Australian Government

Department of the Environment and Heritage

# Background Paper to the Wildlife Conservation Plan for Migratory Shorebirds

This background paper provides supporting information for the Wildlife Conservation Plan for Migratory Shorebirds. The plan and background paper can be downloaded from the Department of the Environment and Heritage website at:
http://www.environment.gov.au/biodiversity/migratory/publications/shorebird-plan.html

Hard copies of the plan and background paper are also available from the:

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Please note that this background paper will be updated from time to time. The current version can be downloaded from the Department of the Environment and Heritage website at:
http://www.environment.gov.au/biodiversity/migratory/publications/shorebird-plan.html

## Introduction

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), provides a national framework for environment protection through a focus on protecting matters of national environmental significance and on the conservation of Australia's biodiversity. Migratory species listed under international agreements to which Australia is a party are identified as a matter of national environmental significance under the Act. To assist in the conservation of these species, the Act provides for the development of Wildlife Conservation Plans which set out the research and management actions necessary to support the survival of the species concerned.

A Wildlife Conservation Plan for Migratory Shorebirds has been prepared. This background paper provides information on migratory shorebirds, including the biological and ecological characteristics of the shorebirds covered by the Plan, their population status in Australia and throughout the Flyway and the range of actual and potential threats to them in Australia. The background paper also outlines existing programs and conservation measures for migratory shorebirds and their habitats in Australia.

The Wildlife Conservation Plan will build on existing measures to protect migratory shorebirds and the habitats important for their survival in Australia and throughout the Flyway This is achieved through a range of activities including appropriate legislation and policy frameworks, research and monitoring programs, development and implementation of site management actions, and community education and awareness programs.

A number of tools/guidelines provide direction for implementation of the plan. Some of these tools have already been developed and others will be developed as part of the actions identified under the Plan.

## Links between the Wildlife Conservation Plan and Flyway Shorebird Conservation frameworks

The Wildlife Conservation Plan for Migratory Shorebirds will provide a framework for national action to support conservation of migratory shorebirds across the East Asian-Australasian Flyway. This will include national level implementation of the Action Plan for the Conservation of Migratory Shorebirds in the East Asian – Australasian Flyway 2001-2005 and the new World Summit on Sustainable Development (WSSD) Flyway Partnership and Action Planfor 2006-2010.

## About Migratory Shorebirds

The Wildlife Conservation Plan for Migratory Shorebirds covers 36 species of migratory shorebirds that regularly visit Australia each year. An overview of the characteristics of these species, the main countries in which they breed, the type of habitat they prefer in Australia and their population status in Australia and the Flyway can be found in Table A of this background paper.

The migratory shorebirds which visit Australia, migrate along the East Asian-Australasian Flyway which stretches from the breeding grounds of Siberia and Alaska southwards through east and south-east Asia, to the non-breeding grounds of Australia and New Zealand. Migratory shorebirds fly many thousands of kilometres from their breeding grounds to their non-breeding grounds, generally flying from one hemisphere to the other and back again in a single year. The exception to this is the Double-banded Plover which breeds in New Zealand, with more than half the population migrating to south eastern Australia for the non-breeding season each year.

*Fig .1. East Asian – Australasian Flyway*

Migratory shorebirds travel up to 26,000 kilometers on these return journeys and cross state boundaries, countries and oceans, linking the ecosystems, communities and governments responsible for providing suitable habitat to support the survival of these species. With the ever increasing human population and development, habitat loss and degradation are the major threats that migratory shorebirds face today.

Australia provides extensive habitat for many of the Flyway's migratory shorebird species at the terminus of their migration. Australia is therefore well positioned to lead conservation and research action for migratory shorebirds in the flyway. With population monitoring for example, most migratory shorebirds species breed on or near the Arctic tundra, but the logistics of monitoring populations in these remote areas is difficult and uneconomical. Many other countries in the central areas of the Flyway have habitats that serve as migration stopover sites for continually transient populations, and therefore monitoring is difficult. As migratory shorebird populations in Australia remain stable for around three months of the year, Australia's role in monitoring Flyway populations is an extremely important one and may help detect changes in the size of the Flyway population for all species that regularly visit here.

*Illustration by Keith Woodley*

The types of habitat preferred by the 36 species of migratory shorebird covered by the Plan varies across Australia. While many species can be found on a range of habitat type from freshwater inland wetlands to coastal mudflats and sandy beaches, most of the available information on migratory shorebird species suggests that intertidal habitats are the most important for most species covered by the Wildlife Conservation Plan. More information on preferred habitat type of each species covered under the Plan is set out in the following Table.

**Table A**

Migratory shorebirds in Australia – the following table was compiled from information extracted from the Handbook of Australian, New Zealand and Antarctic Birds volumes 2 and 3 (Marchant S., & P.J. Higgins (Eds) 1993 Raptors to Lapwings) (Marchant S., P.J. Higgins & S.J.J.F. Davies(Eds) 1996 Snipes to Pigeons) and A National Plan for Shorebird Conservation in Australia (Watkins 1993).

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Gallinago hardwickii* | Latham's Snipe | Japan and adjacent parts of Siberia | Freshwater wetlands. Inland, upland and Coastal Plains Soft moist ground or shallow flooded areas | Birds tend not to gather in large flocks. Singularly or in small loose groups | 36,000 | 15,000 | Lack of existing data - no sites have been identified as internationally important as the birds tend not to occur in large flocks and are highly mobile - this does not mean Australia is not important to the Flyway population |
| *Gallinago stenura* | Pin-tailed Snipe | Arctic Tundra | Freshwater wetlands, usually grass/sedge swamps or damp to wet grasslands | Mainly seen in North West Western Australia Birds migrate in small flocks of 5 – 10, but are rarely seen in flocks in Australia | Insufficient data | Distribution poorly understood in Australia. | No sites identified as internationally important |
| *Gallinago megala* | Swinhoe's Snipe | Central Siberia, Mongolia | Freshwater wetlands, usually grass/sedge swamps or damp to wet grasslands | Usually singularly or in small loose groups <25. Mainly seen in Northern Australia | 25,000 – 100,000 | Poorly counted species as the habitat it favours are not well surveyed | No sites identified as internationally important |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Limosa limosa* | Black-tailed Godwit | Iceland, Nth Atlantic, Europe, Russian and China | Mainly coastal, usually sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats. Often found inland in small numbers | Gregarious, small to large groups, numbering hundreds at favourable roosting sites. . | 162,000 | 81,000 | 11 sites of international importance identified |
| *Limosa lapponica* | Bar-tailed Godwit | Northern Russia, Scandinavia, Nw Alaska | Mainly coastal, usually sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats | Gregarious, small to large groups, numbering up to a 1000 at favourable roosting sites | 330,000 | 165,000 | 6 sites of international importance |
| *Numenius minutus* | Little Curlew | Siberia | Coastal plains, grasslands, often recreational areas; may forage in dry habitat, but congregate at freshwater eg. Shallow inland pools | Forage in dispersed flocks, congregate to drink and bathe | 180,000 | 180,000 | 7 sites of international importance |
| *Numenius phaeopus* | Whimbrel | Siberia, Alaska | Intertidal coastal mudflats, river deltas and mangroves, occasionally sandy beaches | Forage singularly or small groups, congregate in small to large flocks to roost | 40,000 | 10,000 | 9 sites of international importance |
| *Numenius madagascariensis* | Eastern Curlew | Russia, NE China | Intertidal coastal mudflats, coastal lagoons, sandy spits | Forage singularly or small groups, congregate in large flocks to roost | 38,000 | 29,000 | 19 sites of international importance |
| *Tringa totanus* | Common Redshank | Western Europe | Rare but regular visitor. Not know to visit Australia in significant numbers (<200) | Sheltered coastal wetlands | 65,000 | Insufficient data | No sites identified as internationally important |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Tringa stagnatilis* | Marsh Sandpiper | Eastern Europe to Eastern Siberia | Coastal - Permanent or ephemeral wetlands of varying degrees of salinity, commonly inland | Occur singularly or in small to large groups | 100,000 – 1,000,000 | 9,000 | 4 sites of international importance |
| *Tringa nebularia* | Common Greenshank | Arctic circle, Siberia | Wide variety of inland and sheltered coastal wetlands - mudflats, saltmarshes, mangroves | Occur singularly or in small to large groups | 55,000 | 20,000 | 10 sites of international importance |
| *Tringa glareola* | Wood Sandpiper | Eurasia, mostly Scandinavia, N China, Siberia | Freshwater Wetlands | Singularly, pairs or small flocks, occasionally larger flocks of 100s - in North Western Australia | 100,000 | 6,000 | No sites identified as internationally important |
| *Xenus cinereus* | Terek Sandpiper | Russia, eastern Europe | Intertidal coastal, - mainly saline mudflats, lagoons andsandbanks | Singularly, pairs or small flocks, roost in small groups with other waders | 50,000 | 25,000 | 11 sites of international importance |
| *Actitis hypoleucos* | Common Sandpiper | Western Europe, Eastern Russia | Wide variety of inland and coastal wetlands - varying levels of salinity - muddy margins or rocky shores | Singularly or in small groups | 30,000 | 4,500 | 2 sites of international importance |
| *Heteroscelus brevipes* | Grey-tailed Tattler | Siberia | Sheltered coasts with reef or rock platforms or intertidal mudflats | Usually in small flocks and roost in large numbers with other waders | 40,000 | 40,000 | 14 sites of international importance |
| *Heteroscelus incanus* | Wandering Tattler | Siberia, NW Canada | Rocky coasts - not commonly seen in Australia. East coast and islands | Solitary or in small groups, will roost communally, often with Grey-tailed Tattlers | Insufficient data | Insufficient data | No sites identified as internationally important |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Arenaria interpres* | Ruddy Turnstone | Northern Siberia, Alaska | Wide variety of habitats - generally mudflats or rocky coastline - rarely inland waters | Usually in loose flocks of 20 - 100 | 31,000 | 17,000 | 13 sites of international importance |
| *Limnodromus semipalmatus* | Asian Dowitcher | Siberia, N China, Russia, Mongolia | Usually intertidal sheltered coastal wetlands, mudflats, sandflats and estuaries | Gregarious, usually in pairs of small groups - occasionally in groups >100 at a few favourable feeding and roosting sites | 23,000 | 530 | 1 site of international importance |
| *Calidris tenuirostris* | Great Knot | N Siberia | Coastal habitats, intertidal mudflats, estuaries, lagoons and sandflats | Gregarious, in small to large flocks often in hundreds or thousands at favoured sites | 380,000 | 360,000 | 9 sites of international importance |
| *Calidris canutus* | Red Knot | Nth Siberia, Alaska | Intertidal mudflats, sandflats, estuaries, sandy beaches of sheltered coasts | Highly gregarious, small to large flocks, in thousands at favoured sites | 220,000 | 135,000 | 8 sites of international importance |
| *Calidris alba* | Sanderling | High arctic regions - Alaska, Greenland, Russia | Mostly open sandy beaches | Gregarious, small to large flocks - in hundreds at favoured sites | 22,000 | 9,500 | 11 sites of international importance |
| *Calidris ruficollis* | Red-necked Stint | N Siberia, Alaska | Mostly coastal sheltered inlets and estuaries with intertidal mudflats - occasionally on ocean beaches, commonly on inland lakes | Gregarious, often in dense flocks of hundreds to thousands | 315,000 | 245,000 | 32 sites of international importance |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Calidris subminuta* | Long-toed Stint | Siberia | Terrestrial wetlands, shallow freshwater or brackish wetlands with muddy or vegetated shoreline | Usually singly or in pairs, sometimes in small flocks at favoured sites, mainly in Western and central Australia. | 25,000 | Insufficient data | No sites identified as internationally important |
| *Calidris melanotos* | Pectoral Sandpiper | N Russia, N America | Shallow fresh to saline wetlands usually coastal regions, but often inland | Usually solitary, in pairs or in small loose groups | Insufficient data | Insufficient data | No sites identified as internationally important |
| *Calidris acuminata* | Sharp-tailed Sandpiper | NE Siberia | Muddy edges of shallow fresh or brackish water. Common both on intertidal and inland waters | Gregarious, small groups to large dense flocks (100s -1000s) – the most frequently encountered species in inland of Australia. | 160,000 | 140,000 | 38 sites of international importance |
| *Calidris ferruginea* | Curlew Sandpiper | Arctic Tundra | Intertidal mudflats of sheltered coastal areas, coastal lakes,estuaries, bays - occasionally inland wetlands | Gregarious, often in large flocks, mixes freely with other small waders | 180,000 | 155,000 | 17 sites of international importance |
| *Limicola falcinellus* | Broad-billed Sandpiper | Scandinavia, Russia | Sheltered coastal wetlands, mudflats, estuaries | Usually seen singly or in small loose groups, occasionally in large groups at favoured sites in North Western Australia | 25,000 | 8,000 | 1 site of international importance |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Philomachus pugnax* | Ruff | N Europe, Russia | Usually terrestrial wetlands with exposed mudflats at edges | Rare, but regular visitor, mainly seen singly, pairs or small groups, associate with other small waders | Insufficient data | Insufficient data | No sites identified as internationally important |
| *Phalaropus lobatus* | Red-necked Phalarope | Arctic and sub Arctic Nth America and Europe and Russia | Usually pelagic, occasionally coastal wetlands | Gregarious, mainly in tropical seas. Usually singly or small groups in Australia; largest numbers in North Western Australia | 100,000 – 1,000,000 | Insufficient data | No sites identified as internationally important |
| *Pluvialis fulva* | Pacific Golden Plover | N Siberia, Alaska | Mainly coastal, beaches, mudflats and sandflats and other open areas such as recreational playing fields | Usually small to large loose groups | 100,000 | 7,300 | 1 site of international importance |
| *Pluvialis squatarola* | Grey Plover | Arctic tundras, Siberia, Alaska, Canada | Coastal, intertidal mudflats, sandflats, sandy beaches, rocky coastline | Usually solitary or small groups, roost in large groups often with other waders | 125,000 | 12,000 | 5 sites of international importance |
| *Charadrius bicinctus* | Double-banded Plover | New Zealand | Littoral, estuarine and fresh or saline terrestrial wetlands, grasslands and pasture | Gregarious, small loose groups and roost in large flocks rarely with other waders | 50,000 | 30,000 | 9 sites of international importance |
| *Charadrius mongolus* | Lesser Sand Plover | Central and NE Asia | Usually coastal, estuaries and littoral environments - sandflats and mudflats, | Gregarious, small to large flocks - in hundreds at favoured sites in Northern Australia | 130,000 | 24,000 | 7 sites of international importance |

| Scientific Name | Common Name | Breeding Area | Habitat preference in Australia | Characteristics | Estimated Flyway Population | Estimated number visiting Australia | Internationally important habitat in Australia |
|---|---|---|---|---|---|---|---|
| *Charadrius leschenaultii* | Greater Sand Plover | Siberia | Coastal wetlands, intertidal mudflats or sandflats, sheltered sandy beaches | Gregarious, often forming flocks with lesser sand plover | 100,000 | 74,000 | 9 sites of international importance |
| *Charadrius veredus* | Oriental Plover | Mongolia E China | Inland - grasslands, roost on beaches or muddy margins of terrestrial wetlands | Gregarious, small to large flocks mainly in North Western Australia | 70,000 | 70,000 | 6 sites of international importance |
| *Glareola maldivarum* | Oriental Pratincole | China, Pakistan and Indian subcontinent, Indonesia and Malay pens. | Open country often near water, grassy flats and mudflats | Gregarious in small to large flocks (sometimes thousands) in many Islands; an aerial feeder that often follows thunderstorms | 2,800,000 | 2,800,000 | 10 sites of international importance |

**Threats to Migratory Shorebirds**

Although there is no statutory requirement to identify threats to migratory shorebirds under Wildlife Conservation Plans, in order to develop a plan that sets out the research and management actions necessary to support the survival of migratory shorebirds, it is essential to identify potential and actual threats, so that they may be managed effectively.

*Loss of habitat*

One of the many complexities of the life cycle of a migratory shorebird is its tendency for site fidelity, generally returning to the same sites year after year. Habitat of a certain type (eg. coastal mudflats at the mouth of a river) and location, although aparrently suitable habitat for shorebirds, may not be visited by shorebirds in significant numbers, or at all. Appropriate management of specific sites which support significant numbers of migratory shorebirds is, therefore, more important than defining habitat type. However, as our knowledge of migratory shorebirds and their habitat is incomplete, particularly for those species of migratory shorebirds that do not aggregate or are widely dispersed, there is a case for some level of protection for potential habitat.

It is estimated that since European settlement approximately 50% of Australia's non-tidal wetlands have been converted to other uses. In some regions the rate of loss has been even higher. For example, on the Swan Coastal Plain of Western Australia 75% of wetlands have been filled or drained and in south-east South Australia 89% have been lost.

The distinction between wetland loss and wetland degradation is not absolute. Continued degradation may result in the complete loss of wetland functions and values. However, it is useful to make a distinction between loss, which is normally the result of deliberate intent, and degradation, which may be an indirect and unanticipated consequence of actions within wetlands and their catchments.

Historically, the development of urban areas has often involved draining and filling of wetlands for industrial, commercial, and housing developments. Wetlands have been modified for waste disposal and for the provision of playing fields and other recreational facilities. Many watercourses in urban areas have been converted to drains lined with concrete resulting in loss of in-stream habitat, fringing wetlands and streamside vegetation. In Australia, due to the nature of the environment and the distribution of the human population, losses of this type have been concentrated in estuaries and in the permanent wetlands of the coastal lowlands of southern Australia.

Historically, agricultural development has often involved substantial loss of wetlands on the floodplains of coastal rivers. Drainage and conversion of wetlands for agricultural activities has been a major cause of wetland loss worldwide. However, the management and maintenance of wetlands and agriculture can be compatible, and agriculture need not involve complete loss of wetland function and values. Sustainable natural resource management necessarily involves wetlands management as part of a whole systems approach.

Development of aquaculture has had substantial impacts on wetlands overseas, both from direct destruction of habitat and indirectly through effects on water quality and native biota. As a growing industry in Australia, aquaculture will have to be carefully managed to avoid similar impacts here.

The threats to Australia's wetlands are many and varied and in most instances can be found acting in concert to degrade or destroy sites. By far the greatest threat, even today, remains ignorance of the importance of wetlands and the roles they play.

Apart from outright destruction through conversion for other uses, the major long term factors leading to wetland degradation and loss are:

*Modification and degradation of habitat*

Migratory shorebirds are particularly vulnerable to modification of habitat. Their ability to complete long flights depends on the availability of suitable habitat at sites across the Flyway and the capacity of those habitats to provide adequate food and resting opportunities (roosts), so that birds can build enough energy reserves to sustain their annual migration.

Modification of habitat can arise from a range of different activities including, but not limited to, fishing or aquaculture practices, forestry and farming practices, mining, and development near wetlands for housing and industry. Such activities may result in increased silt in the water, pollution, weed and pest invasion, all of which can change the ecological character of the site, potentially leading to deterioration of the quantity and quality of food and other resources available to support migratory shorebirds.

Pollution is a particular threat as pollutants tend to accumulate and concentrate in wetlands. Wetlands are threatened by both acute and chronic pollution. Acute pollution generally arises from accidents, such as oil spills from shipping, road or industrial accidents. Generally migratory shorebirds are not directly affected by oil spills like seabirds often are, but important habitat may be impacted through catastrophic loss of marine benthic food sources for many years.Chronic pollution may arise from both local and widespread sources. Catchment run-off carries nutrients, sediments and pollutants into waterways and eventually wetlands. Excess nutrients cause eutrophication, resulting in changes to the biological and chemical processes within wetlands.

As sites become unable to support migratory shorebirds, remaining sites may attract more birds which in turn may create over-crowding, competition for food and depletion of food resources and increased risk of disease.

*Disturbance of shorebirds*

Disturbance of migratory shorebirds may occur as a result of many activities, such as industrial operations and construction, recreational fishing, four wheel driving on beaches, unleashed dogs and jet skiing to name a few.

Migratory shorebirds are most susceptible to disturbance during daytime roosting and foraging periods. Research suggests that the energetic costs of disturbance of shorebirds can be quite high and may compromise their capacity to build enough energy reserves to undertake their migration. Disturbance in Australia is greatest where increasing population and development pressure may impact important sites. Approximately 80% of Australians live in cities or local councils abutting the coast and around 25% currently live within 3 kilometres of the coast. With this figure increasing in Australia, pressure on our important coastal habitat sites is intensifying.

*Global climate change*

There is strong scientific evidence that anthropogenic greenhouse gas emissions are causing changes in climate. The Third Asssessment Report of the Intergovernmental Panel on Climate Change concluded that most of the global warming observed over the last 50 years is likely to have been caused by an increase in greenhouse gas concentrations. Climate change projections for Australia suggest likely increased temperatures, rising sea levels and an overall drying trend for much of the continent together with more frequent and/or intense extreme climate events. These

changes have potentially important impacts on migratory species and their habitats. For example, by reducing the extent of coastal wetlands or through a poleward shift in the range of many species.

In 2004 the Natural Resource Management Ministerial Council released the National Biodiversity and Climate Change Action Plan. Copies of the Plan can be downloaded from the following website: www.deh.gov.au/biodiversity/publications/nbccap/pubs/action-plan.pdf

'Loss of habitat caused by anthropogenic emissions of greenhouse gases' has been declared a Key Threatening Process under the EPBC Act. More information on climate change can be found from the following websites: (www.deh.gov.au/biodiversity/threatened/ktp/greenhouse.html).
Some detailed studies of climate change and its impact of Australia's avifauna have recently been undertaken and published. The publication "Climate Change and its impact of Australia's Avifauna" by Chambers et al (2005) can be downloaded from (www.publish.csiro.au/paper/MU04033.htm ).

*Introduced species*

Many wetlands across Australia have been adversely affected by the introduction of plant species such as water hyacinth *Eichhornia crassipes*, *Ludwigia peruviana*, *Salvinia* sp. and *Mimosa pigra*. These plants can lead to long-term changes of the nature and biodiversity of the wetlands; in turn, this has had significant effects on the use of these wetlands by shorebirds and other species. Introduced animals such as pigs, cane toads and European carp are also well known for their destructive impacts on wetland areas. The threats are not only from species already introduced into the wild in Australia. There is also the constant risk of new introductions of ponded exotic pasture, aquarium and garden species, and ballast water and hull transport of exotic marine pests. Of particular concern for migratory shorebirds is the introduction of exotic marine pests which may result in loss of benthic food sources at important intertidal migratory shorebird habitat.

## Overview of current activities to conserve migratory shorebirds in Australia

Governments and conservation groups have undertaken a wide range of major projects relating to migratory shorebirds and their habitats. The Australasian Wader Studies Group (a special interest group of Birds Australia) population count and colour flagging programs have been operational for several decades and have been successful due to the large number of volunteers that have contributed to these projects. Additionally, the Shorebird Conservation Project, currently being undertaken by a consortium of non-government organisations across Australia and coordinated by WWF Australia, is engaging communities in conservation activities at priority sites for migratory shorebirds. This important work for the conservation of migratory shorebirds in Australia and the East Asian – Australasian Flyway is primarily funded by the Australian Government through the Natural Heritage Trust.

For nearly 30 years, Australia has played an important role in international cooperation to conserve migratory birds in the East Asian – Australasian Flyway. One of the main achievements has been the Shorebird Action Plan and Shorebird Site Network, in collaboration with Wetlands International and other countries in the Flyway, particularly Japan. This has led to the agreement to develop a Partnership under the World Summit on Sustainable Development (WSSD) for the Conservation and Sustainable Use of Sites of International Importance for Migratory Waterbirds in East Asia, South East Asia and Australasia. This Partnership aims to build on the achievements of the *Asia Pacific Waterbird Conservation Strategy* and it's component, the *Action Plan for the Conservation of Migratory Shorebirds in the East Asian-Australasian Flyway*. Australia will continue to lead conservation of migratory shorebirds throughout the Flyway through promotion of the WSSD Partnership and expansion of the site network approach to the conservation and protection of migratory shorebirds.

Through the variety of research and volunteer programs that have been carried out, there is a strong baseline of information on migratory shorebirds throughout Australia and the Flyway. However, much remains unknown and it is important to sustain research and monitoring activities to detect significant changes in shorebird populations. The Wildlife Conservation Plan for Migratory Shorebirds provides a Commonwealth policy framework for national implementation of the Flyway Partnership and contributes to a more coordinated approach to research, monitoring and communication between Governments, non-government organizations, researchers and industry and will ensure future conservation measures have high priority, are strategic and complement each other.

## Conserving Migratory Shorebirds in Australia

In order to meet our obligations under the international arrangements and provide for conservation of migratory shorebirds in Australia, migratory shorebirds are afforded protection by Commonwealth, State/Territory and Local Governments.

*The Environment Protection and Biodiversity Conservation Act*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), in force from 16 July 2000, enhances the management and protection of Australia's listed migratory species.

The Act recognises migratory species, including migratory shorebirds, as '*a matter of national environmental significance*', along with wetlands of importance as listed under the Convention on Wetlands (Ramsar) , nationally threatened species and ecological communities. The Act provides for Commonwealth assessment and approval of actions that are likely to have a significant impact on a matter of national environmental significance. More information on the Act and matters of

national environmental significance can be accessed from the DEH website at www.deh.gov.au/epbc.

The Act also provides for the development and implementation of Wildlife Conservation Plans. A Wildlife Conservation Plan which is a statutory instrument under the Act, requires that the Commonwealth must take all reasonable steps to act in accordance with such plans.

*Investing in Migratory Shorebird Conservation through the Natural Heritage Trust*

The Commonwealth Government has provided more than $2.5 million from the Natural Heritage Trust over the past eight years for migratory shorebird conservation. The goal of the Trust is to stimulate activities in the national interest to achieve the conservation, sustainable use and repair of Australia's natural environment.

Meeting Australia's international obligations for migratory shorebirds is an objective of the Conservation of Migratory Waterbirds Project under the National Component of the Trust.

Trust investment in shorebird conservation has focussed on:

- **Supporting Australia's international efforts** to promote shorebird conservation in the Flyway, including core funding for the Asia Pacific Migratory Waterbird Conservation Strategy and the Action Plan for Conservation of Migratory Shorebirds in the East Asian – Australasian Flyway.
- **Investing in activities under the Japan Australia Migratory Bird Agreement (JAMBA) and the China Australia Migratory Bird Agreement (CAMBA)**, including training and capacity building for shorebird site managers in China.
- **Supporting and promoting the East Asian – Australasian Shorebird Site Network**, coordinated by Wetlands International, including conducting training for site managers in Australia and production of posters in the languages of the Flyway.
- **Encouraging community participation in shorebird conservation** in Australia, through grants to community groups to conserve habitats under the Shorebird Conservation Project coordinated by World Wide Fund for Nature – Australia.
- **Collecting important information on shorebirds**, including supporting the Australasian Wader Studies Group in counting shorebirds, which is collated and analysed on a national basis to identify important habitats; and developing and implementing a Colour Flagging Protocol which promotes coordinated shorebird migration research across the Flyway (available on line at www.tasweb.com.au/awsg/protocol.htm).
- **Communication and Education products** including poster and brochures (available online at www.deh.gov.au/water/wetlands/publications/flyway.html), a curriculum package titled *Feathers, Flyways and Fastfood: Notes for Schools* (available online at www.wetlands.org.au/shorebirds/index.htm and *A Year on the Wing*, an online interactive documentary available at www.abc.net.au/wing.

**International Measures - Conserving Migratory Shorebirds across the Flyway**

Australia has played an important role in international cooperation to conserve migratory birds in the Flyway. This work started with formal migratory bird bilateral agreements between the Australian Government and the Government of Japan and later the People's Republic of China. Australia's involvement has since grown to include regional cooperative action under the *Asia-Pacific Migratory Waterbird Conservation Strategy* and most recently a partnership initiative under the World Summit on Sustainable Development.

*Migratory Bird Bilateral Agreements*

Bilateral agreements provide a formal framework for cooperation between two countries on issues of mutual interest. Throughout the Asia Pacific region, there are currently 10 bilateral agreements relating to migratory birds. These are; Japan – Australia, China – Australia, Japan – China, Japan – Russia, India – Russia, Korea – Russia, Korea D.P.R. – Russia, USA – Russia, USA – China, and USA – Japan.

Australia has two bilateral agreements relating to conservation of migratory birds; the *Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment* or JAMBA was made with Japan in 1974, while the *Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment* or CAMBA was made with the People's Republic of China in 1986. The two agreements list terrestrial, water and shorebird species which migrate between Australia and the respective countries. In both cases the majority of listed species are shorebirds. Both agreements require the parties to protect migratory birds from take or trade except under limited circumstances, protect and conserve habitats, exchange information, and build cooperative relationships. The JAMBA also includes specific provisions for cooperation on conservation of threatened birds. Australian government officials and non-government representatives meet every two years with their Japanese and Chinese counterparts to review progress in implementing the agreements and to explore new initiatives to conserve migratory birds.

In April 2002, Australia and the Republic of Korea agreed to develop a bilateral migratory bird agreement similar to the JAMBA and CAMBA. The proposed agreement will formalise Australia's relationship with Republic of Korea in respect to migratory bird conservation and will provide a basis to collaborate in the protection of migratory shorebirds and their habitat.

JAMBA, CAMBA and the other bilateral agreements across the Flyway have provided a mechanism for pursuing conservation outcomes for migratory birds, including migratory shorebirds. The bilateral nature of agreements does, however, limit their scope and ability to influence conservation on a flyway scale. Australia has, therefore also sought to encourage multilateral cooperation on migratory bird conservation.

*Convention on Migratory Species*

The *Convention on Conservation of Migratory Species of Wild Animals*, commonly known as the CMS (also known as the Bonn Convention), is a global multilateral convention which aims to conserve migratory (avian, marine and terrestrial) species over the whole of their range. The Convention provides a framework within which Parties may act to conserve migratory species and their habitats by:

1. Adopting strict protection measures for migratory species that have been categorized as being in danger of extinction throughout all or a significant proportion of their range (listed in Appendix I of the Convention);

2. Concluding agreements and arrangements for the conservation and management of migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation (listed in Appendix II to the Convention); and

3. Undertaking joint research and monitoring activities and promoting partnerships for the conservation of migratory species (CMS 2002, Res Conf 7.9 and Res Conf 7.10).

*Convention on Wetlands*

Australia was one of the first 18 countries to become a signatory to the *Convention on Wetlands* in the Iranian city of Ramsar in 1971 (http://www.ramsar.org). The Ramsar Convention, as it is commonly known, is an intergovernmental treaty dedicated to the conservation and "wise use" of wetlands.

The Ramsar Convention focuses on conservation of important habitats rather than species. Parties are committed to identifying wetlands that qualify as internationally significant against a set of criteria, to nominating these wetlands to the List of Wetlands of International Importance (the Ramsar List) and to ensure the maintenance of the ecological character of each listed Ramsar site. Among the criteria used to determine international significance are two which relate to waterbirds:

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Australia currently has 64 Wetlands of International Importance that cover a total of approximately 7.3 million hectares. For at least 29 of these sites (approx 4.7 Million hectares) their inclusion in the Ramsar list was justified using the criteria based on waterbirds. In some cases, migratory shorebirds were a major component of the waterbird numbers (eg. Roebuck Bay and Eighty Mile Beach).

*Asia Pacific Migratory Waterbird Conservation Strategy*

In 1994, the Japanese and Australian governments organised an international workshop on the "Conservation of Migratory Waterbirds and their Wetland Habitats in the East Asian-Australasian Flyway" under the auspices of the JAMBA. The workshop recognised that an international migratory waterbird conservation strategy was needed for the region. The workshop called for a strategy to be prepared that identified the major issues, outlined the range of priorities for action, and set out a time table for implementation and evaluation (Anon 1996).

The result was the *Asia-Pacific Migratory Waterbird Conservation Strategy 1996-2000.* which was produced by Wetlands International and the International Waterfowl and Wetlands Research Bureau-Japan Committee (Anon 1996). The development and subsequent implementation of the Strategy, and its second iteration for the 2001-2005 period has received strong support from the Ministry of Environment, Japan, and the Australian Government through the Natural Heritage Trust.

The Strategy for 2001-2005 outlines the following key elements to promote the conservation of migratory waterbirds and their habitats:

1. Action plans for species-groups and globally threatened species.
2. Effectively managed networks of sites that are internationally important for migratory waterbirds.
3. Raised awareness of waterbirds and their link to wetland values and functions throughout the region and at all levels.
4. Increased capacity of government agencies and non-government organisations to implement conservation actions for migratory waterbirds.

5. An enhanced knowledge base and increased information exchange for the sound management of migratory waterbirds and their habitats.
6. Harmonised national and state policies and legislation as a foundation for the conservation of migratory waterbirds and their habitats.
7. Enhanced organisational relationships at all levels to increase cooperation and deliver greater conservation benefits.
8. Adequate planning and resources to implement the Strategy (Asia-Pacific Migratory Waterbird Conservation Committee 2001).

The Strategy has been very successful in promoting international cooperation and increasing awareness of the need to work together to promote migratory shorebird conservation. A number of international and national activities have been undertaken, primarily through the implementation of regional migratory waterbird conservation action plans for shorebirds, cranes and Anatidae (ducks, geese and swans), and the establishment of three networks of sites of international importance for these species groups (Asia-Pacific Migratory Waterbird Conservation Committee 2001).

Of the three action plans, the *Action Plan for the Conservation of Migratory Shorebirds in the East Asian-Australasian Flyway* is of most interest to and strongly supported by Australia, as a large proportion of shorebird populations in the Asia Pacific region visit Australia during their non-breeding season. The cranes and Anatidae covered by the other action plans do not regularly migrate to Australia.

*Action Plan for the Conservation of Migratory Shorebirds in the East Asian – Australasian Flyway and the East Asian – Australasian Shorebird Site Network*

The action plan was developed to guide a regional program of key actions to conserve migratory shorebirds. The primary tool for implementing the action plan is the East Asian – Australasian Shorebird Site Network which links internationally important shorebird sites and their managers across the Flyway to provide a framework for improved management and increased public awareness and education activities. The action plan also recognises the importance of a strong scientific base to guide decision making.

The Shorebird Site Network operates as a cooperative environmental program, involving site management bodies and local communities, working for the conservation of wetlands of international importance for migratory shorebirds (Wetlands International 2003). The site network is supported by a Shorebird Flyway Officer working with Wetlands International - Oceania and funded by the Commonwealth Government through its Natural Heritage Trust initiative.

The site network includes sites that regularly support >20,000 migratory shorebirds; or, regularly support > 1 % of the individuals in a population of one species or subspecies of migratory shorebird; or, support appreciable numbers of an endangered or vulnerable population of migratory shorebird. Site managers in the Flyway develop new site proposals for addition to the Network and obtain endorsement from their governments.

As at April 2005, 36 sites had been nominated to the Network by 11 countries. Australia currently has 11 sites included in the Network. Wetlands International is currently preparing a report which estimates the populations of shorebirds in the East Asian-Australasian Flyway and, using the Shorebird Site Network criteria, identifies the internationally important sites of the Flyway (Bamford and Watkins, in prep). For the network to be successful, it needs to include as many countries as possible and at least 25% of internationally important sites across the Flyway. At present the network includes approximately 10% of internationally important sites. Australia is seeking to increase the profile of the network to ensure that this target is reached.

A key element of the *Action Plan for the Conservation of Migratory Shorebirds in the East Asian-Australasian Flyway: 2001-2005* is the ongoing development of the Shorebird Site Network. Currently there are 11 sites in Australia included in the network. They are located at :

1. Kakadu National Park – NT
2. Parry Lagoons – WA
3. Thomson Lake – WA
4. Moreton Bay – Qld
5. Kooragang Nature Reserve – NSW
6. Corner Inlet – VIC
7. The Coorong – SA
8. Orieleton Lagoon – TAS
9. Logan Lagoon – TAS
10. Western Port – VIC
11. Port Phillip Bay – VIC

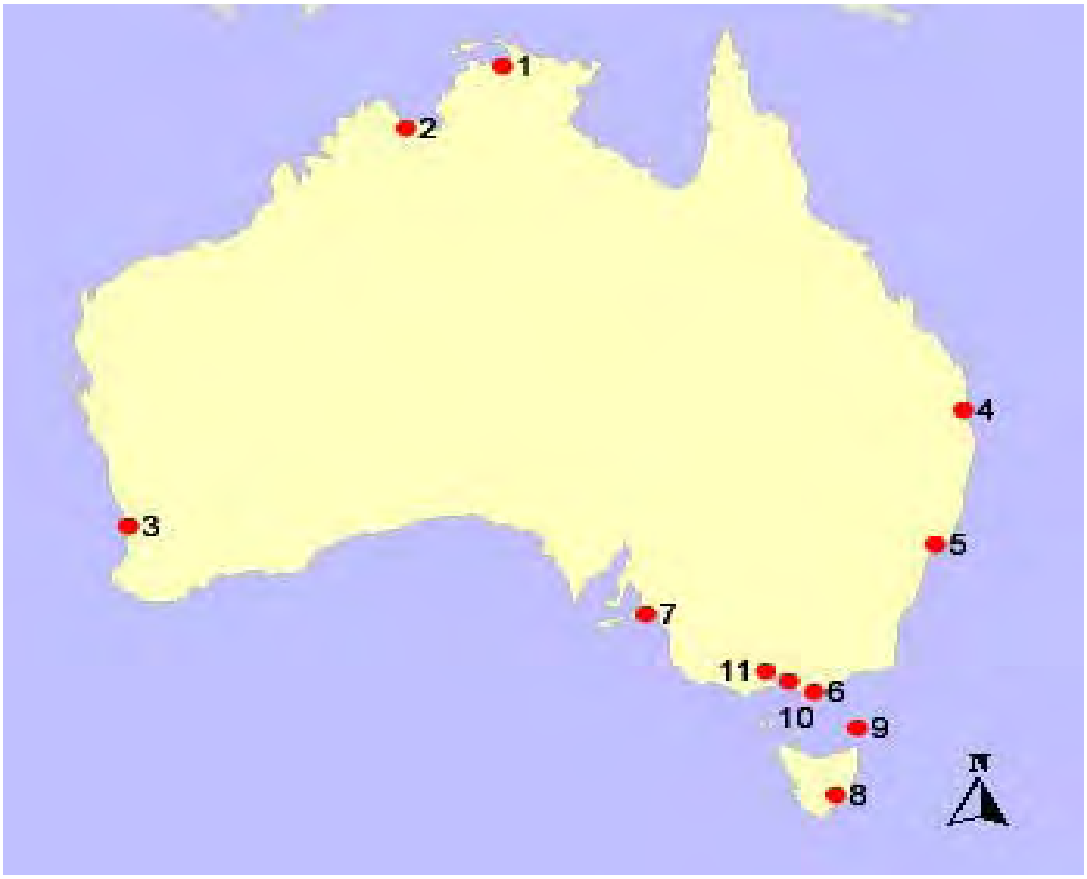


*Fig 2 Australian Sites included in the Shorebird Site Network*

*Building the Network: the Conservation and Sustainable Use of Sites of International Importance to Migratory Birds in East-Asia, South East Asia and Australasia partnership*

At the World Summit on Sustainable Development in Johannesburg, South Africa in September 2002, Australia, Japan and Wetlands International co-sponsored a partnership initiative titled *Conservation and Sustainable Use of Sites of International Importance to Migratory Birds in East-Asia, South East Asia and Australasia*. The partnership, which is currently being developed, provides a cooperative framework for conservation of migratory waterbirds and their inland and

coastal habitats across the region. The partnership will build on the achievements of the *Asia-Pacific Migratory Waterbird Conservation Strategy* and associated action plans for conservation of Anatidae, cranes and shorebirds. The text of the partnership is available online at www.johannesburgsummit.org/html/sustainable_dev/p2_managing_resources/2008_conservation_migratory_birds.pdf.

The partnership focuses on implementing the network of sites concept and provides a mechanism for governments of the Flyway to formally engage in network activities that does not exist under the informal arrangements of the Strategy. For this reason Australia views the partnership as a useful mechanism for expansion of the site network across the Flyway. Australia and Japan hosted a workshop of officials from governments across the Flyway in the Republic of Korea in November 2004 to further develop the partnership.

***Identifying and Protecting Important Habitat***

As well as the above Commonwealth measures, legislation in each of the States and Territories enables the jurisdictions to collectively provide a national scheme of environmental protection and biodiversity conservation. Many of Australia's listed migratory species are protected cooperatively by the Commonwealth Government and State governments, with relevant State agencies taking responsibility for on-ground management in accordance with State legislation relevant to migratory species. Each State and Territory in Australia has legislation that protects migratory shorebirds.

*Developing the Shorebird Site Network in Australia*

The Commonwealth, State and Territory Governments of Australia are working together to increase the number of sites in the East Asian – Australasian Shorebird Site Network. In the *National Objectives and Targets for Biodiversity Conservation* 2001-2005 (available online at http://www.deh.gov.au/biodiversity/publications/objectives/index.html) the Commonwealth, State and Territory governments agreed to increase the number of Australian sites in the Shorebird Site Network from the current 11 sites to 36 sites by 2005. Bamford and Watkins (in prep) have identified around 140 internationally important sites in Australia that could be nominated to the Site Network. Two sites in Victoria, Discovery Bay and Shallow Inlet are in the process of being included in the site network following preparation of nomination documents by the Victorian Wader Studies Group with funding from the Australian Government's Natural Heritage Trust. Nominations are currently being prepared for 8 sites.

*Nationally Important Wetlands*

State and Territories may list wetlands as nationally important in *A Directory of Important Wetlands in Australia*. There are 851 wetlands identified as nationally important. A database of these wetlands has been established and can be accessed from the following website: www.deh.gov.au/water/wetlands/database/index.html. In addition to the Directory identifying important wetlands, the Directory also provides a substantial knowledge base of what defines wetlands, their variety and the dependence on them of many flora and fauna species.

A wetland may be considered nationally important if it meets one of a number of criteria, including the following:

- The wetland supports 1% or more of the national populations of any native plant or animal taxa.

To determine exactly how many of these wetlands were listed for reasons including their importance specifically to migratory shorebirds would be very difficult to do without reviewing the nomination information for each site, however a quick search would indicate that at least 120 are important for shorebirds, although this may not necessarilly be migratory shorebirds.

Recognising the diversity of migratory shorebird species and their habitat requirements, the Department of the Environment and Heritage has been working with Birds Australia to establish robust criteria that relates to the identification of nationally important sites specific to migratory shorebirds.

***Protecting sites at a local level***

Local Government has a key role to play in translating the policies of Commonwealth and State Governments into on-ground projects and land management. All Local Governments in Australia, irrespective of their size or location, make a significant contribution to the management and protection of Australia's natural resources through policy development and implementation of land use planning.

Local Government use their position to:

- Regulate land use.
- Utilise available powers to influence community behaviour through implementing biodiversity friendly regulations and planning provisions.
- Promote and demonstrate environmentally, ecologically and socially responsible behaviour.
- Offer community education programs and staff training.
- Provide incentives for sustainable natural resource management on private land.

Local communities, including private landholders, community organisations and Natural Resource Management bodies can and are doing a range of on-ground activities to protect important migratory shorebird habitat.

**Related documents and plans**

Existing tools/guidelines that will serve to inform implementation of the *Wildlife Conservation Plan for Migratory Shorebirds* include:

- Asia Pacific Migratory Waterbird Conservation Strategy. *www.deh.gov.au/biodiversity/migratory/waterbirds/2001-2005/index.html*
- The Action Plan for the Conservation of Migratory Shorebirds in the East Asian – Australasian Flyway. *www.deh.gov.au/biodiversity/migratory/waterbirds/2001-2005/index.html*
- The East Asian-Australasian Shorebird Site Network. *www.deh.gov.au/biodiversity/migratory/waterbirds/infosrn1.html*
- The Australian Wetlands Database (which includes Wetlands of International Importance under the Convention on Wetlands (Ramsar Sites) and sites included in *A Directory of Important Wetlands in Australia.*. *www.deh.gov.au/water/wetlands/database/index.html*
- A National Plan for Shorebird Conservation in Australia (1993) by Doug Watkins. *www.deh.gov.au/biodiversity/migratory/waterbirds/natplanshore.html*
- Migration research program and colour flagging protocol. *www.tasweb.com.au/awsg/*
- Feathers Friends and Flyway website *www.wetlands.org.au/shorebirds/index.htm*

Additional tools and guidelines are being or will be developed as actions under the Plan and include, but are not limited to, the following:

- Report on the Status of migratory shorebird populations and internationally important sites in the East Asian-Australasian Flyway (in prep). www.wetlands-oceania.org/
- World Summit on Sustainable Development (WSSD) Flyway Partnership for the Conservation and Sustainable Use of Sites of International Importance for Migratory Waterbirds and it's associated Action Plan 2006 - 2010.
- National population monitoring protocol.
- Criteria for determining sites of national and regional significance.
- Maps of important sites and sub-sites.
- Supplementary administrative guidelines on significance under the EPBC Act.
- Guidelines for site managers (Local Government, State/Territory Government, Land Owners).
- National communication strategy.
- National shorebird database (including research results).
- Guidelines for community engagement in shorebird conservation activities.

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## Glossary of Terms

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|---|---|
| **Asia Pacific Migratory Waterbird Conservation Strategy** | The Asia Pacific Migratory Waterbird Conservation Strategy began in 1996 and a second five-year phase was implemented in 2001. It has been an informal multilateral framework for the conservation of migratory waterbirds and their habitats throughout the Asia Pacific region. The Strategy is due to conclude at the end of 2005. A component of the Strategy has been the Action Plan for the Conservation of Migratory Shorebirds in the East Asian-Australasian Flyway 2001-2005. |
| **AWSG** | Australasian Wader Studies Group – a special interest group of Birds Australia. |
| **CAMBA** | Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment |
| **CMS** | Convention on the Conservation of Migratory Species (CMS) |
| **EA-AF (The Flyway)** | East Asian – Australasian Flyway. This includes twenty-one countries from the arctic regions of Russia and the USA through East Asia, South East Asia and Australasia. |
| **EPBC Act** | *Environment Protection Biodiversity Conservation Act 1999* |
| **JAMBA** | Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment |
| **Migratory Species** | A species is considered migratory if there is reliable evidence that a significant proportion of the population cyclically and predictably cross one or more national jurisdictional boundaries |
| **Ramsar** | Convention on Wetlands (Ramsar, Iran, 1971) |
| **Resident Species** | Remain in Australia year round (breeding and non-breeding season), may travel moderate distances to find suitable habitat, but they do not follow seasonal migration patterns. |
| **ROKAMBA** | Republic of Korea - Australia Migratory Bird Agreement (note – this agreement is currently being developed and is expected to be signed off in late 2005) |
| **Shorebirds** | From the taxonomic order Charadriiformes (includes stints, plovers, curlews, knots, snipes, godwits, avocets, stilts, oystercatchers, pratincoles and some other species) |
| **Shorebird Site Network** | The primary tool for implementing the *Action Plan for the Conservation of Shorebirds in the EA- AF* is the Shorebird Site Network which links internationally important shorebird sites and their managers across the flyway. |

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| **Sub-Site** | Large sites (eg Roebuck Bay, Kangaroo Island) that can be further detailed to important foraging and roosting sites. |
| **Vagrant Spp** | Occasional migrants to Australia – Australia is not necessarily considered a Range state for these species. |
| **Whole-system approach** | Management of important wetland sites is integrated at an ecosystem level, and not managed in isolation of the broader environmental, economical and social aspects of ecologically sustainable development. |
| **World Summit on Sustainable Development (WSSD) Type II Partnerships** | An outcome of the World Summit on Sustainable Development held in Johannesburg in 2003 was the agreement of Type II Partnerships. These voluntary, multi-level stakeholder initiatives are aimed at achieving sustainable development outcomes. |
| **WSSD Flyway Partnership** | The Governments of Australia and Japan and Wetlands International have led the development of a Flyway Partnership under the WSSD Type II model. It is expected that this Partnership will come into effect at the beginning of 2006. |