



Towra Point Nature Reserve Ramsar site

Ecological character description

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Main: Towra Lagoon (DECCW)

Right top: Bar-tailed godwits (P. Straw/AWSG)

Right centre: Saltmarsh and mangroves (J. Dahlenburg/SMCMA)

Right bottom: Pied oystercatchers (P. Straw/AWSG)

Summary

Towra Point Nature Reserve Ramsar site consists of 386.5 hectares of wetlands that lie on the southern shore of Botany Bay, approximately 16 kilometres from Sydney city centre. The entire Ramsar site lies within Towra Point Nature Reserve, which is managed by the Department of Environment, Climate Change and Water NSW (DECCW).

At the time of designation in February 1984, the Ramsar site included 281.7 hectares within the nature reserve boundary. Since then additions have been made to both the nature reserve and the Ramsar site; consequently the area of Towra Point Nature Reserve is now 603.7 hectares and the area of the Ramsar site is 386.5 hectares. It is recommended that the Ramsar site boundary be extended to include the 2008 additions to the nature reserve, i.e. to include the whole of the current boundary of the nature reserve.

This ecological character description (ECD) includes information specific to the Ramsar site, as well as to the nature reserve as a whole and to the adjacent aquatic reserve (as detailed in the text). The wetland types, the ecosystem components, processes and services, and the limits of acceptable change are much the same for the nature reserve and the Ramsar site and are highly interconnected with those of the aquatic reserve, and consequently cannot be easily discussed separately. Much of the available information to support this ECD was collected for the nature reserve as a whole and cannot easily be disaggregated to apply solely to the Ramsar site. DECCW has updated the Ramsar information sheet in 2010 to extend the Ramsar site boundaries to match the nature reserve boundaries.

When Towra Point Nature Reserve was listed as a Ramsar site in 1984 it met Ramsar criteria 1, 2, 3 and 6. However, in 2009, the site is recognised as meeting criteria 2, 3, 4 and 8. The site no longer meets criterion 1 (rare or unique wetland types) because the biogeographic classification has been changed from the Interim Biogeographic Regionalisation for Australia (IBRA) to Australian Drainage Divisions, which places Towra Point in the Southeast Coast Drainage Division. The South East Coast is much larger than the Sydney Basin bioregion (under IBRA) and there are more extensive areas of mangroves and saltmarsh in other estuaries. The site no longer meets criterion 6 (1% or more of population of a waterbird species) because Towra Point no longer supports 1% of the estimated international population of eastern curlew, as a result of the species' estimated international population having increased. Criterion 4 (critical life cycle stages for plant or animal species) and criterion 8 (re resources for supporting fish populations) have been met because there is new evidence about the importance of the area for migratory species, little tern breeding and fish habitat.

The critical ecosystem components, processes and services and the limits of acceptable change at Towra Point are strongly related to the criteria for which the site was listed, especially the site's biodiversity values and importance for threatened species. Towra Point Nature Reserve supports the largest wetland of its type in the greater Sydney region and represents vegetation types that are now rare in the area. Sixty per cent of saltmarsh communities and 40% of mangrove communities in the Sydney region are found at Towra Point, in addition to a significant area of seagrass adjacent to the wetland. The diversity of vegetation types supports many biological interactions and a complex food web. This includes four nationally threatened species, and 24 threatened species and five endangered ecological communities protected under NSW legislation. Towra Point is a critical roosting and feeding habitat for large numbers of migratory shorebird species and a significant nesting site for the endangered little tern (*Sterna albifrons*). The mangroves and seagrass provide protection and food for juvenile fish species, and the release of crab larvae from

saltmarsh areas during spring ebb tides provides a reliable source of food for a variety of fish species and a critical link in the estuary's food web. Towra Point is important in providing ecological connectivity for itinerant species, and is important for maintaining biodiversity in the greater Sydney region. Key limits of acceptable change include maintaining the geomorphological, hydrological and physicochemical conditions of the wetland types at Towra Point that support its biota.

Describing the ecological character of any wetland ecosystem is central to effective management, as the description forms the baseline against which management planning and actions are determined. Towra Point is within the Botany Bay catchment which has been, and continues to be, modified for industrial and residential development. This ecological character description has been prepared retrospectively for the time of Ramsar listing in 1984, recognising that changes to the shoreline and bathymetry of Botany Bay prior to 1984 have impacted on the wetlands and continue to do so. These impacts have been exacerbated by the construction of Sydney Airport's third runway in 1994 and by the dredging of a channel in the bay. While these changes are substantial, management actions have mitigated the impact on the site's ecological character.

Limits of acceptable change for shorebirds have been determined based on data for Botany Bay, as shorebirds use suitable habitat both within and outside the Ramsar site and are counted across the whole bay. Shorebird numbers in both summer and winter have declined, with four species recorded in Botany Bay over summer in 1983–87 – broad-billed sandpiper, Latham's snipe, pectoral sandpiper and oriental plover – no longer present in 2004–08; however three new shorebird species – common sandpiper, sanderling and wandering tattler – are now occasionally recorded in Botany Bay over summer. While the limit of acceptable change for shorebird diversity – no net loss of species since time of Ramsar listing – has been exceeded, further analysis is required to understand that change in species composition and to improve the confidence in this limit of acceptable change. The limit of acceptable change for shorebird abundance – decline of no more than 50% from baseline condition in five consecutive years – is close to being exceeded, as summer shorebird numbers have decreased from 1668 (± 472) in 1983–87 to 897 (± 112) in 2004–08, and winter shorebird numbers have decreased from 414 (± 132) in 1983–87 to 238 (± 90) in 2004–08. Towra Point is also continuing to provide critical habitat for migratory species such as eastern curlew and little terns, with the numbers of eastern curlew increasing since 1984 and little terns successfully nesting and producing fledglings in most years.

Continued management will be essential to maintain the site's character. Threats to the site include its proximity to one of the largest ports in eastern Australia; alterations to the shoreline, hydrology and bathymetry of Botany Bay causing increased wave energy on the southern side of the bay; residential and industrial development within the catchment; invasive species; and the impacts of climate change including sea level rise.

Ecological character description of Towra Point Nature Reserve Ramsar site

Site name	Towra Point Nature Reserve
Location in coordinates	34°00'S, 151°10'E
General location	Approximately 16 km south of Sydney centre. Towra Point adjoins Kurnell Peninsula, forming the southern and eastern boundaries of Botany Bay.
Area	386.5 hectares
Date of listing as a Ramsar site	21 February 1984
Original Ramsar nomination criteria met by wetland	1a, 2a, 2b, 3b, 3c, dominant reason 2b
Ramsar nomination criteria met by wetland	2, 3, 4 and 8
Management authorities	Department of Environment, Climate Change and Water NSW
Date for which the description of ecological character applies	1984
Status of description	This is the first ecological character description of Towra Point Nature Reserve Ramsar site.
Date of compilation	June 2010
Name of compiler	Kirsty Brennan Waters and Catchments Science Section Scientific Services Division Department of Environment, Climate Change and Water NSW
Reference to the Ramsar Information Sheet	Towra Point Nature Reserve Ramsar information sheet, January 1998. Wetlands International Ramsar Sites Information Service, www.wetlands.org/rsis/
Reference to the management plan	NSW National Parks and Wildlife Service (2001), <i>Towra Point Nature Reserve plan of management</i> , www.environment.nsw.gov.au/resources/parks/pomfinaltowra.pdf

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