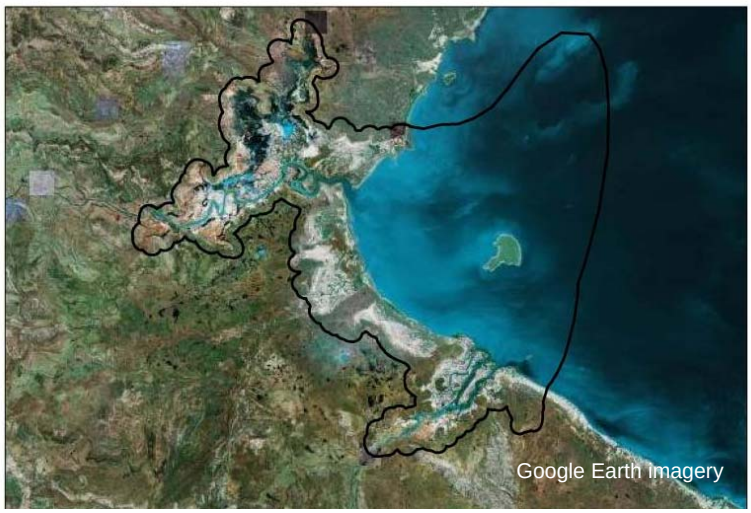
Limmen Bight and associated coastal floodplains

Location and Description

Limmen Bight is located in the Gulf of Carpentaria about 360 km east of Katherine. The Site is dominated by huge coastal mudflats, which are some of the most extensive in the Northern Territory, and mangrove forests associated with the mouth of the Roper River and the large coastal delta system at the mouth of the Limmen Bight River. The Site also includes a number of islands off-shore, the largest of which is Maria Island. The tidal flats support patches of low samphire shrubland.



Tenure and Land Use

This Site is predominantly Aboriginal freehold land and within two Aboriginal Land Trusts (Arnhem Land and Marra Aboriginal Land Trusts). Small portions of the site are pastoral leasehold land including one pastoral property (Nathan River), and Crown lease and freehold land. The Site mainly supports Indigenous use, and other uses include pastoral operations, conservation, commercial fisheries, aquaculture and recreation. Approximately 20% of this Site is managed as a conservation reserve (Limmen National Park (Proposed)).

Significance Rating

International Significance

Ecological Values

The extensive intertidal mudflats of Limmen Bight are among the most important areas for migratory shorebirds in the NT. They support large aggregations of waders, including more than 1% of the world's Grey-tailed Tattlers and Great Knot, and significant numbers of at least two other species. Off-shore islands support large colonies of nesting seabirds and provide important nesting sites for Green and Flatback turtles. Three waterbird colonies have been reported in the Site and large numbers of waterbirds use the seasonal floodplains. Eight threatened species are reported from this Site including four marine turtles, three birds, and one mammal.

Management Issues

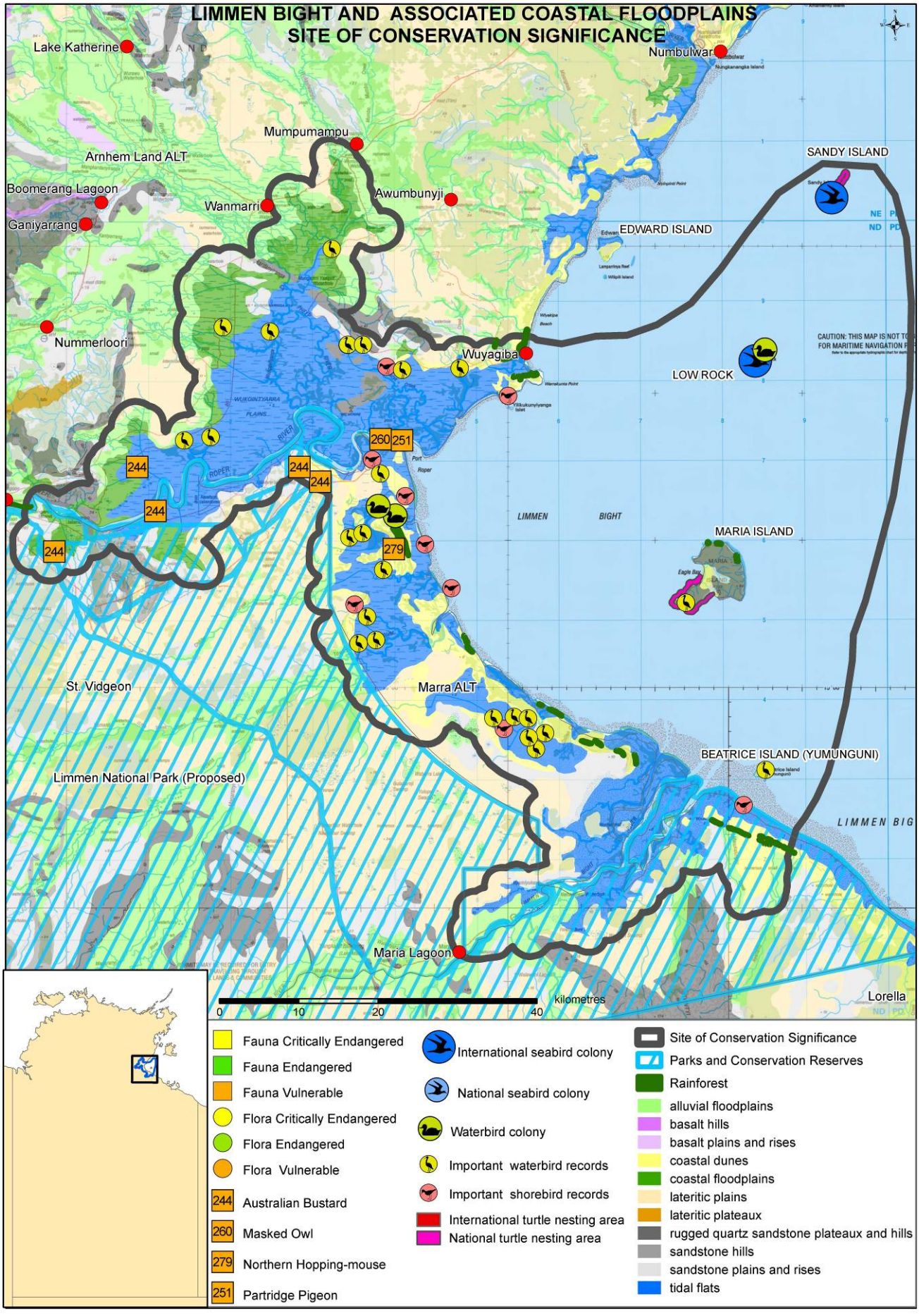
There is a lack of biological survey effort in this Site and knowledge of the conservation values and management issues is incomplete. Several weed species occur in the Site, but their extent and impact are unclear. The capacity of local Indigenous ranger groups to carry out management and monitoring of weeds, feral animals and fire, needs to be increased. The lower Roper River is popular for recreational fishing, and semi-permanent fishing camps create localised pressures that need to be managed.

Condition

The catchments of all the watercourses leading into the Site are moderately disturbed. No information on the condition of the Site was located.

Current Conservation Initiatives

Indigenous rangers based in Numbulwar are involved in the survey and collection of marine debris, and are negotiating with commercial operators active in the area to develop improved management of marine and coastal areas. A strategic project plan has been developed for the Numbulwar Homelands which identifies other land management priorities.


LIMMEN BIGHT AND ASSOCIATED COASTAL FLOODPLAINS
SITE OF CONSERVATION SIGNIFICANCE
Lake Katherine
Numbulwar
Mumpumampu
Arnhem Land ALT
Boomerang Lagoon
Wanmarri
Awumbunyji
Ganiyarrang
SANDY ISLAND
EDWARD ISLAND
Nummerloori
Wuyagiba
LOW ROCK
CAUTION: THIS MAP IS NOT TO
FOR MARITIME NAVIGATION
WUKOINTJARRA
PLAINS
ROPER
RIVER
260
251
244
244
244
244
244
LIMMEN
BIGHT
MARIA ISLAND
279
St. Vidgeon
Marra ALT
BEATRICE ISLAND (YUMUNGUNI)
Limmen National Park (Proposed)
LIMMEN BIG
Maria Lagoon
Lorella
0
10
20
40
kilometres
Fauna Critically Endangered
Fauna Endangered
Fauna Vulnerable
Flora Critically Endangered
Flora Endangered
Flora Vulnerable
244 Australian Bustard
260 Masked Owl
279 Northern Hopping-mouse
251 Partridge Pigeon
International seabird colony
National seabird colony
Waterbird colony
Important waterbird records
Important shorebird records
International turtle nesting area
National turtle nesting area
Site of Conservation Significance
Parks and Conservation Reserves
Rainforest
alluvial floodplains
basalt hills
basalt plains and rises
coastal dunes
coastal floodplains
lateritic plains
lateritic plateaux
rugged quartz sandstone plateaux and hills
sandstone hills
sandstone plains and rises
tidal flats

LOCATION	**SOCS Number**	32 (NT Parks and Conservation Masterplan Map Number 27)
	Latitude/Longitude	14º 49´ South, 135º 33´ East (at centre)
	Bioregion	Gulf Coastal (80%), Gulf Falls and Uplands (20%)
	Description	This site includes the coastal floodplains associated with the Roper, Limmen Bight and Towns rivers, the coastline and tidal flats between Warrakunta Point and the mouth of the Limmen Bight River, and the off-shore islands of Low Rock, Sandy and Maria islands. Much of the mainland portion of the site is affected by tides, but there is a high volume of freshwater inflow from the Roper River and other tributaries. The site encompasses an area of 2720 km² and is dominated by vast areas of tidal flats (1095 km²), some of the most extensive in the NT. Only limited freshwater floodplain habitat is associated with the Limmen Bight River, but the north and western parts of the Roper River coastal floodplain comprise a larger area of seasonal wetlands. Three small and isolated islands are located about 20 km off the coast in this site. Sandy Island, south-east of Numbulwar, is predominantly a sand island with low vegetation. Further south, Low Rock is mostly rock and mangroves, and Maria Island is a low, well-vegetated island (Chatto 2001).
THREATENED SPECIES	**Significance Rating**	**Regional Significance**
	Threatened plants and animals (Listings at National/NT level **CR** - Critically Endangered, **EN** - Endangered, **VU** - Vulnerable, **NT** - Near Threatened, **LC** - Least Concern, **DD** - Data Deficient)	Eight threatened species are reported from this site. **Vertebrates** ▪ Australian Bustard *Ardeotis australis* (-/VU) ▪ Masked Owl *Tyto novaehollandiae kimberli* (VU/VU) ▪ Partridge Pigeon *Geophaps smithii* (VU/VU) ▪ Northern Hopping-mouse *Notomys aquilo* (VU/VU) ▪ Flatback Turtle *Natator depressus* (VU/DD) ▪ Green Turtle *Chelonia mydas* (VU/LC) ▪ Hawksbill Turtle *Eretmochelys imbricata* (VU/DD) ▪ Olive Ridley Turtle *Lepidochelys olivacea* (EN/DD) (Chatto and Baker 2008)
ENDEMIC SPECIES	**Significance Rating**	**Not Significant**
	Notes	**Endemic to the NT:** One vertebrate and ten plant species recorded in this site are endemic to the NT.
WILDLIFE AGGREGATIONS	**Significance Rating**	**International Significance**
	Marine turtles	Four species of marine turtle nest on Sandy Island but the island is especially important for nesting Flatback and Green Turtles (Chatto and Baker in prep.). Beaches on Maria Island and Low Rock are also well used by nesting Flatback Turtles. The mainland coast of this site is dominated by inter-tidal mudflat and is mostly unsuitable for nesting marine turtles. Here the site is considered of National significance to marine turtles.
	Seabirds	Three seabird breeding colonies are confirmed on off-shore islands within this site (Chatto 2001), including significant colonies on Low Rock and Sandy Island (S063, S062). Maximum counts of Roseate Terns that are internationally significant (> 1% global population; G. Dutson in prep.) include: 4000 on Low Rock (1994) (with another 6000 roosting around the island at the same time); and 3000+ on Sandy Island (1994) (Chatto 2001). High numbers of Crested Terns (10 000) nest on Sandy Island, and numerous other tern species nest in high numbers on Low Rock, including NT's only reported colony of Lesser Crested Terns (Chatto 2001).
	Waterbirds	This site comprises large areas of freshwater wetlands that often support large numbers of waterbirds. The highest reported count is 33 500 (Chatto 2006). Chatto (2006; R. Chatto, NRETAS unpubl.) notes 30 important waterbird records for this site including counts of egrets and Magpie Geese that are regionally important. Three waterbird breeding colonies are reported in mangroves in this site, including a colony near the mouth of the Roper River (W055) with 10 000 birds and dominated by Australian White Ibis, Nankeen Night Herons, and Intermediate Egrets (Chatto 2000a).
	Shorebirds	**Total numbers of shorebirds:** This site comprises extensive areas of inter-tidal mud and sand flats that support significant numbers of shorebirds. Highest counts of shorebirds include 38 000+ in 1994 (Chatto 2003) and other authors (DIWA and see references therein) have also reported numbers >30 000 shorebirds. **Counts of individual species:** Maximum counts of species that are internationally significant (>1% East Asian-Australasian Flyway population; Bamford *et al.* 2008) include: 21 400 Great Knot (Lane 1987); 3015 Black-tailed Godwit; and 3100 Red Knot (Garnett and Taplin 1990). Counts of 500 Grey-tailed Tattler (Chatto 2003) and 5000 Black-winged Stilt (Chatto 2006) are also internationally significant (>1% global population; G. Dutson in prep.). Chatto (2003; R. Chatto, NRETAS unpubl.) notes 11 important shorebird records for this site including large aggregations of mixed shorebird species that are regionally important.
	Other aggregations	None known

WETLANDS	**Significance Rating**	**National Significance (possible International)**
	Ramsar criteria met	This site has not been formally assessed against Ramsar criteria but is likely to satisfy at least waterbird based criteria (criterion 5: important waterbird aggregation site with >20 000 waterbirds; criterion 6: regularly supports >1% of the individuals in a population) for listing as a wetland of international importance under the Ramsar Convention.
	DIWA criteria met	The majority of this site is listed as a wetland of national significance in the Directory of Important Wetlands in Australia (DIWA: NT007 Limmen Bight (Port Roper) Tidal Wetlands System). The site meets criteria 1, 2, 3, 4, 5, 6 and includes DIWA wetland types: A2, A6, A7, A8, and A9.
	Notes	This site has been nominated as a national High Conservation Value Aquatic Ecosystem (the finalised list of HCVAE will replace the DIWA list). It is a good example of a system of tidal wetlands (intertidal mud flats, saline coastal flats and estuaries), with a high volume of freshwater inflow; typical of the Gulf of Carpentaria coast. The second-largest area of tidal flats in the NT (DIWA).
	Rivers	The site is traversed by the lower reaches of the Roper River, one of the largest NT rivers. The Roper River drains much of southern Arnhem Land, but dry season flow is essentially derived from groundwater reserves upstream of Elsey Station.
FLORA	**Significance Rating**	**Regional Significance**
	Notes	**Rainforest:** Almost 700 ha of dry rainforest occur predominantly in coastal areas in this site. Most of the rainforest occurs as small and scattered patches but one patch is >100 ha (Russell-Smith 1991).
OTHER ENVIRONMENTAL VALUES		The lower reaches of the Roper and Limmen Bight rivers are identified as internationally important sites for migratory shorebirds in the East Asian-Australasian Flyway (Bamford *et al.* 2008). The coastal floodplains of the Roper and Limmen Bight rivers are proposed to be nominated by Birds Australia as an internationally-recognised *Important Bird Area* due to the occurrence of range-restricted species and globally significant numbers of waterbird and shorebird species (G. Dutson in prep.). Sandy Island and Low Rock are also proposed to be nominated as an *Important Bird Area* due to the significant counts of nesting Roseate Terns (G. Dutson in prep.) The Chestnut Rail is a range restricted species which is reported from mangroves in this site (DIWA). Extensive areas of sea grass occur in coastal waters in this site, notably from the Limmen Bight River to Rosie Creek, and support high densities of Dugongs (Bayliss and Freeland 1989). 50 species recorded from this site are listed under international conventions or bilateral agreements protecting migratory animals. Garnett (1987) identified the mouth of the Roper River as one of five important concentration areas for waders in north-eastern Australia. The ecological values of the Limmen Bight and Port McArthur areas are recognised in other reports (NT Department of Lands and Housing 1991; Page and Reynolds 1997). The marine areas within this site are likely to encompass other significant biodiversity values and these are currently being explored and collated in a project by the Marine Biodiversity Group of NRETAS (K. Edyvane, NRETAS, pers. comm.).
MANAGEMENT ISSUES		**Fire:** In the period 1993-2004, 85% of the site was burnt in fewer than three years, and none was burnt in more than six years. **Feral animals:** Feral buffalo and horse are considered widespread in the general area (NRETAS, unpubl. data). **Weeds:** One Weed of National Significance (*Parthenium hysterophorus)* and three undeclared but problematic environmental weeds (high priority weeds: Smith 2001) (*Cenchrus echinatus, Senna occidentalis, Tribulus cistoides*) are recorded from this site. **Other:** Port Roper is popular for recreational fishing and semi-permanent camps in this area are a significant issue with problems of litter, erosion, weeds and waste disposal (Kraatz 2004). Marine debris is also a significant problem at Port Roper (Kraatz 2004). There is a lack of resources and capacity within local Indigenous ranger groups to manage the existing and potential management issues. All coastal areas in northern Australia are at risk of degradation from sea-level rise resulting from climate change (Hyder Consulting 2007).
MANAGEMENT INFORMATION	**NRM groups**	Yugul Mangi Rangers (Ngukurr), Numbulwar Numburindi Amalahgayag Inyung Rangers (Numbulwar) (Northern Land Council 2006).
	Protected areas	Limmen National Park (Proposed) (588 km²/ 22% of site).
	Current management plans	**Site-specific plans:** Roper River Catchment Natural Resource Management Plan (Kraatz 2004). **National recovery plans for threatened species:** Partridge Pigeon and Masked Owl (Woinarski 2004a); Northern Hopping Mouse (Woinarski 2004b); marine turtles (Environment Australia 2003). **Other management plans:** Australian Weeds Strategy (NRMMC 2007); FIREPLAN: Fire management for the savanna community (Russell-Smith *et al.* in prep.).

	Monitoring programs and research projects	Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project http://www.firenorth.org.au/nafi/app/init.jsp Irregular surveys and collection of fishing nets by Indigenous rangers under the Carpentaria Ghost Net Program http://www.ghostnets.com.au/index.html Irregular aerial surveys of Dugongs along transects over coastal waters in the western Gulf of Carpentaria (Saalfeld 2000), with most recent surveys in 2007. The fauna and flora of Maria Island was surveyed in 2007 (NRETAS, unpubl. data). There is one Tier 1 rangeland monitoring point within this site (Karfs and Bastin 2001).
	Management recommendations	Assist traditional owners and community ranger groups to develop and implement appropriate natural resource management programs (NRETA 2005). Investigate feasibility of complementary marine biodiversity conservation in the Limmen Bight in conjunction with landholders, community-based ranger groups, Fisheries (DPIFM), and other stakeholders (NRETA 2005). Support establishment of marine ranger groups or expand management capacity of existing community-based ranger groups to undertake monitoring of significant marine turtle and seabird sites (NRETA 2005). The numbers of nesting seabirds on Low Rock and Sandy Island should be monitored (G. Dutson in prep.). Develop a management plan for the Roper tidal area and liaise with government bodies to explore mechanisms to improve management mechanisms (Kraatz 2004).
KEY REFERENCES	**Papers and reports**	Chatto, R. (2003). *The distribution and status of shorebirds around the coast and coastal wetlands of the Northern Territory.* Technical Report 73, Parks and Wildlife Commission of the Northern Territory, Palmerston. 257pp. Chatto, R. (2001). *The distribution and status of colonial breeding seabirds in the Northern Territory.* Technical Report 70, Parks and Wildlife Commission of the Northern Territory, Darwin. 206pp. DIWA (A Directory of Important Wetlands in Australia). *Australian Wetlands Database*. Department of Environment, Water, Heritage and the Arts, Canberra ACT (accessed March 2008). Kraatz, M. (2004). *Roper River Catchment Natural Resource Management* Plan. Roper River Landcare Group Incorporated.
	Contributors	

Coastline north of Limmen River (Photo: Ray Chatto)