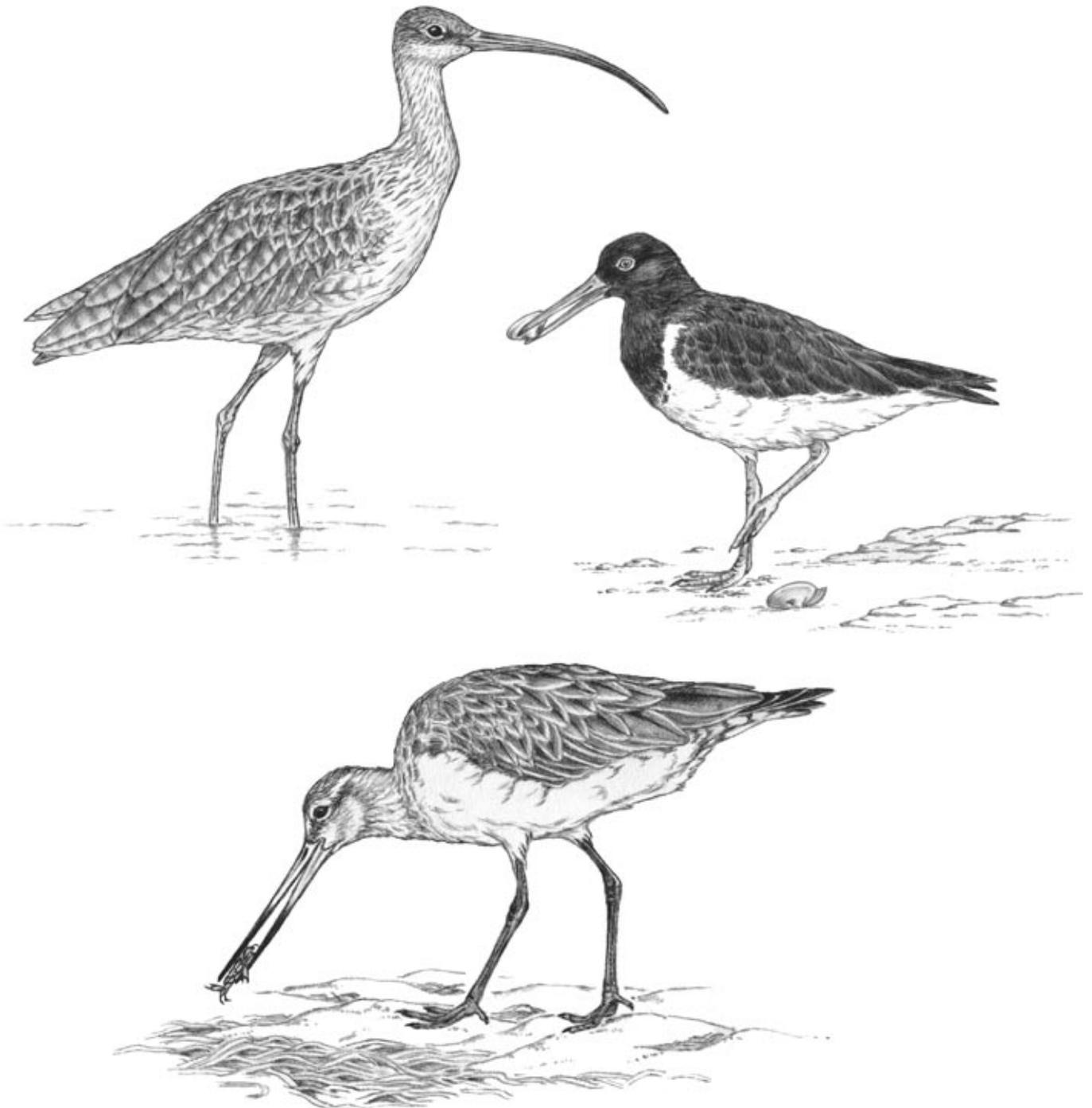


Shorebird Management Strategy

Moreton Bay



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Cover Image: eastern curlew, pied oystercatcher, and bar-tailed godwit courtesy QWSG Ivell Whyte.

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1 Introduction

1 Shorebirds¹ are integral components of Moreton Bay's wetland ecosystems, providing important biological, aesthetic, scientific and cultural values of both national and international significance.

2

3

4 The international significance of Moreton Bay for shorebirds has been recognised by its listing as a Ramsar site². Within Moreton Bay Marine Park, the *Marine Parks (Moreton Bay) Zoning Plan 1997* contains provisions for managing shorebirds. The Queensland Parks and Wildlife Service (QPWS) is the agency responsible for the management of the marine park including its shorebirds and their habitat.

5

6

6 In addition, state and regional coastal management plans provide a framework for managing shorebirds in coastal areas including the marine park. Outside the marine park, the responsibility for protecting shorebirds is a matter for landholders, local governments and other land managers.

7

7 This strategy provides guidelines for the protection of Moreton Bay's shorebird populations, by promoting their values and managing threats to their survival.

7



Red-capped plover

Image courtesy QWSG Ivell Whyte

¹ For the purpose of this Plan, the term shorebirds will refer to all families of the order *Charadriiformes* except *Laridae* (see pg 4)

² The Convention on Wetlands, signed in Ramsar, Iran in 1971, is an intergovernmental treaty dedicated to the conservation and "wise use" of wetlands. The Convention's mission is "the conservation and wise use of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world". (Environment Australia May 2003)

2 Significance of Moreton Bay for shorebirds

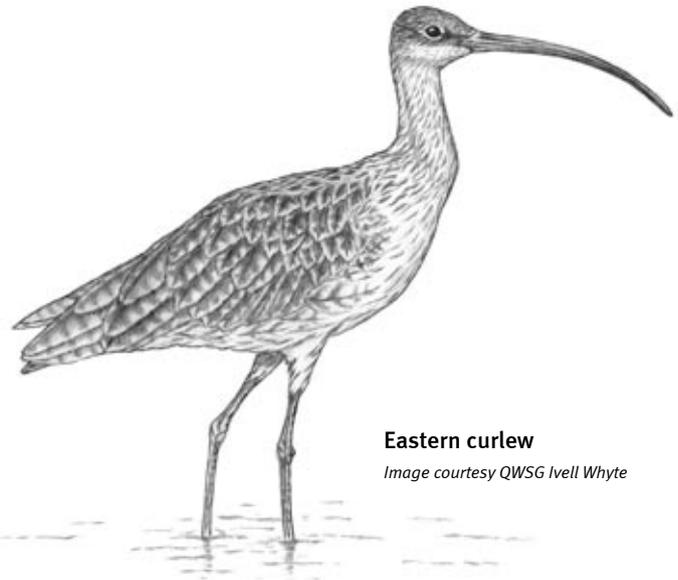
Moreton Bay, including Pumicestone Passage, is an extensive shallow coastal bay in south-east Queensland. It is a semi-enclosed tidal basin bounded on its eastern side by four of the largest sand islands in the world. The area has significant shorebird habitats including intertidal sand and mudflats, seagrass meadows, mangrove forests and saltmarshes, and along with Hervey Bay–Great Sandy Strait and Shoalwater Bay–Corio Bay, is one of only three such complexes on the east coast of Australia.

Moreton Bay's extensive intertidal areas are essential for shorebirds as they provide roosting, feeding and, in some cases, breeding habitat. Moreton Bay is Queensland's third, and one of Australia's top 12, shorebird habitats (Thompson 1990). The Bay provides habitat for over 3500 resident (Driscoll 1997), and over 40,000 migratory shorebirds, during the summer months (Driscoll 1993; Watkins 1993). Moreton Bay supports the third highest concentration of migratory waders in Queensland at approximately 10 percent of the state's population (Driscoll 1993). It is recognised as being of national and international importance: for example, up to 20 percent of the world's population of eastern curlew use Moreton Bay in summer. The Bay is particularly significant for the eastern curlew *Numenius madagascariensis* (3000 to 5000 birds, about 20 percent of the world population) and the grey-tailed tattler *Tringa brevipes* (>10,000 birds, over 50 percent of the world population).

Moreton Bay is an important habitat in the East Asian–Australasian Flyway, both as the summer terminus for many shorebirds and as a staging area for many more which migrate onwards to southern parts of the south-east Australian coast and to New Zealand. On their southward migration, Moreton Bay is critical, being one of the first sites used in Australia to rebuild much-depleted energy reserves following migration. Moreton Bay is also important on the northern journey, as it is often one of the last sites visited in Australia and is therefore critical in building the birds' energy reserves, prior to their northward migration.

In addition to Moreton Bay's valuable roosting and feeding habitats, which are often shared with migratory shorebird species, resident shorebirds also depend on the Bay's shorelines for breeding. Populations of some of these shorebirds are of international and national significance, including the beach stone-curlew *Esacus neglectus* and the sooty oystercatcher *Haematopus fuliginosus* (listed as vulnerable and rare respectively, under the *Nature Conservation Act 1992*). Resident shorebirds are particularly prone to disturbance while breeding, from direct impacts at nesting areas to indirect impacts on food sources and roosts.

Although there are 112 identified roost sites in Moreton Bay,



Eastern curlew

Image courtesy QWSG Ivell Whyte

only 15 of these are available to some 50,000 shorebirds during the particularly high spring tides that occur on a few days each month. These roosts are the highest astronomical tide (HAT) roosts (Nichols & Maher 1999; Miller 1997). At these times, all of Moreton Bay's shorebirds are crowded into the limited roost areas, and disturbance during this time is more critical than usual. A significant number of these roosts are considered threatened by development and by their definition beyond the boundary of the marine park³.

Moreton Bay also has particularly large populations of other birds, such as cormorants, terns, spoonbills, ibises and egrets (Nichols & Maher 1999). For example, just over 40,000 terns have recently been recorded using the sandbanks in the northern Pumicestone Passage. Peak 2001–2002 summer season numbers were estimated at just over 42,500.

³ The landward boundary of the marine park is the highest astronomical tide line, excluding freehold land.

3 Shorebird migration

Each year, more than a million shorebirds migrate to and from Australia, and many more millions worldwide travel great distances between their breeding and non-breeding habitats.

A close relationship has always existed between people and birds. The beauty of these feathered creatures inspires us, their sheer variety and abundance dazzle us, their ability to navigate long distances, migrating across continents and arriving and departing in tune with the seasons, sparks our imagination and enriches our appreciation of the natural world (Asia-Pacific Migratory Waterbird Conservation Committee 2001). In Australia there are Aboriginal storylines associated with shorebirds and in some cases there is evidence of their traditional use.

Some shorebirds weighing as little as 30g may migrate 25,000km annually and some species may fly more than 6000km non-stop. In doing this, they use favourable weather patterns when they can, but even so will commonly lose 40 percent of their bodyweight, flying at more than 60km/hr, non-stop for three days and nights. Shorebirds make the journey in several weeks, stopping two or three times along the way. When they stop, they must “refuel”; to feed and rest to build up energy reserves. At these times they may increase their body weight by more than 70 percent before undertaking the next marathon stage of their journey.

The routes they travel along on their annual migration for breeding are called flyways. A flyway is broadly defined as the migration route of a population, species, or group of species

of birds, between a breeding area, through the staging sites and non-breeding area (Asia-Pacific Migratory Waterbird Conservation Committee 2001).

Flyways comprise a chain of important wetlands that shorebirds visit to rest and feed before moving on to the next stage. The East Asian–Australasian Flyway, stretching from Siberia and Alaska, southwards through east and south-east Asia, to Australia and New Zealand, supports more than seven million shorebirds, of which some five million are migratory (Bamford et al. in prep.). The migratory behaviour of these shorebirds means that each year they move through a number of countries. Consequently their conservation is dependent on international co-operation (Shorebird Working Group of Wetlands International – Asia Pacific 2001).

One of Moreton Bay’s migratory shorebirds, the double-banded plover, follows the same principle, but rather differently. It breeds on the pebble beds of the rivers of New Zealand’s South Island in the summer months from September to March, and then flies trans-Tasman to spend the southern winter in the comparatively warm conditions of Australia’s east coast. Thus this migrant species arrives in Moreton Bay in March/April when all other migratory shorebirds are leaving for Siberia and Alaska, and leaves in August/September when the others are returning.

The East Asian–Australasian Flyway



4 Current management arrangements

To give protection to migratory shorebirds, action needs to be on a concerted international basis. Australia has agreed to protect shorebird species and their habitats under several international treaties, including the 1971 Ramsar Convention, the 1979 Bonn Convention, the 1974 Japan-Australia Migratory Bird Agreement (JAMBA) and the 1986 China-Australia Migratory Bird Agreement (CAMBA).

The *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) administered by the Commonwealth Department of Environment and Heritage (DEH) is concerned with the management and protection of matters of national environmental significance, which include Ramsar sites, listed migratory species and listed threatened species. In addition, the EPBC Act has provisions to protect some shorebirds as “listed marine species”. The Act establishes a Commonwealth process for assessment and regulation of actions that are likely to have a significant impact on the matters of national environmental significance, in addition to state requirements.

In recent years, with the support of the Commonwealth Government of Australia and other nations, Wetlands International has established the East Asian-Australasian Shorebird Site Network to protect migratory shorebird habitat at critical sites along the East Asian-Australasian Flyway. The aim of the program is to promote the conservation and sustainable use of coastal wetlands used by shorebirds when migrating. Four hundred sites of international importance for shorebirds have been identified and currently eight percent of these are incorporated in the network; Moreton Bay is one of these. The *Action Plan for the Conservation of Migratory Shorebirds in Asia Pacific: 2001–2005* aims to increase this to 25 percent of sites by 2005 (Shorebird Working Group of Wetlands International – Asia Pacific 2001). This action plan and the *Asia-Pacific Migratory Waterbird Conservation Strategy: 2001–2005* has been developed by Wetlands International to provide guidelines for the international conservation of shorebirds and their habitat.

The conservation status of Moreton Bay’s shorebirds under Queensland’s *Nature Conservation Act 1992* and their listing under the EPBC Act is provided in Appendix 1. Both these statutes contain specific prescriptions relating to listed species. For example, a person must not take an action that has, will have, or is likely to have, a significant impact on a listed migratory species, without approval from the Commonwealth Environment Minister. To obtain approval, the action must undergo a rigorous environmental assessment and approval process.

Moreton Bay Marine Park was declared in 1993 and became one of Queensland’s first Ramsar sites in October that year. Pumicestone Passage Marine Park was incorporated into Moreton Bay Marine Park in 1997 and the marine park now covers most of Moreton Bay’s tidal lands and tidal waters. The seaward boundary is generally three nautical miles (the limit of Queensland waters) off the east coast of Bribie, Moreton, North Stradbroke and South Stradbroke Islands. Along the mainland and around the islands, the boundary is the highest astronomical tide line (HAT). State leasehold land below HAT is generally included in the marine park, though freehold land is not included unless the owner has agreed. The marine park area is 340,000ha, and its overall length is about 120km north to south.

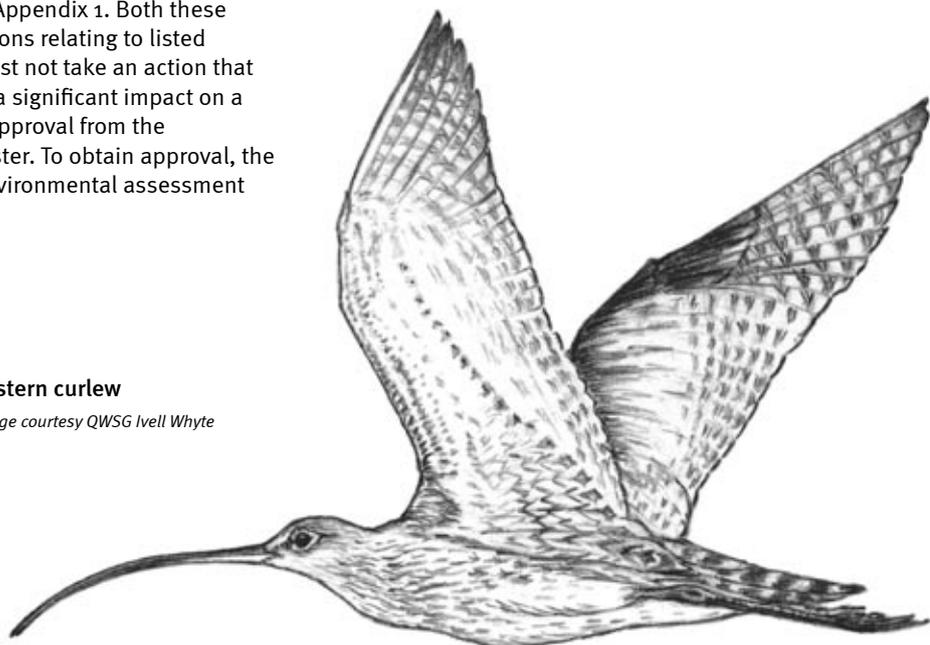
In December 1997, the *Marine Parks (Moreton Bay) Zoning Plan 1997* came into force. The zoning plan, which provides a balance between human use and conservation of the marine park’s values and resources, contains specific provisions for managing shorebirds. Penalties apply for infringements of the following provisions:

- › a person must not disturb shorebirds or their habitats;
- › dogs must also be controlled when near shorebirds; and
- › boats, personal water craft (PWC), aircraft and vehicles must be driven away from/around feeding or roosting shorebirds.

The zoning plan refers to “shorebirds” as including ducks, seabirds, swans and wading birds. In this context the term is essentially designed to provide protection of birds that rely on shores of the marine park, at any or all stages of their existence. However, for the purpose of this strategy the term shorebirds will refer to the families of the order Charadriiformes commonly known as “true” shorebirds or waders (wading birds). The family Laridae (gulls and terns) will not be included, as birds in this family are seabirds and although they often share habitat with shorebirds, seabirds often have different requirements from shorebirds for feeding, breeding and roosting.

Eastern curlew

Image courtesy QWSG Ivell Whyte



5 Biology

The Queensland Government, through the State Coastal Management Plan (State Coastal Plan), seeks to protect and manage Queensland's coastal resources, which encompass a range of ecological, economic and social values. The State Coastal Plan, under the *Coastal Protection and Management Act 1995*, has the effect of a State planning policy under the *Integrated Planning Act 1997* (IPA) and is therefore a matter of State interest. The State Coastal Plan contains specific policies to prevent future development that may have adverse impacts on the continued integrity and functioning of "Areas of state significance (natural resources)", unless the development has a demonstrated net benefit for the state as a whole. Under the State Coastal Plan, land allocation for uses and activities adjacent to areas of state significance (natural resources) is to be compatible with the maintenance of the area's values.

The State Coastal Plan's policies on conserving biodiversity include:

- › protecting beaches providing significant wildlife habitats (including roosting, nesting and breeding habitat for turtles, birds or crocodiles) through suitable management measures including buffers for those habitats; and
- › retaining the current extent and quality of migratory and resident shorebird roosting and feeding habitat. If habitat is to be lost it should be replaced, where practicable before loss, by an equivalent artificial habitat in a location that minimises any alteration of distribution and abundance of shorebirds.

Regional coastal management plans when prepared will also assist in the implementation of the State Coastal Plan. This will be through, among other ways, applying the outcomes, principles and policies at the regional level and identifying specific areas where policies of the State Coastal Plan apply.

The responsibility for implementing the State and regional coastal plan policies is a matter for all State government agencies, landholders, local governments and other land managers. The policies are to be considered when undertaking planning, assessing applications and undertaking management decisions pursuant to legislative responsibilities.

Conservation of shorebirds may also be provided under other legislation. For example, in Queensland, fish habitat areas declared under the *Fisheries Act 1994* while having a fish habitat protection focus, also protect wetland habitats vital to shorebird species.

Taxonomically, shorebirds belong to the order Charadriiformes which includes :

- › sandpipers, snipes, godwits, curlews and their allies (Scolopacidae);
- › painted snipe (Rostratulidae);
- › jacanas (Jacanidae);
- › stone-curlews (Burhinidae);
- › oystercatchers (Haematopodidae);
- › stilts and avocets (Recurvirostridae);
- › plovers and lapwings (Charadriidae);
- › plains-wanderer (Pedionomidae);
- › gulls and terns (Laridae); and
- › pratincoles (Glareolidae).

Fifteen species of resident shorebirds and 42 migrant shorebird species occur in Australia (Watkins 1993); in total, about 3.1 million birds. Ten species of resident and 32 migratory shorebird species can be found in Moreton Bay. They feed from muddy and sandy substrates in coastal and inland wetlands of Australia. The majority of the migrant shorebird species breed in the far northern regions of Siberia and Alaska. From September to April each year, most species can be found in intertidal habitats, such as Moreton Bay. Throughout the East Asian–Australasian Flyway, shorebirds face increasing pressures from growing human populations, with threats including habitat destruction, pollution and hunting.

Shorebirds require specific habitat conditions for migration and for breeding. Migratory shorebirds must have space, food, and protection from predators and disturbances, to recuperate from long flights and to prepare for the next stage of their journey. Resident shorebirds also need similar habitats including safe areas for breeding. For feeding, shorebirds need shallow wetlands with mudflats or beaches and water less than 10cm deep, surrounded by low, sparse vegetation. These habitats provide the small insects, worms, and other invertebrates eaten by shorebirds.

When they are not feeding or transiting, shorebirds roost, generally at or above the high tide mark. Some species prefer to roost in mangroves, but many roost on the ground on open shores near high tide mark. Shorebirds select roosting areas that are likely to be free from disturbance. These open roosts need a surrounding area of clear visibility, so that the shorebirds can be safer from predation. To conserve energy, they also select roosting areas that are conveniently close to their feeding areas, for example, within 5–10km for eastern curlews (Finn et al. 2002).

Shorebirds need to feed, to recover from and prepare for their migratory flights, and their annual breeding. Not all intertidal areas are suitable for all species at all stages of the month or the seasons, even though the intertidal flats concerned may look the same to humans. Shorebirds vary from 25g to 1250g in weight, and have vastly different sizes, shapes and lengths of bill. Shorebird species have a range of food types which are often found in a variety of places and may dictate specific feeding methods. In several species, the feeding habits of males and females differ slightly. Because of Moreton Bay's tidal patterns, different intertidal feeding areas are available at different times of the month, creating another basis for feeding habitat differentiation. Thus, different shorebird species use Moreton Bay's varied feeding habitats in a range of ways throughout the year.

6 Threats

There are a number of threats to Moreton Bay's shorebird populations, some of which are local whilst others relate to the annual migratory paths many shorebirds undertake.

The annual flights of these birds symbolise the continuing importance of rich wetland ecosystems. Yet estuaries, lakes, rivers, marshes, ponds and other types of natural wetlands are diminishing at an alarming rate around the world. Wetlands are being reclaimed, drained, polluted, or turned into sites for development. The loss of nesting and feeding grounds and resting places, coupled with hunting of birds, along the length and breadth of the Asia-Pacific region has proved to be a disaster for migratory waterbirds and has resulted in the decline of many species (Asia-Pacific Migratory Waterbird Conservation Committee 2001).

6.1 Habitat loss/degradation

The loss of habitat through changes in land use practices is the most severe threat to the conservation of waterbirds (Asia-Pacific Migratory Waterbird Conservation Committee 2001). It is estimated that since European settlement approximately 50 percent of Australia's wetlands have been converted to other uses. In some regions the loss has been even higher (Environment Australia et al. 1997).

There has been an unquantified but considerable loss of shorebird habitat in Moreton Bay in the last two decades, largely due to impacts associated with development of the coastal zone. Shorebird habitats have also been degraded to varying extents from less direct impacts such as increasing sedimentation from runoff associated with poor catchment management. Degradation of habitat reduces its ability to support a high abundance and diversity of birds (Asia-Pacific Migratory Waterbird Conservation Committee 2001).

In some cases, given the propensity of shorebirds to adapt to particular situations, the loss of their habitat in Moreton Bay has been compensated by the creation of new artificial habitat. In most cases this replacement has been in the form of roosting habitat, which may have been created intentionally for example, the Kakadu Beach artificial roost at Bribie Island. In another example at the Port of Brisbane (POB), the modification of once intertidal feeding areas into future POB "land" has unintentionally resulted in the development of vast artificial roosting habitat for at times in excess of 10,000 shorebirds. While in this case the habitat is temporary, the significance of the area has been recognised and POB management has set aside some 12 hectares as permanent roosting habitat.

6.2 Disturbance

Human activities can impact on shorebirds more than 200m away (Thompson 1992). Effects of disturbance vary among shorebird species. The eastern curlew, the largest and most threatened of Moreton Bay's migratory shorebirds, is the most readily disturbed (Thompson 1992). Disturbance can force shorebirds to abandon traditional roosts and may affect their use of whole estuaries.

When shorebirds take flight because a person, animal, vehicle or vessel disturbs them, they use up critical energy. This means the birds might not gain enough condition for migration and/or breeding. Repeated disturbance exacerbates this problem. Disturbances to migratory shorebirds are most critical if they occur in March/April before the shorebirds depart, and in September/October

when they have just returned and are recovering. Many resident shorebirds breed between September and March, some nesting in the open on beaches and along bays, laying their eggs in simple scrapes on the sand or shell grit. During this critical period, resident shorebird nests and chicks are threatened by impacts from humans, vehicles and domestic animals (Priest et al. 2002).

Resident shorebird species are sensitive to human disturbance, and predation by cats, dogs and feral pigs may reduce breeding success (Roberts 1957; Garnett 1992). For example, the nests of pied oystercatcher *Haematopus longirostris* and red-capped plover *Charadrius ruficapillus* are frequently disturbed by vehicles on ocean beaches in south-east Queensland. As many of these species occur at low densities in an essentially linear habitat, local extinctions could easily become regional ones (Garnett & Crowley 2000). While uninhabited islands of northern Australia provide safe refuges from disturbance (Milton 1998), regional extinctions are certainly possible in south-east Queensland where disturbance is high.

Many breeding shorebirds are now also being threatened by increased numbers of native predators such as gulls and ravens (Priest et al. 2002). Frequently this results from human actions such as poorly managed refuse tips that provide additional food sources for silver gulls and other species.

Disturbance has increased in recent decades, with growing numbers of people both living and recreating in areas frequented by shorebirds. The foreshores of Moreton Bay are a focus for recreation with peak interactions often occurring early in the morning, late in the afternoon and holiday periods. Such disturbance includes walking, driving vehicles, or using powered vessels in or near shorebird flocks. Domestic animals, especially uncontrolled dogs, can also be a major source of disturbance to shorebirds.

6.3 Lack of awareness

The general lack of community understanding or education of shorebird related conservation issues are significant threats to shorebird survival. By far the greatest threat, even today, remains ignorance of the importance of wetlands and the roles they play in shorebird conservation (Environment Australia and DPIE 1997).

To educate the community about shorebird conservation involves building people's empathy towards shorebirds and developing an understanding of the requirements for shorebird conservation. Informed land managers play a vital role in improving conservation of shorebirds and their habitat.

Shorebird disturbance often occurs because of a general lack of community understanding of the specific requirements of shorebirds. For example, many people do not realise that shorebirds roosting at high tide are doing so because they have no other available habitat until the tide recedes.

Nature-based and ecologically sustainable tourism (eco-tourism) would be an effective way to promote conservation of species such as shorebirds, especially as their cryptic biology often requires dedicated and competent interpretation.

7 Management strategies and approaches

Within Moreton Bay, a five-pronged approach has been adopted for the conservation of shorebirds, which involves:

- › protecting shorebird habitat;
- › protecting shorebirds from disturbance;
- › protecting critical shorebird sites;
- › community education; and
- › research and monitoring.

7.1 Protect shorebird habitat

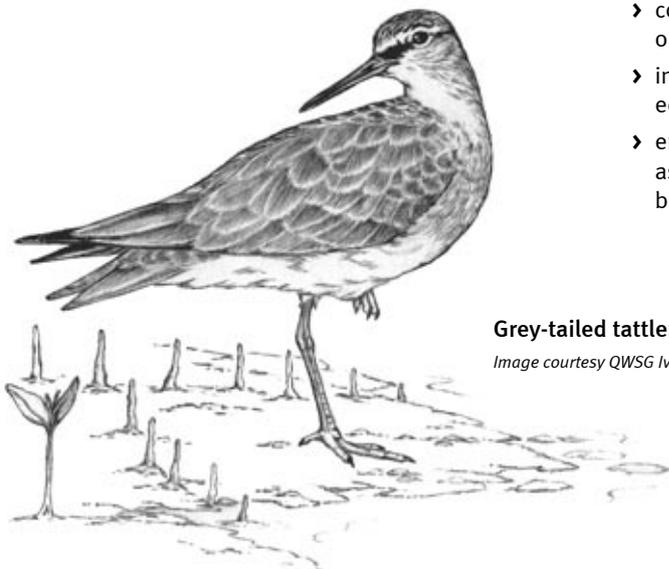
Protection of shorebird habitat will focus on actions to:

- › maintain and enhance shorebird habitats (e.g. the significance of an area to shorebirds to be recognised in planning schemes for the area);
- › map and recognise all shorebird sites, particularly roosting and breeding sites, including artificial and supra-tidal roost sites;
- › avoid further loss or degradation of critical shorebird roost sites (e.g. managing negative impacts);
- › restrict coastal development to areas where its impact on shorebird habitat is minimal; and
- › encourage local governments and other land managers to recognise and protect shorebird habitat.

7.2 Protect shorebirds from disturbance

Protection of shorebirds from disturbance will focus on actions to:

- › minimise human disturbance of shorebirds (e.g. seasonal access restrictions at critical sites and limiting beach driving and aircraft landing);
- › minimise the threats to shorebirds from domestic animals (e.g. establishing dog off-leash areas away from shorebird habitat);
- › encourage local governments to recognise and protect shorebirds (e.g. through their planning schemes and local laws);
- › minimise the threats to shorebirds from aquatic recreation (e.g. kite surfers, parachutists, personal water craft, boats, fishing, litter etc); and
- › encourage shorebird related eco-tour operators to adopt best environmental practices.



Grey-tailed tattler

Image courtesy QWSG Ivell Whyte

7.3 Protect critical shorebird sites

Protection of critical shorebird sites will focus on actions to:

- › identify 'critical' shorebird habitat, particularly:
 - HAT roosts;
 - High tide roosts;
 - areas which support >1000 shorebirds; and
 - areas which support at least one percent of the national or international population of any species;
- › maintain and enhance the value of critical sites;
- › eliminate disturbance at critical sites, using a range of techniques such as:
 - fencing of sites;
 - seasonal closures;
 - ranger patrols; and
 - installation of hides, signage and other infrastructure;
- › facilitate the development of artificial roost sites where ecologically beneficial; and
- › provide protection against threats, such as feral animals and weeds.

7.4 Community education

Education relating to shorebird conservation will focus on actions to:

- › promote key messages surrounding the conservation issues relating to shorebirds (e.g. ensure signs and other infrastructure promote shorebird conservation);
- › educate the community about shorebird conservation;
- › collaborate with primary stakeholders (e.g. local governments) in the delivery of key messages about shorebird conservation;
- › encourage the Queensland Wader Study Group's (QWSG) shorebird education and international information exchange programs; and
- › encourage the establishment of eco-tourism programs that provide shorebird education and interpretation.

7.5 Research and monitoring

Research and monitoring relating to shorebird conservation will focus on actions to:

- › monitor populations of shorebirds in Moreton Bay;
- › collaborate with QWSG and other relevant organisations, to obtain statistically valid shorebird population data;
- › investigate the use of shorebirds as bio-indicators in ecosystem health assessment; and
- › encourage research into shorebird conservation (e.g. assessment of the effectiveness of resident shorebird breeding areas).

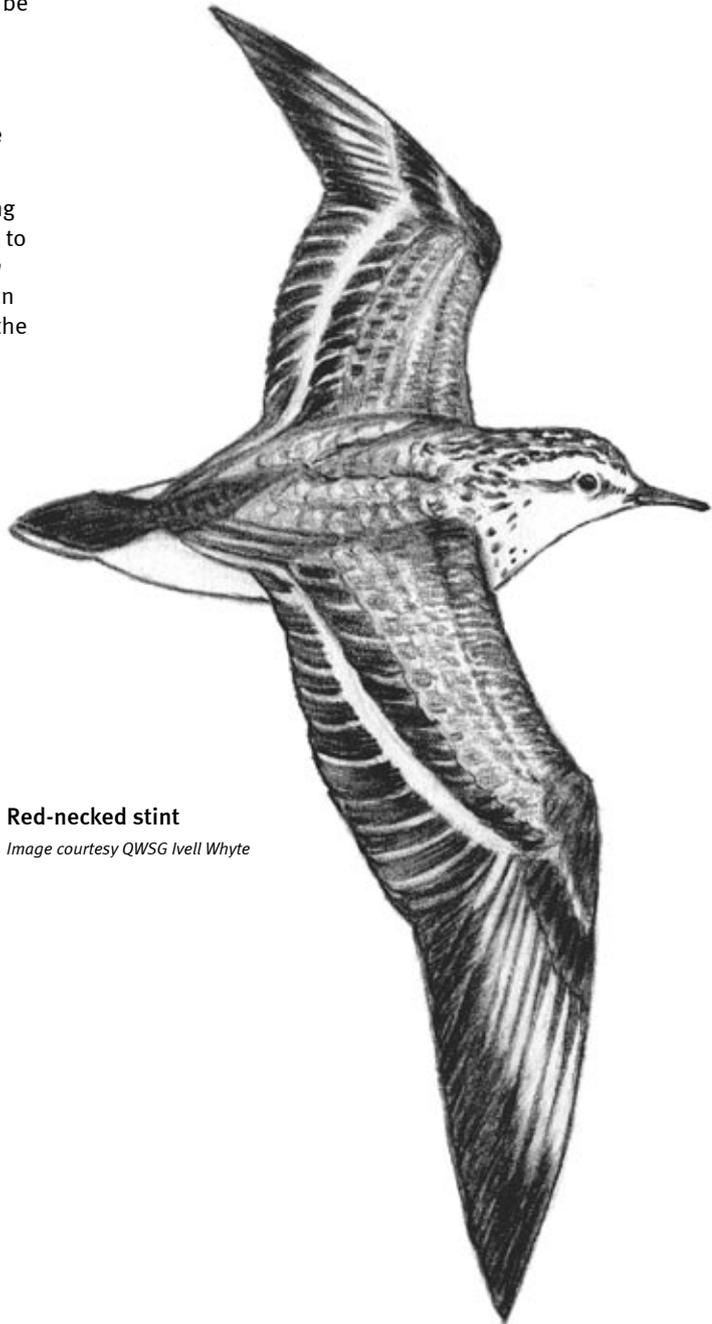
8 Implementation

QPWS will encourage local governments, key stakeholders and agencies responsible for the protection of shorebirds and their habitat to develop implementation plans. In some cases these may be statutory plans or site plans, developed under legislation relevant to an agency's responsibility (e.g. the *Marine Parks Act 1982* for sites within the marine park).

Implementation plans will reflect the purposes of this strategy and prescribe site-specific actions. Partnership mechanisms (e.g. Land for Wildlife, Nature Refuges, Statutory Covenants and the Coastal Acquisition Fund) should also be considered by agencies for implementing actions for the protection of shorebirds and their habitat.

Moreton Bay Marine Park is managed by QPWS and the actions in this strategy relating to areas within the marine park will be implemented by QPWS.

This strategy will also guide other land managers including local governments in fulfilling their obligations in relation to shorebird conservation, under the *Marine Parks (Moreton Bay) Zoning Plan 1997*, the State Coastal Management Plan and other relevant conventions and agreements such as the Ramsar Convention.



Red-necked stint

Image courtesy QWSG Ivell Whyte

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Appendix 1. Shorebird species list for Moreton Bay

Key to conservation status

V - Species listed as Vulnerable under Queensland's *Nature Conservation Act 1992*

R - Species listed as Rare under Queensland's *Nature Conservation Act 1992*

M - Migratory species listed under the EPBC Act

V/c - Species listed as Vulnerable under the EPBC Act

M/r - Listed marine species as under the EPBC Act

Family	Scientific name	Common name	Conservation status				
			V	R	M	V/c	M/r
Jacaniidae	<i>Irediparra gallinacea</i>	comb-crested jacana					
Rostratulidae	<i>Rostratula benghalensis</i>	painted snipe		•	•	•	•
Haematopodidae	<i>Haematopus finschi</i>	South Island pied oystercatcher					
Haematopodidae	<i>Haematopus fuliginosus</i>	sooty oystercatcher		•			
Haematopodidae	<i>Haematopus longirostris</i>	pied oystercatcher					
Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt			•		•
Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	red-necked avocet			•		•
Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew					
Burhinidae	<i>Esacus neglectus</i>	beach stone-curlew	•				•
Glareolidae	<i>Stiltia isabella</i>	Australian pratincole			•		•
Charadriidae	<i>Charadrius bicinctus</i>	double-banded plover			•		•
Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover			•		•
Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover			•		•
Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover					•
Charadriidae	<i>Elseynornis melanops</i>	black-fronted dotterel					
Charadriidae	<i>Erythronyx cinctus</i>	red-kneed dotterel					
Charadriidae	<i>Pluvialis fulva</i>	Pacific golden plover			•		•
Charadriidae	<i>Pluvialis squatarola</i>	grey plover			•		
Charadriidae	<i>Vallenus miles novaehollandiae</i>	masked lapwing (southern subspecies)					
Charadriidae	<i>Vanellus tricolor</i>	banded lapwing			•		
Scolopacidae	<i>Arenaria interpres</i>	ruddy turnstone			•		•
Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper			•		•
Scolopacidae	<i>Calidris alba</i>	sanderling			•		•
Scolopacidae	<i>Calidris canutus</i>	red knot			•		•
Scolopacidae	<i>Calidris melanotos</i>	pectoral sandpiper			•		•
Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper			•		•
Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint			•		•
Scolopacidae	<i>Calidris tenuirostris</i>	great knot			•		•
Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe			•		•
Scolopacidae	<i>Heteroscelus brevipes</i>	grey-tailed tattler			•		•
Scolopacidae	<i>Heteroscelus incanus</i>	wandering tattler			•		•
Scolopacidae	<i>Limicola falcinellus</i>	broad-billed sandpiper			•		•
Scolopacidae	<i>Limnodromus semipalmatus</i>	Asian dowitcher			•		•
Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit			•		•
Scolopacidae	<i>Limosa limosa</i>	black-tailed godwit			•		•
Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew		•	•		•
Scolopacidae	<i>Numenius minutus</i>	little curlew			•		•
Scolopacidae	<i>Numenius phaeopus</i>	whimbrel			•		•
Scolopacidae	<i>Tringa hypoleucos</i>	common sandpiper			•		•
Scolopacidae	<i>Tringa nebularia</i>	common greenshank			•		•
Scolopacidae	<i>Tringa stagnatilis</i>	marsh sandpiper			•		•
Scolopacidae	<i>Xenus cinereus</i>	terek sandpiper			•		•

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