursion 	<ul style="list-style-type: none"> • Monitor pest plant infestations and implement control as required. • Assess new pest plant incursions and implement control as required 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Animal pest incursion 	<ul style="list-style-type: none"> • Monitoring of possible animal pest incursions and trapping as necessary • Trap for incursions by feral cats, ferrets, stoats and other wild mammalian predators 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Disturbance to wildlife from dogs 	<ul style="list-style-type: none"> • Prohibit dogs within core wetland areas of SES area • Interpretation highlighting the impacts dogs can have on wildlife values 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Predation on wildlife by domestic cats 	<ul style="list-style-type: none"> • Maintain efficacy of “moating” on all sides of the core part of the site (ie; Waimakariri River on the north side, Brooklands Lagoon on the east, Styx River and drainage channels on the south, swampy habitat on the west with areas of surface water, • Avoid bridges across the Styx River downstream of the floodgates and paths and trails into the heart of the wetland • Consider completing the “moating” along the southern stopbank by extending the existing drains running east from the floodgates and west from the Styx boat ramp so that they meet and block access to the southern central part of the SES site 	<ul style="list-style-type: none"> •

<ul style="list-style-type: none"> • Management decisions may partly be based pre-earthquake vegetation patterns 	<ul style="list-style-type: none"> • Re-survey and map post earthquake vegetation communities and patterns 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Human disturbance 	<ul style="list-style-type: none"> • Maintain low impact/passive recreation activities • Avoid bridges across the Styx River downstream of the floodgates and paths and trails into the heart of the wetland as these would greatly increase human disturbance levels and also create pathways into the core of the wetland for domestic and wild mammalian predators • Do not re-instate the pre-earthquake gravel roadway on the northern side of the site (along the south bank of the Waimakariri River) as this will cause increased human disturbance and destroy valuable high quality bird habitat (ie; wetland vegetation, pools and channels) that have developed as a consequence of earthquake-generated landform changes. 	<ul style="list-style-type: none"> •

NOTE: Threats, risks and mitigation options are discussed in detail in Grove (2009), and readers of this Site Significance Statement should consult this report for a full breakdown of recommended site management options.

References

- Crossland, A. C. (2008) *Brooklands Lagoon wetland complex: an overview of the site's importance to birdlife with habitat management recommendations*. Christchurch City Council.
- Environment Canterbury. (2013). *Canterbury Regional Policy Statement 2013*. Environment Canterbury.
- Grove, P. (2009) *Biodiversity values and management recommendations for the Styx River mouth reserve. Lower Waimakariri Regional Park*. Environment Canterbury, Christchurch, New Zealand.
- Lloyd, K., McClellan, R., Hutchison, M., Patrick, B., and Shaw, W. (2013) *Guidelines for the application of ecological significance criteria for indigenous vegetation and habitats of indigenous fauna in Canterbury region*. Report prepared for Environment Canterbury by Wildlands Consultants, Rotorua, New Zealand.
- Meurk, C. D. (1992) *Assessment of botanical values and management options for wetlands at the Styx River Mouth*. DSIR Land Resources, Christchurch, New Zealand
- Robertson, H., Dowding, J., Elliott, G., Hitchmough, R., Miskelly, C. O'Donnell, C., Powlesland, R., Sagar, P., Scofield, P., Taylor, G. (2013) *Conservation status of New Zealand birds, 2012*. New Zealand Threat Classification Series 4, Department of Conservation.
- Walker, S., Cieraad, E., Grove, P., Lloyd, K., Myers, S., and Porteous, T. (2007) *Guide to users of the threatened environment classification*. Landcare Research, Lincoln, New Zealand.

Assessment completed by: Antony Shadbolt
Date: 3rd September 2014

Statement completed by: Antony Shadbolt
Date: 3rd September 2014

Statement updated by: XXX
Date: XXX

PLEASE NOTE THIS STATEMENT IS BASED ON INFORMATION AVAILABLE AT THE TIME OF WRITING. DUE TO THE DYNAMIC NATURE OF ECOSYSTEMS, FUTURE REASSESSMENT OF THE SITE MAY BE NECESSARY TO REFLECT ANY CHANGES IN KNOWLEDGE OF ITS ECOLOGICAL SIGNIFICANCE.

Appendix 1:

List of native flora recorded within the Styx River Mouth SES during 2002 botanical survey (Source: CCC Natural Areas Database)

TREES & SHRUBS

BOTANICAL NAME	COMMON NAME(S)
<i>Cordyline australis</i>	ti kouka, cabbage tree
<i>Cortaderia richardii</i>	toetoe
<i>Dodonaea viscosa</i>	akeake
<i>Plagianthus divaricatus</i>	marsh ribbonwood
<i>Ozothamnus leptophyllus</i>	tauhinu, cottonwood
<i>Leptospermum scoparium</i>	manuka
<i>Phormium tenax</i>	harakeke, NZ flax
<i>Suaeda novae-zelandiae</i>	sea blite

MONOCOT HERBS

<i>Bolboschoenus caldwellii</i>	kopungawha
<i>Carex buchananii</i>	Buchanan's sedge
<i>Carex coriacea</i>	cutty grass
<i>Carex litorosa</i>	sea sedge
<i>Carex pumila</i>	sand sedge
<i>Carex virgata</i>	pukio, swamp sedge
<i>Rytidosperma clavatum</i>	danthonia
<i>Desmoschoenus spiralis</i>	pingao
<i>Deyeuxia billardierei</i>	perehia, sand wind grass
<i>Isolepis cernua</i>	slender clubrush
<i>Juncus caespiticus</i>	grass-leaved rush
<i>Juncus distegus</i>	leafless rush
<i>Juncus gregiflorus</i>	wi
<i>Juncus kraussii subsp. australiensis</i>	sea rush
<i>Juncus pallidus</i>	wi, giant rush
<i>Juncus planifolius</i>	wi
<i>Leptocarpus similis</i>	oioi, jointed wire rush
<i>Poa cita</i>	silver tussock, wii
<i>Puccinellia stricta</i>	salt grass
<i>Schoenoplectus pungens</i>	three-square
<i>Triglochin striatum</i>	arrow grass
<i>Typha orientalis</i>	raupo
<i>Zostera novozelandica</i>	seagrass, eelgrass
<i>Schoenus concinnus</i>	
<i>Scirpoides nodosa</i>	knobby clubrush

DICOT HERBS

<i>Acaena anserinifolia</i>	piripiri, bidibid
<i>Apium prostratum</i>	shore parsley
<i>Epilobium billardiereanum</i>	willowherb
<i>Cotula coronopifolia</i>	batchelors button
<i>Calystegia soldanella</i>	shore convolvulus
<i>Chenopodium glaucum</i>	glaucous goosefoot
<i>Cotula coronopifolia</i>	batchelors button
<i>Leptinella dioica</i>	shore cotula
<i>Lilaeopsis novae-zelandiae</i>	
<i>Mimulus repens</i>	native musk

Pseudognaphalium luteo-album

Samolus repens

Sarcocornia quinqueflora

Selliera radicans

Senecio glomeratus

Spergularia media

jersey cudweed

sea primrose, maakoako

ureure, glasswort

remuremu, selliera

NZ groundsel

sea spurrey

FERNS & ALLIES

Pteridium esculentum

bracken

Appendix 2:

Vegetation map of the Styx River Mouth Reserve showing location of six native, five exotic and two native-exotic vegetation types described for the area (Source Grove 2009).

