

Queensland Parks and Wildlife Service, Great Sandy Region

Management Strategy Shorebirds

Great Sandy Marine Park

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<http://sandystraitsandbeyond.blogspot.com>

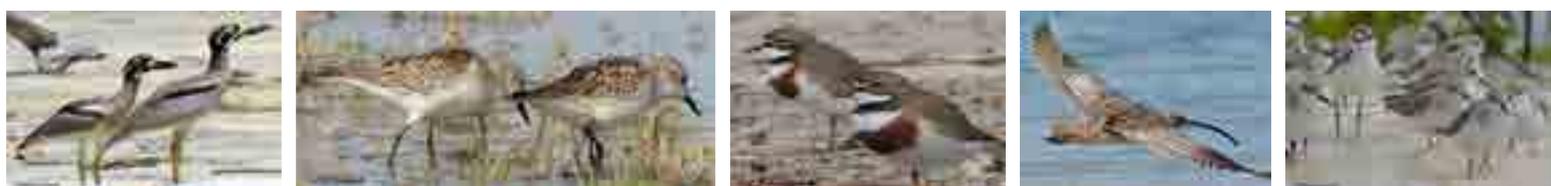
Guidance on specific management actions required for at risk roost sites provided by the publication *Shorebirds of the Burnett Coast: surveys of critical high tide roosts, Report for Burnett – Mary Regional Group for Natural Resource Management (2007)* by David Milton and Sandra Harding on behalf of the Queensland Wader Study Group.

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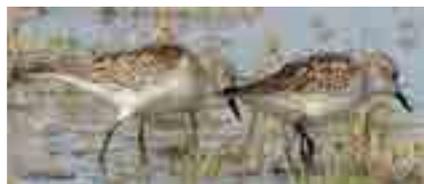
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1. EXECUTIVE SUMMARY

The Great Sandy Marine Park (GSMP) was gazetted on 31 August 2006 and a zoning plan was released as the principal tool of management. The GSMP covers approximately 6000 square kilometres of tidal waters and tidal lands from Baffle Creek in the north to Double Island Point in the south.

The diversity of marine and intertidal habitats within the marine park includes seagrass, mangroves, salt marshes, surf and sheltered beaches, rocky headlands, estuaries, coral reefs, rocky reefs and sand and mud banks (Strategy for declaration and zoning of the proposed Great Sandy Marine Park – Northern Section).

Shorebirds are an integral part of these relatively pristine estuarine environments, with the intertidal areas of the marine park providing them essential roosting, feeding and, in some cases, breeding habitat.

Queensland Parks and Wildlife Service (QPWS) are responsible for managing the marine park, including shorebirds and their habitat. Outside the marine park, responsibility for protecting shorebirds is a matter for landholders, local governments, coastal planners, other land managers and users of the marine park.

While the protection of shorebirds is a global issue, the management of threats to their survival on a regional level is essential. This strategy provides guidance for the protection of the shorebirds using the GSMP, by identifying actions to manage threats to their survival.

2. AIMS AND OBJECTIVES

This management strategy aims to:

- Recommend on-ground management actions that address threats to the protection of shorebirds and their habitat
- Promote awareness of the importance of the Great Sandy Region for the conservation of shorebirds and their habitat
- Provide key action and outcomes to measure performance over time.

3. INTRODUCTION

3.1 Significance of Great Sandy Marine Park for Shorebirds

The international significance of the GSMP for shorebirds is well documented and cannot be underestimated given the mounting pressure on wetlands world-wide. Great Sandy Strait was declared a Ramsar¹ site in 1999. This international treaty encourages wise use of wetlands to ensure their conservation. Land and water within the Ramsar site overlap a large area of the GSMP.

The Great Sandy Strait holds up to 46,000 shorebirds during the summer months with internationally significant numbers of seven migratory species (eastern curlew, whimbrel, bar-tailed godwit, grey-tailed tattler, common greenshank, lesser sand plover and terek sandpiper) and one non-migratory species (Australian pied oystercatcher) during those periods (QWSG 2005).

The significance of GSMP for shorebirds and their habitat is also important for many areas currently not captured within the designated boundaries of the Ramsar sites. International treaties and agreements between China, Japan, South Korea and Australia² reinforce this significance. Eighteen of the 24 migratory shorebird/waterbird species listed under migratory bird agreements use the GSMP.

¹ The Convention on Wetlands, signed in Ramsar, Iran in 1971, is an intergovernmental treaty dedicated to the conservation and "wise use" of wetlands.

² See Appendix A



These incredible shorebirds make round trip migrations of up to 26,000 km each year between their breeding grounds in the northern hemisphere and their non-breeding areas in the south.

During migration, which takes several weeks, shorebirds rely on a chain of highly productive wetlands to rest and feed, building up sufficient energy to fuel the next phase of their journey. Many birds visiting the Great Sandy Strait rely on wetlands in the Yellow Sea between China and the Korean Peninsula as a stopover site between Russia and Australia (Lee Long, W.J. and O'Reilly, W.K. (2007).

Unfortunately, the extent and quality of these areas are being seriously threatened by reclamation, reduced river flows and sedimentation, pollution, and disturbance and competition from humans, particularly in China and South Korea (Priest *et al.*). The corridor through which these shorebirds migrate is known as the East Asian - Australasian Flyway (EAAF). It extends from within the Arctic Circle, through East and South-east Asia, to Australia and New Zealand. Stretching across 22 countries, it is one of eight major shorebird flyways recognised around the globe and incorporates the Great Sandy Region (DEWHA website).

In addition to migratory birds listed under international agreements, the GSMP is also an important stopover point for a number of migratory terns. Species regularly observed on Fraser Island and Inskip Peninsula include the Little, white-winged, black, gull-billed and common terns (M. West pers. obs.)

Great Sandy's importance as a destination for migratory shorebirds is coupled with its value for resident shorebirds (birds that are present all year round). Resident shorebirds including beach stone-curlew *Esacus magnirostris*, sooty oystercatcher *Haematopus fuliginosus*, Australian pied oystercatcher *Haematopus longirostris* and black-winged stilt *Himantopus himantopus* are significant to the area. Unlike migratory shorebirds, resident shorebirds in the Great Sandy Region rely on the area for both breeding and feeding.

For the purpose of this strategy the use of the term "shorebird" is intended to include the families of the order Charadriiformes commonly known as "true" shorebirds or waders (QPWS 2005) and, as they often co-inhabit foreshores with shorebirds, some species of the family Laridae (specifically terns).

3.2 Current Knowledge - Shorebird biology

Shorebirds (sometimes referred to as "waders") are a diverse group of birds from the taxonomic order Charadriiformes and include plovers, sandpipers, stints, curlews, knots, snipes, godwits, avocets, stilts, oystercatchers, pratincoles, lapwings and several other groups. They range in shape and size from the tiny red-necked stint *Calidris ruficollis* at 30g to the largest species, eastern curlew *Numenius madagascariensis* at 1.3kg (QWSG 2005).

Shorebirds use the region's extensive intertidal wetlands, including sand and mud banks, salt marsh and salt pans for feeding.

The type of food preferred for each species generally correlates to their bill size and shape. Some will capture surface prey such as small crabs, while others probe deeper into the soil, mud or water, detecting food with their sensitive bill tips.

Shorebird feeding and roosting cycles are linked to the tides rather than day or night, with birds feeding at low tide and roosting at high tide. When they are not feeding or transiting, shorebirds roost, generally at or above the high tide mark on open shores with a surrounding area of clear visibility safe from predation.

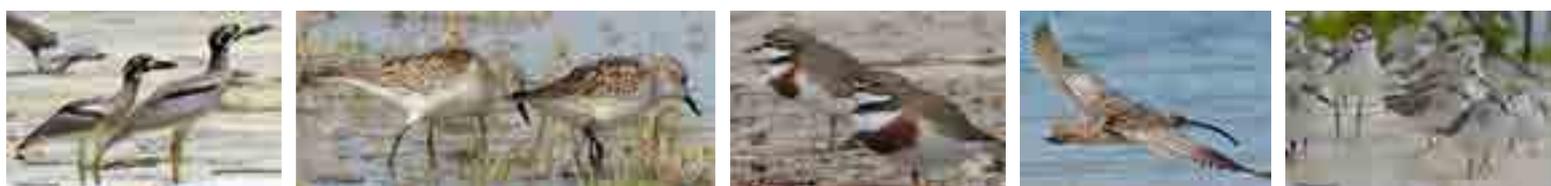
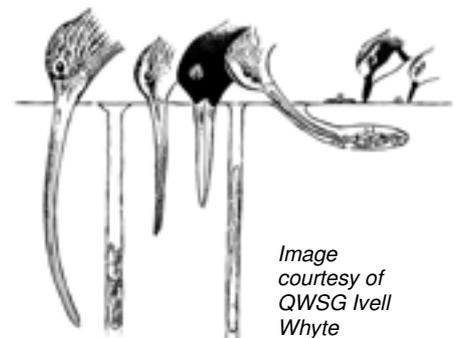


Table 1 Essential ecosystem requirements for Shorebirds

Important ecosystem requirements	Essential Shorebird needs	Habitats
Sufficient habitat extent/size, condition/health and diversity	Feeding areas	mudflats, sand flats and salt marsh
	Roost sites	sand spits and some mangrove areas
	Secure breeding sites	sandy and rocky foreshores
Migration	Network of wetlands along migration path	Suitable conditions at wetlands along their flyway are needed to maintain these populations
Tidal regime	Feeding habitats	Intertidal areas, including sufficient sand and mud flats
Ongoing coastal sedimentation	Ongoing fluvial sediment replenishment	Wetlands and foreshores
Water quality	Good water quality	Maintenance of healthy wetlands and intertidal flats
Adequate energy and nutrient dynamics in the ecosystem	Food abundance and availability	Tidal flat benthic communities that support primary food sources such as small fish and crustaceans

Sources: Adopted from the Draft Ecological Character Description for the Great Sandy Strait Ramsar site, Lee Long and O'Reilly (2007)

3.3 Current Knowledge - Studies

A number of studies have been undertaken to survey shorebird feeding areas and high tide roosts in the region³. Many of these studies have focused solely on the Great Sandy Strait.

In more recent times, a reconnaissance report by Queensland Wader Study Group (QWSG 2006) provided approximate locations, descriptions and species present in the region and preliminary findings for shorebird roosts in the region.

Based on this information, further surveys of resident and migratory shorebirds were undertaken by Queensland Wader Study Group (QWSG) volunteers along the Burnett Coast, inner reef islands (Lady Elliot and Lady Musgrave Island) and Fraser Island.

The resulting report, funded by QPWS Great Sandy Region and the Burnett Mary Regional Group for Natural Resource Management (BMRG), includes an assessment of the threats to the viability of shorebird roosts and indicates priority roosts that need management intervention (QWSG 2007). GIS layers generated from the surveys have provided a comprehensive overview of the distribution of shorebirds in the GSMP.

3.4 Shorebird roosting sites

There are more than 80 identified shorebird roosting sites within the GSMP. Detailed roosting site maps are provided in Appendix B.

³ See references for details



3.5 Threatened species

Species listed as rare or threatened under the *Nature Conservation Act 1992* (NCA) within the GSMP are:

Table 2 Rare and threatened shorebird and tern species in the GSMP

Common Name	Scientific name	Protection status
Little tern	<i>Sternula albifrons</i>	Endangered
Beach stone-curlew	<i>Escacus magnirostris</i>	Vulnerable
Sooty oystercatcher	<i>Haematopus fuliginosus</i>	Rare
Eastern curlew	<i>Numenius madagascariensis</i>	Rare

3.6 Migratory shorebird and tern species

Migratory species within the GSMP as listed by QWSG (2007) and M.West pers.obs. include:

Table 3 Migratory shorebird and tern species in the GSMP

Common Name	Scientific name	Protection status
Pacific golden plover	<i>Pluvialis fulva</i>	Common
Grey plover	<i>Pluvialis squatarola</i>	Common
Ringed plover	<i>Charadrius hiaticula</i>	Common
Double-banded plover	<i>Charadrius bicinctus</i>	Common
Lesser sand plover	<i>Charadrius mongolus</i>	Common
Greater sand plover	<i>Charadrius leschenaultii</i>	Common
Oriental plover	<i>Charadrius veredus</i>	Common
Latham's snipe	<i>Gallinago hardwickii</i>	Common
Black-tailed godwit	<i>Limosa limosa</i>	Common
Bar-tailed godwit	<i>Limosa lapponica</i>	Common
Little curlew	<i>Numenius minutus</i>	Common
Whimbrel	<i>Numenius phaeopus</i>	Common
Eastern curlew	<i>Numenius madagascariensis</i>	Rare
Terek sandpiper	<i>Xenus cinereus</i>	Common
Common sandpiper	<i>Actitis hypoleucos</i>	Common
Grey-tailed tattler	<i>Tringa brevipes</i>	Common
Common greenshank	<i>Tringa nebularia</i>	Common
Wood sandpiper	<i>Tringa glareola</i>	Common
Marsh sandpiper	<i>Tringa stagnatilis</i>	Common
Ruddy turnstone	<i>Arenaria interpres</i>	Common
Asian dowitcher	<i>Limnodromus semipalmatus</i>	Common
Great knot	<i>Calidris tenuirostris</i>	Common
Red knot	<i>Calidris canutus</i>	Common
Sanderling	<i>Calidris alba</i>	Common
Red-necked stint	<i>Calidris ruficollis</i>	Common
Pectoral sandpiper	<i>Calidris melanotos</i>	Common
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	Common
Curlew sandpiper	<i>Calidris ferruginea</i>	Common
Broad-billed sandpiper	<i>Limicola falcinellus</i>	Common



Table 3 cont. Migratory shorebird and tern species in the GSMP

Oriental pratincole	<i>Glareola maldivarum</i>	Common
Little tern	<i>Sternula albifrons</i>	Endangered
Gull-billed tern	<i>Gelochelidon nilotica</i>	Common
White-winged black tern	<i>Chlidonias leucopterus</i>	Common
Common tern	<i>Sterna hirundo</i>	Common

Table 4 Resident and rarer visiting tern species in the GSMP

Resident and rarer visiting tern species in GSMP (M. West pers. obs.) include:

Caspian tern	<i>Hydroprogne caspia</i>	Common
Crested tern	<i>Thalasseus bergii</i>	Common
Whiskered tern	<i>Chlidonias hybrida</i>	Common
Grey ternlet	<i>Procelsterna cerulea</i>	Common
Sooty tern	<i>Onychoprion fuscata</i>	Common
Roseate tern	<i>Sterna dougallii</i>	Common
Arctic tern	<i>Sterna paradisaea</i>	Common
Lesser crested tern	<i>Thalasseus bengalensis</i>	Common

4. DISTURBANCES/ THREATS TO GREAT SANDY MARINE PARK SHOREBIRDS

The Great Sandy Region has experienced rapid growth in recent years with much of the pressure within the coastal zone originating from development and population growth centres. As the region grows loss, disturbance and degradation of shorebird habitats can interfere with the birds’ daily feeding and roosting activities which are essential to their ongoing survival.

Table 5 Key threats for shorebirds and best practice

Key threats	Impacts	Best practice actions
Disturbances		
Inappropriate vessel, vehicle, aircraft traffic near shorebird habitats	<ul style="list-style-type: none"> ○ Birds take flight and use up critical energy needed for migration and /or breeding ○ Damage to nests and habitat 	<ul style="list-style-type: none"> ○ Planned and regulated public access ○ Appropriate coast zone development and planning schemes provisions ○ Don’t moor near shorebird roosts
Uncontrolled pedestrians access	<ul style="list-style-type: none"> ○ Destruction of eggs ○ Injury to birds and chicks ○ Disruption of normal breeding patterns (resident birds) during March/April 	<ul style="list-style-type: none"> ○ Never drive through feeding, roosting or breeding shorebird habitats ○ Keep 4WD vehicles on established tracks and roads
New developments or constructions near shorebird habitats	<ul style="list-style-type: none"> ○ Disturbing adult birds from nest incubation and guarding duties 	<ul style="list-style-type: none"> ○ Don’t drive along the high tide mark to prevent damage to nests and eggs of resident shorebirds
Predation by introduced animal species	<ul style="list-style-type: none"> ○ Loss of habitat and food sources 	<ul style="list-style-type: none"> ○ Conduct regular pest animal management programs to reduce feral species, including foxes, pigs etc



Table 5 cont. Key threats for shorebirds and best practice

Key threats	Impacts	Best practise actions
Habitat loss		
Loss of wetlands through reclamation New developments or constructions near shorebird habitats Inappropriate or poorly managed shore or marine activities/operations Introduction and spread of weeds and feral pest species	<ul style="list-style-type: none"> ○ Loss of food sources and resting areas along the East Asian/Australasian Flyway ○ Loss of habitat ○ Deterioration of water quality and habitat integrity from run-off and increased sedimentation ○ Diminishing food sources and nesting areas ○ Shorebird health deterioration ○ Increased loss of condition or sickness in birds 	<ul style="list-style-type: none"> ○ Respect protected shorebirds and their habitat ○ Support appropriate regional planning ○ Introduce best practice management in land and marine based activities and business operations ○ Reduce littering and stormwater contamination ○ Support and promote wetland health initiatives and beach clean-ups ○ Conduct regular weed and pest animal management programs to reduce feral species, including foxes, pigs etc
Lack of public awareness		
Lack of public awareness and knowledge of shorebirds, their habitats and threats	<ul style="list-style-type: none"> ○ Unknowingly disrupting and/or impacting shorebirds or their habitat through inappropriate recreational or business activities or action 	<ul style="list-style-type: none"> ○ Keep dogs and cats on the leash near shorebird habitats ○ Never allow domestic pets unrestricted access to shorebird habitats (including night time) ○ Obtain shorebird information for the local area

Note: The trial of temporary beach closures (TBC's) as part of the program "Feathering the future of Burnett Mary Shorebirds" was found to be a successful management technique to protect nesting shorebirds in the region. Compliance by users was found to be high (96.2%), and no eggs were crushed inside the TBC, which suggests that the use of TBC's in the region is an effective management technique for the conservation of shorebirds (van Polanen Petel and Bunce 2008)



5. SHOREBIRD MANAGEMENT STRATEGIES AND ACTIONS

Strategy 1

Improve awareness of shorebirds and their habitat through education and interpretive initiatives.

Action	Outcomes	Priority rating	Timeframe
1. 1 Incorporate interpretive requirements relevant to shorebird management into the Great Sandy Region interpretive strategy.	1.1.1 Signage installed at Elliot Heads Boat ramp and on adjacent Dr May's Island which provides management information relevant to the endangered little terns and rare beach stone curlews on the island.	High	2010 - 2011
	1.1.2 Signage installed on Big, Little Woody, Picnic and Duck Islands which provides management information relevant to rare beach stone-curlew, Australian pied oystercatchers and migratory shorebirds utilising the islands.	High	2010 -2011
	1.1.3 Signage installed on Inskip Peninsula which provides management information relevant to shorebirds roosting on the point and adjacent high tide sand roosts.	High	2010 -2011
	1.1.4 Signage installed at the entrances of Crab Creek near Tin Can Bay which provides management information relevant to shorebirds using the high tide roost.	High	2010 -2011
	1.1.5 Develop a visitor guide about the importance of shorebirds and their habitat in the marine park to raise awareness and help manage sites subject to human disturbance.	Medium	2010
1.2 Foster partnerships with local and non government organisations to improve awareness of shorebirds and their habitat.	1.2.1 Review existing shorebird signage at Gable Point Rocks and Point Vernon and updated it in consultation with Fraser Coast Regional Council, to better manage human disturbance and provide up-to-date information about shorebirds and their habitat.	Medium	2010 - 2011



Action	Outcomes	Priority rating	Timeframe
1.2 Foster partnerships with local and non-government organisations to improve awareness of shorebirds and their habitat.	1.2.2 In-kind support is provided to other agencies and relevant groups, where appropriate, to ensure information aimed at raising community awareness of shorebird conservation is both relevant and factual.	Low	Ongoing
	1.2.3 New signage for shorebirds identified in the Great Sandy Region interpretive strategy developed in consultation with key stakeholder groups.	Medium	2010 - 2011
1.3 Improve shorebird identification skills of relevant QPWS staff.	1.3.1 Vessel support provided for shorebird counts, which also provide opportunities for staff to improve shorebird identification skills.	Medium	Ongoing
	1.3.2 Shorebird identification training workshops convened by QWSG are attended by relevant staff.	Medium	As available

Strategy 2

Increase engagement with decision makers and the community in the Great Sandy Region to conserve and protect shorebirds and their habitat.

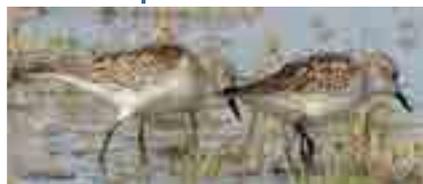
Action	Outcomes	Priority rating	Timeframe
2.1 Contribute to planning initiatives to ensure measures, which aim to conserve shorebirds and their habitat, are incorporated into relevant documents.	2.1.1 Management measures and assessment advice, relevant to shorebird conservation, provided to local government for development proposals adjacent to shorebird roost.	High	Ongoing
	2.1.2 Planning and management measures, relevant to shorebird conservation, incorporated into local government planning schemes and foreshore management plans when prepared or reviewed, including buffer zones and issues arising from potential climate change impacts.	High	2009 - 2011
	2.1.3 Support cooperative management partnerships which aim to protect shorebird high tide roosts that occur outside the boundaries of the GSMP.	High	Ongoing



Strategy 3

Management actions relevant to shorebird conservation are a focus of protected area management.

Action	Outcomes	Priority rating	Timeframe
3.1 Include on-ground actions, which assist in the protection of shorebirds and their habitat, into relevant QPWS works programs	3.1.1 Investigate requirements for fox management programs on protected area estate, adjacent to shorebird roosts and resident shorebird nesting areas. Priority sites for investigation include: <ul style="list-style-type: none"> • Baffle Creek • Littabella Creek • Barrubbra Island 	High	2010
	3.1.2 A fox management program is implemented on protected area estate where predation by foxes is identified as a threat to adjacent shorebird roosts and resident shorebird nesting areas.	High	2010
	3.1.3 Enclosures installed around active nests and/or temporary beach closures used to reduce disturbance to nesting birds and limit egg breakages. Priority sites include: <ul style="list-style-type: none"> • Baffle Creek mouth south • North Bank Littabella Creek • Barrubbra Island • Dr May's Island/Big Woody Island • Little Woody Island • Duck Island • Picnic Island • Inskip Peninsula 	High	Seasonal
	3.1.4 QPWS to complete a winter and summer count of at least 2 high tide roost sites not monitored by QWSG.	Medium	Ongoing
	3.1.5 QPWS support for monitoring programs which advance on-ground knowledge relevant to shorebirds in the Great Sandy Region.	High	Ongoing
	3.1.6 Investigate use of regulatory notices and declarations for restricted area access under the <i>Marine Parks Regulation 2006</i> , for managing access to specific shorebird areas at risk from human disturbance.	Medium	2011 - 2012



Strategy 4

Protected area planning is undertaken with consideration of shorebird conservation and management requirements.

Action	Outcomes	Priority rating	Timeframe
4.1 Develop planning tools, for the protected area estate, which provide direction for managing disturbance to shorebirds.	4.1.1 An operational policy for vessel-based tourism programs operating in the marine park is developed which provides direction such as: <ul style="list-style-type: none"> • Buffer distances for activities from roost and nesting sites • Acceptable noise levels for vessels operating under permit in the marine park • Suitable landing areas for tourist programs accessing mainland and/or island beaches • Education and public awareness requirements for clients of tourist programs operating in areas important to shorebird survival. 	High	2010
4.2 Provide input to QPWS management plans and strategies which focus on shorebird management.	4.2.1 Natural resource management plans and strategies are developed for the Great Sandy Region which contain up to date information on shorebirds and their habitats.	Medium	Ongoing

Strategy 5

Resource knowledge relevant to shorebirds is increased in the Great Sandy Marine Park.

Action	Outcomes	Priority rating	Timeframe
5.1 Provide in kind support for projects undertaken in the marine park which enhance knowledge of shorebird roosting and feeding sites.	5.1.1 Mapping is produced which quantifies migratory and resident shorebird feeding habitat in the marine park.	Medium	2010 - 2013
	5.1.2 Mapping products available for migratory and resident shorebird roosts remain current.	Medium	As required
5.2 Develop a monitoring strategy which provides a structured approach to monitoring shorebirds and their habitat in the marine park.	5.2.1 A Monitoring strategy is produced.	Medium	2011



Strategy 6

Knowledge gaps relevant to the conservation of shorebirds guide site managers in the strategic development of research priorities in the marine park.

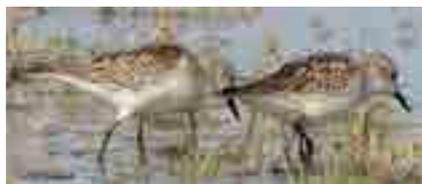
Action	Outcomes	Priority rating	Timeframe
6.1 Guidance for research, relevant to shorebirds, is sought for knowledge gaps identified in the Draft Ecological Character Description for the Great Sandy Strait Ramsar Site.	<p>6.1.1 Research is undertaken pertaining to:</p> <ul style="list-style-type: none"> • Extent to which the Ramsar boundary protects roost sites • Natural variability in shorebird numbers in relation to particular feeding areas and roost sites, and the influence of variability in shorebird food resources on shorebird numbers using tidal flats (eg abundance and composition of invertebrate fauna). • Condition of benthos and shorebird food resources in key feeding areas • Impacts of water quality and other factors on invertebrate fauna populations that are shorebird food resources • Extent of impacts by humans, domestic and feral animals on roosting shorebirds. 	High	2013



Strategy 7

Improve shorebird management on Fraser Island and the Inskip Peninsula to ensure appropriate protection of shorebird habitats in these key recreational and tourist areas.

Action	Outcomes	Priority rating	Timeframe
7.1 Prepare tourism and traffic management plans that reconcile shorebird habitat requirements and recreational opportunities	7.1.1 Tourism and traffic management strategies developed which identify actions to protect shorebird roost sites at risk from vehicle disturbance. Priority areas include: <ul style="list-style-type: none"> Inskip Peninsula, near Rainbow Beach, an area which collects large flocks of shorebirds that move in from the south and west of the Tin Can Inlet. On the spring tide in February 1995 over 6000 shorebirds were recorded (QWSG 2005). 	Medium	2014
7.1 Prepare tourism and traffic management plans that reconcile shorebird habitat requirements and recreational opportunities	<ul style="list-style-type: none"> South-eastern Fraser Island (Hook Point and North Spit) – hold exceptional numbers of shorebirds and terns at both low and high tide. A recording of 570 Grey plovers on North Spit in December 2005 is more than one-fifth (21%) of the estimated Australian population of Grey Plovers (12,000). It is also 4.5% of the estimated flyway population (125,000) (M. West pers.comm). 	Medium	2014



APPENDIX A

RELEVANT LEGISLATION, LAWS AND PLANS

NAME	Description
Queensland	
<i>Marine Parks Act 2004</i>	An Act to declare marine parks and provide for the conservation of the marine environment.
<i>Marine Parks Regulation 2006</i>	Prescribes provisions about areas within a marine park and sets grounds for entering and using zones of a marine park.
<i>Marine Parks (Great Sandy) Zoning Plan 2006</i>	Released to provide for the management of the marine habitats, species and human uses within the marine park. It sets out entry and use requirements for each zone within the marine park and management provisions for designated areas.
Marine Park Designated Areas	<p>The importance of shorebirds in the GSMP is recognised in the zoning plan through designated Shorebird Roosting and Feeding Areas and includes special provisions for their management.</p> <p>Special management provisions in the zoning plan attract a penalty if infringed.</p> <ul style="list-style-type: none"> • People must ensure dogs are controlled or restrained in a way that prevents the dog causing excessive disturbance. • Vessels, vehicles and aircraft must not be driven through a group of feeding or roosting shorebirds. • People must not cause excessive disturbance to shorebirds or their habitat.
<i>Nature Conservation Act 1992</i>	Prescribes classes and management principles for wildlife.
<i>Recreation Areas Management Act 2006</i>	Provides for the establishment, maintenance and use of a recreation area to provide, coordinate, integrate and improve recreational planning, recreational facilities and recreational management for recreation areas.
<i>Fisheries Act 1994</i>	Establishes and protects fish habitat areas which are also important habitat for shorebirds.
<i>Coastal Protection and Management Act 1995</i>	<p>Requires the development of a State Coastal Management Plan. This plan has the force of law as a statutory instrument and describes how the coastal zone and its resources are managed. Shorebirds are considered primarily within the policies of the “Conserving Nature” topic area.</p> <p>Principles for the management of shorebirds contained within the State Coastal Plan include:</p> <ul style="list-style-type: none"> • 8A The biological diversity of marine, freshwater and terrestrial systems and the ecological processes for their continued existence are conserved. • 8B Further loss or degradation of coastal wetlands, including the loss of biological diversity and abundance of wetland-dependant wildlife, is avoided where possible. • 8D Further loss or degradation of coastal habitats, particularly habitats for rare, threatened and migratory species, is avoided wherever possible.



NAME	Description
Queensland	
Great Sandy Management Plan	A plan to provide a framework for decision-making in the Great Sandy Region. Section 1.06 Marine and terrestrial wildlife (including vegetation) of the plan proposes “Strategies to manage recreation and commercial activities to minimise impacts on protected aquatic species, such as turtle, will be developed. For example, strategies will be developed and implemented to manage vessel activities around important roosting sites for migratory wading birds during certain periods of the year.”
Commonwealth	
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Administered by the Commonwealth Department of Environment, Water, Heritage and the Arts. This Act is concerned with the management and protection of matters of national significance, which include Ramsar sites, listed migratory species and listed threatened species.
International Agreements	
<i>World Heritage conventions</i>	Aim to promote cooperation among nations to protect heritage around the world that is of such outstanding universal value that its conservation is important for current and future generations.
<i>Convention on Biological Diversity</i>	A United Nations’ convention signed at the Earth Summit in Rio de Janeiro, Brazil in 1992 and entered into force on 29 December 1993. It is a global treaty which aims to conserve biological diversity at all levels and share the benefits of resources fairly.
<i>China and Australia Migratory Bird Agreement (CAMBA)</i>	Provide an important mechanism for pursuing conservation outcomes for migratory birds, including migratory shorebirds. However, the bilateral nature of these
<i>Japan and Australia Migratory Bird Agreement (JAMBA)</i>	agreements limits their scope and ability to influence conservation across the flyway. Australia has therefore also encouraged multilateral cooperation for
<i>Republic of Korea Australia Migratory Bird Agreement (ROKAMBA)</i>	migratory bird conservation through the Partnership for the East Asian-Australasian Flyway (DEWHA website).
<i>Ramsar (Wetland) Convention</i>	The broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain.
<i>Migratory Species of Wild Animals (Bonn Convention)</i>	Aims to develop international cooperation with a view to conserving migratory species worldwide.
Programs	
Feathering the future of Burnett Mary Shorebirds	A study to trial adaptive experimental management approaches for shorebirds to inform recommendations for their future on-ground management.



APPENDIX B

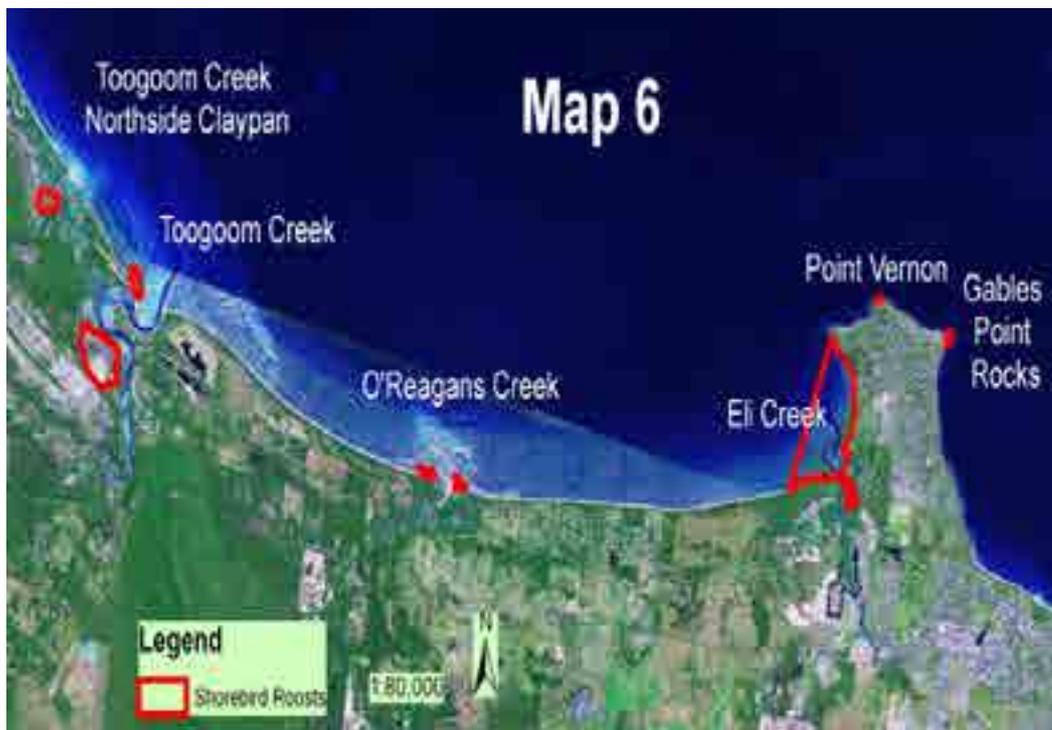
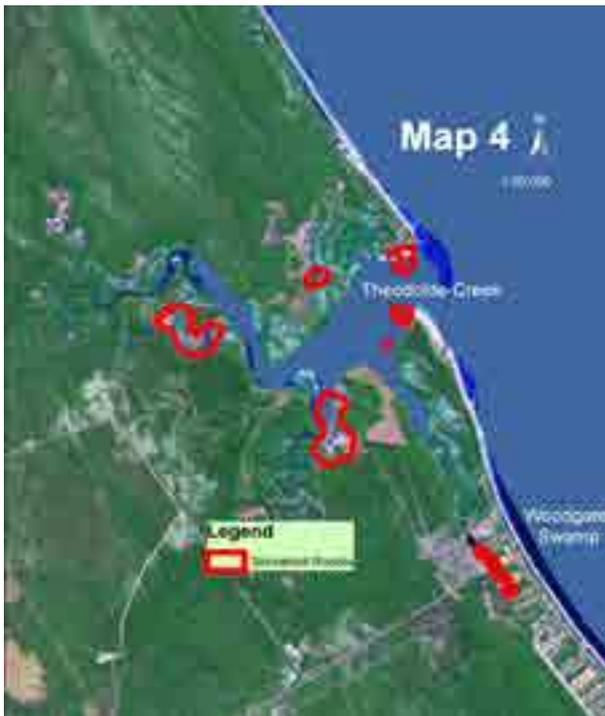
LOCATION MAPS - HIGH TIDE ROOST SITES



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APPENDIX C

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