

[1] "*Limicola falcinellus* — Broad-billed Sandpiper
Glossary SPRAT Profile
For information to assist regulatory considerations, refer to Policy Statements and Guidelines, the Conservation Advice, the Listing Advice and/or the Recovery Plan. EPBC Legal Status and Documents Top EPBC Act Listing Status Listed marine Listed migratory - EPBC Act, Bonn, CAMBA, JAMBA, ROKAMBA
Approved Conservation Advice There is no approved Conservation Advice for this species Listing Advice There is no Listing Advice for this species Adopted/Made Recovery Plans There is no adopted or made Recovery Plan for this species Adopted/Made Threat Abatement Plans No Threat Abatement Plan has been identified as being relevant for this species Wildlife Conservation Plans Commonwealth of Australia (2015). Wildlife Conservation Plan for Migratory Shorebirds. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.
Other Commonwealth Documents Top Other EPBC Act Plans EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (Department of the Environment, 2015) [Admin Guideline]. National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (Department of the Environment and Energy, 2020) [Admin Guideline]. Shorebirds - A Vulnerability Assessment for the Great Barrier Reef (Great Barrier Reef Marine Park Authority (GBRMPA), 2011) [Admin Guideline]. Information Sheets Migratory Shorebirds of the East Asian - Australasian Flyway: Population estimates and internationally important sites (Bamford M., D. Watkins, W. Bancroft, G. Tischler & J. Wahl, 2008) [Information Sheet]. Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species (Hansen, B.D., R.A. Fuller, D. Watkins, D.I. Rogers, R.S. Clemens, M. Newman, E.J. Woehler & D.R. Weller, 2016) In effect under the EPBC Act from 29-May-2017. [Information Sheet]. Federal Register of Legislative Instruments Marine: Declaration under section 248 of the Environment Protection and Biodiversity Conservation Act 1999 - List of Marine Species (Commonwealth of Australia, 2000c) [Legislative Instrument] Migratory: List of Migratory Species (13/07/2000) (Commonwealth of Australia, 2000b) [Legislative Instrument] Wildlife Conservation Plan: Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2006r) [Legislative Instrument] Wildlife Conservation Plan: Environment Protection and Biodiversity Conservation Act 1999 - Section 285 - Instrument revoking and making a wildlife conservation plan (Commonwealth of Australia, 2016) [Legislative Instrument] State Listing Status NSW: Listed as Vulnerable (Biodiversity Conservation Act 2016 (New South Wales): February 2021 list) Non-statutory Listing Status NGO: Listed as Least Concern (The Action Plan for Australian Birds 2010 - non-threatened)
Top Scientific name *Limicola falcinellus* [842] Family Scolopacidae: Charadriiformes: Aves: Chordata: Animalia Species author (Pontoppidan, 1763) Infraspecies author Reference Distribution Map Top Distribution map The distribution shown is generalised from the Departments Species of National Environmental Significance dataset. This is an indicative distribution map of the present distribution of the species based on best available knowledge. Some species information is withheld in line with sensitive species policies. See map caveat for more information.
Illustrations Top Illustrations Google Images Other Links, Including Superseded Commonwealth Documents Top Australian Government Department of the Environment and Heritage (AGDEH) (2006f). Wildlife Conservation Plan for Migratory Shorebirds. Canberra, ACT: Department of the Environment and Heritage.

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Newsletters
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 EPBC Act email updates can be received via the Communities for Communities newsletter and the EPBC Act newsletter.
 Caveat
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 This database is designed to provide statutory, biological and ecological information on species and ecological communities, migratory species, marine species, and species and species products subject to international trade and commercial use protected under the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act). It has been compiled from a range of sources including listing advice, recovery plans, published literature and individual experts. While reasonable efforts have been made to ensure the accuracy of the information, no guarantee is given, nor responsibility taken, by the Commonwealth for its accuracy, currency or completeness. The Commonwealth does not accept any responsibility for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the information contained in this database. The information contained in this database does not necessarily represent the views of the Commonwealth. This database is not intended to be a complete source of information on the matters it deals with. Individuals and organisations should consider all the available information, including that available from other sources, in deciding whether there is a need to make a referral or apply for a permit or exemption under the EPBC Act.

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Where available the sections below provide a biological profile for the species. Biological profiles vary in age and content across species, some are no longer being updated and are retained as archival content. These profiles are still displayed as they contain valuable information for many species. The Profile Update section below indicates when the biological profile was last updated for some species. For information to assist regulatory considerations, please refer to Conservation Advice, the Recovery Plan, Policy Statements and Guidelines.

Taxonomy
 Top
 Scientific name: *Limicola falcinellus*
 Common name: Broad-billed Sandpiper
 Common name: Murky Sandpiper
 Description
 Top
 The Broad-billed Sandpiper is a small member of the Calidridinae family. It has a length of 160.9618 cm, a wingspan of 340.9637 cm and a weight of 40 g. It is a small, stint-like wader with short legs and a diagnostic long straight black bill that is flattened and kinked downwards at the tip. When viewed from above the bill appears broad with parallel sides, tapering sharply to a pointed tip. The wing tips project a short distance beyond the tail at rest. The species' flight pattern is similar to that of stints (Higgins & Davies 1996).

Australian Distribution
 Top
 In Australia, the Broad-billed Sandpiper is most common on the north and north-west coasts and occur regularly at scattered localities in southern Australia, where they are usually seen singly. Queensland distribution
 In Queensland, there are scattered coastal records, including at the south and south-east Gulf of Carpentaria. They have been seen at Coen River, Eagle Island, Cairns, Innisfail, Townsville and Jerona. In the states north they have been seen at Mackay, Emu Park and Gladstone. In the mid-east they are known from North Stradbroke Island, south to Moreton Bay and west to Clontarf and Seven-Mile Lagoon, Lowood, in south-east Queensland (Higgins &

Davies 1996). NSW, Victoria and South Australia distribution
The Broad-billed Sandpiper is a regular visitor in small numbers to NSW, in coastal areas, from Ballina, south to Shoalhaven Heads. In Victoria, they are an annual visitor in small numbers in coastal regions, with rare inland records. In South Australia, single birds or a few have been recorded in ICI (St Kilda) Saltworks Buckland Park in most years, with few records elsewhere including Mutton Cove, Le Fevre Peninsula, Clinton Conservation Park, and Price Saltfields (Higgins & Davies 1996). Western Australia and Northern Territory distribution
In Western Australia, few records occur in the south-west, but the Broad-billed Sandpiper may be regular in small numbers at scattered locations, from Warden Lake Nature Reserve and Coramup Creek to Guraga Lake Nature Reserve and Hurstview Lake. They mostly occur on the coasts of the Pilbara and Kimberley between Onslow and Broome, but are also recorded north to the mouth of Lawley River, and inland at Lake Daley. In the Northern Territory, they are an irregular and uncommon visitor near Darwin, though previously considered common at times. They are also recorded on Melville Island (Higgins & Davies 1996).

Global Distribution
Top
The Broad-billed Sandpiper breeds in the northern hemisphere, moving south for the non-breeding season. The breeding range of the nominate subspecies *falcinellus* is in northern Europe, in Scandinavia, and western Siberia. The subspecies *sibirica*, which occurs in Australia, breeds in eastern Siberia. During the non-breeding season, they occur regularly in small numbers in north-east Ethiopia, south-east Kenya, east South Africa and west Namibia. They also occur in, and winter in, coastal regions from the Persian Gulf, east through the Indian Subcontinent and Indomalaya, east to Indochina. They occur on migration mainly through eastern China, Korea, Japan, Taiwan and Philippines. They occur south to the non-breeding range in west and south Indonesia, and northern Australia. They are a rare but regular visitor to New Guinea and accidental to New Zealand (Higgins & Davies 1996).

Population Information
Top
An estimated 30 000 Broad-billed Sandpipers occupy the East Asian-Australasian Flyway (Hansen et al. 2016). During the non-breeding season approximately 40% of the Flyway population occurs in Australia (Bamford et al. 2008). The Broad-billed Sandpiper occurs in many smaller populations. During the non-breeding season, 16 important sites have been identified internationally, one of which was in Australia. Note that an important site is calculated using the 1% criterion (i.e. a site is considered important if it is occupied by more than 1% of the bird's total population). A table of international sites of importance and their maximum counts is given below (Bamford et al. 2008):

Site	Country	Max Count
Daursky Nature Reserve	Russia	6500
Port Hedland Saltworks	Australia	6000
Yancheng National Nature Reserve	China	1476
Pulau Bruit	Malaysia	1206
Maulavir Char	Bangladesh	1200
Char Piya	Bangladesh	1015
Dongjin Estuary	South Korea	800
Inner Gulf of Thailand	Thailand	790
Yalu Jiang National Nature Reserve	China	729
Mankyung Estuary	South Korea	700
Dongsha Islands	China	416
Koh Kong (Kaoh Kapik)	Cambodia	400
Xuan Thuy Reserve	Vietnam	400
Kuala Kedah to Kuala Sungai	Malaysia	360
North-west Bo Hai Wan	China	124
Shuangtaizihekou N. N. Reserve	China	115

The population of the Broad-billed Sandpiper by country during the non-breeding season is listed in the table below (Bamford et al. 2008):

Country	Estimate
Australia	10 000
Indonesia	4000
China	2000
Bangladesh	2000
Malaysia	2000
Thailand	2000
India	1000
Papua New Guinea	500
Cambodia	500
Myanmar	500
Vietnam	500
Other countries	130
TOTALS:	25 130

Habitat
Top
The Broad-billed Sandpiper occurs in sheltered parts of the coast, favouring estuarine mudflats but also occasionally occur on saltmarshes, shallow freshwater lagoons, saltworks and sewage farms, and in areas with large soft intertidal mudflats, which may have shell or sandbanks nearby. Occasionally they occur on reefs or rocky platforms. They have also been recorded in creeks, swamps and lakes near the coast, particularly those with bare mudflats or sand exposed by receding water. They often favour mud among, or fringed by, mangroves, particularly on the seaward side and sometimes occur in estuaries edged by saltmarsh. They are rarely recorded inland. Foraging occurs on exposed flats of soft mud or wet sand at edges of coastal and near-coastal wetlands, often around channels on mudflats or in accumulated mud in swales between shell banks. In northern Australia, they forage in soft mud near mangroves, but may remain on same muddy section, even though fresher substrate may be exposed by the receding tide. They also forage in shallow water on muddy edges of ponds. They roost on the banks of sheltered sandy, shelly or shingly beaches (Higgins & Davies 1996). They nest on the ground, frequently in the top of a tussock (Cramp 1985).

Feeding
Top
The Broad-billed Sandpiper is omnivorous, foraging on worms, including

polychaetes, molluscs, crustaceans, insects, seeds and occasionally rootlets and other vegetation. They forage by walking quickly, sometimes running, gleaning from side to side. In Australia, they forage on wet mud and in shallow water, rapidly and repeatedly probing substrate with their bill, sometimes immersing the head completely. They also have been observed walking on floating material, and gleaning insects from the surface of the water (Cramp 1985; Higgins & Davies 1996).

Movement Patterns

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Migration patterns

The two breeding populations migrate separately with a partial overlap of the non-breeding ranges. *Limicola f. falcinellus* breeds north-east Europe and western Siberia and on migration, they move mainly through eastern Europe, and around the Caspian Sea to non-breeding areas in north, east, and possibly southern Africa and along the coasts of the Arabian Sea as far east as west India. *L. f. sibirica* breeds in Siberia, moving to non-breeding areas from the Bay of Bengal, southeast to Australia via east Asia and occasionally to New Zealand. They can occur in groups of up to several hundred on migration (Higgins & Davies 1996).

Departure from breeding grounds

Limicola f. sibirica departs the breeding grounds during late July, with adults and young possibly departing at different times. They pass Lake Baikal and the south coasts of the Sea of Okhotsk, Russia, during late July, with juveniles recorded at the mouth of Amur River in September. Some pass through Japan, being more common when moving south than on northern migration. They pass through Mongolia, Korea and Taiwan, and pass through north-east China during late July to mid-September, moving down the coast often in large numbers. Flocks of up to 50 pass through Hong Kong between early-August and mid-December, peaking in September. Large numbers occur in Vietnam, and they are recorded in Malaysia as early as late-August. They pass through Singapore and Borneo during mid-August to November. Small numbers may move rapidly through Wallacea. Rarely, they pass through the Philippines and Palau, west Micronesia. They are rare but regular to New Guinea, where they are mostly transient from mid-September to late December.

Arrival in Australia

In north-west Australia, very few adults arrive during August and early-September. By late October both adults and first-year birds have arrived. They arrive in the south-east Gulf of Carpentaria by late September. They have been recorded in Queensland from September. Small numbers usually occur in southern Australia, though larger groups have been noted in some years, such as 30 at Clinton Conservation Park, Gulf St Vincent, South Australia, during November 1986 (Hackett & Hackett 1988) and 24 in Augusta, south-west Western Australia, during January 1980 (Blakers et al. 1984). Scattered records occur in NSW as early as October, but usually from November. Most Victorian records occur from September. They are possibly regular to south-west Australia in small numbers. The non-breeding range of this subspecies probably extends west to east Pakistan (Higgins & Davies 1996). They depart their non-breeding grounds usually by March or April in Victoria and NSW and as late as May in South Australia. Some inland records suggest that some overland passage occurs. They depart from Darwin and the Gulf of Carpentaria by May. Large numbers occur in north-west Australia during March-April, with birds leaving about mid-April.

Return to breeding grounds

Northern passage occurs mainly during April and May through New Guinea, Borneo, Malaysia, southern Thailand, and Vietnam. Flocks of up to 50 pass through Hong Kong between mid-March and early-June, peaking in late-April. At least some Australian birds pass through Taiwan during April and May, confirmed by banding. They move along the coast of China during April and May and possibly move inland from here during their northern migration, taking a direct route to their breeding grounds. Apparently only small, infrequent numbers pass north through Japan and South Korea. Some may remain in north-west Australia during the winter months (Higgins & Davies 1996) and one was noted to remain in Victoria throughout a winter (Minton, C. 2002, pers. comm.). Banding records and flag sightings support the migratory pattern, Australian birds being recovered in Hong Kong, Taiwan, China and Korea (Minton & Jessop 1999b; Minton, C. 2002, pers. comm.). A bird banded at Point Calimere, India, was recovered in Shanghai, China. A juvenile banded in Nemuro City, Hokkaido, Japan was recovered near Mossman, Queensland, 6637 km south. The longest distance recorded is of an adult banded in Roebuck Bay, Broome, Western Australia, 15 Oct. 1992, recovered dead at Sakhalin, Okhinshiy, Baykal Bay, Russia, 30 July 1994, 8185 km north of banding place (Higgins & Davies 1996).

Threats

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Global Threats

There are a number of threats that affect migratory shorebirds in the Flyway. The greatest threat is indirect and direct habitat loss (Melville 1997). Staging areas used during migration through eastern Asia are being lost and degraded by activities which are reclaiming the mudflats for development or developing them for aquaculture (Barter 2002, 2005c; Ge et al. 2007; Round 2006). This is especially evident in the Yellow Sea, where at least 40% of intertidal areas have been reclaimed. This process is continuing at a rapid rate and may accelerate in the near future (Barter 2002, 2005c). For example, in South Korea, the Mangyeung and Dongjin River estuaries each supported 5% of the combined estimated Flyway populations (and are the most important sites for this species on both northern and southern migration) but they are currently being reclaimed as part of the

Saemangeum Reclamation Project (Barter 2002, 2005c). The 33 km sea-wall across these two estuaries was completed in April 2006, resulting in significant change in the 40 100 ha area (Barter 2005c).

Reclamation is also a threat in other areas of the Flyway, such as in Malaysia (Wei et al. 2006). In addition, water regulation and diversion infrastructure in the major tributaries have resulted in the reduction of water and sediment flows (Barter 2002; Barter et al. 1998).

Migratory shorebirds are also adversely affected by pollution, both on passage and in non-breeding areas (Harding et al. 2007; Melville 1997; Round 2006; Wei et al. 2006). Disturbance from human activities, including recreation, shellfish harvesting, fishing and aquaculture is likely to increase significantly in the future (Barter et al. 2005; Davidson & Rothwell 1993).

It is predicted that the rate of decrease in the intertidal area in the Yellow Sea will accelerate (Barter 2002). In addition, intensive oil exploration and extraction, and reduction in river flows due to upstream water diversion, are other potentially significant threats in parts of China where this species is present in internationally significant numbers (Barter 2005c; Barter et al. 1998).

Global warming and associated changes in sea level are likely to have a long-term impact on the breeding, staging and non-breeding grounds of migratory waders (Harding et al. 2007).

Hunting is still a very serious problem for waders in China, and this species is sometimes caught (Ming et al. 1998).

Australia

Within Australia, there are a number of threats common to most migratory shorebirds, including the Broad-billed Sandpiper.

Habitat loss

The loss of important habitat reduces the availability of foraging and roosting sites. This affects the ability of the birds to build up the energy stores required for successful migration and breeding. Some sites are important all year round for juveniles who may stay in Australia throughout the breeding season until they reach maturity. A variety of activities may cause habitat loss. These include direct losses through land clearing, inundation, infilling or draining. Indirect loss may occur due to changes in water quality, hydrology or structural changes near roosting sites (DEWHA 2009aj).

Habitat degradation

As most migratory shorebirds have specialized feeding techniques, they are particularly susceptible to slight changes in prey sources and foraging environments. Activities that cause habitat degradation include (but are not restricted to): (1) loss of marine or estuarine vegetation, which is likely to alter the dynamic equilibrium of sediment banks and mudflats; (2) invasion of intertidal mudflats by weeds such as cord grass; (3) water pollution and changes to the water regime; (4) changes to the hydrological regime and (5) exposure of acid sulphate soils, hence changing the chemical balance at the site (DEWHA 2009aj).

Disturbance

Disturbance can result from residential and recreational activities including; fishing, power boating, four wheel driving, walking dogs, noise and night lighting. While some disturbances may have only a low impact it is important to consider the combined effect of disturbances with other threats. Roosting and foraging birds are sensitive to discrete, unpredictable disturbances such as loud noises (i.e. construction sites) and approaching objects (i.e. boats). Sustained disturbances can prevent shorebirds from using parts of the habitat (DEWHA 2009aj).

Direct mortality

Direct mortality is a result of human activities around the migration pathways of shorebirds and at roosting and foraging sites. Examples include the construction of wind farms in migration or movement pathways, bird strike due to aircraft, hunting, chemical and oil spills (DEWHA 2009aj).

Threat Abatement and Recovery

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Governments and conservation groups have undertaken a wide range of activities relating to migratory shorebird conservation (AGDEH 2005c) both in Australia and in cooperation with other countries associated with the Flyway.

Australia

The Wildlife Conservation Plan for Migratory Shorebirds (AGDEH 2006f) outlines national activities to support the Flyway shorebird conservation initiatives and provides a strategic framework to ensure these activities and future research and management actions are integrated and remain focused on the long-term survival of migratory shorebird populations and their habitats.

Since 1996, the Australian Government has invested approximately \$5 000 000 of Natural Heritage Trust (NHT) funding in projects contributing to migratory shorebird conservation (DEWHA 2007e). This funding has been distributed across a range of important projects, including the implementation of a nationally coordinated monitoring programme that will produce robust, long-term population data able to support the conservation and effective management of shorebirds and their habitat, migration studies using colour bands and leg flags, and development of a shorebird conservation toolkit to assist users to develop and implement shorebird conservation projects.

Birds Australia is currently co-ordinating the Shorebirds 2020 project, which aims to monitor shorebird populations at important sites throughout Australia. Birdlife International is identifying sites and regions which are important to various species of birds, including shorebirds, and the processes that are affecting them. The aim of these activities is to inform decisions on the management of shorebird habitat. It may be possible to rehabilitate some degraded wetlands or to create artificial wader feeding or roosting sites to replace those destroyed by development, such as by creating artificial sandflats and sand islands from dredge spoil and by building breakwaters (Denig 2005; Straw 1992a, 1999).

The Significant impact guidelines for 36 migratory shorebirds Draft EPBC Act Policy Statement 3.21 (DEWHA 2009aj)

provides guidelines for determining the impacts of proposed actions on migratory shorebirds. The policy statement also provides mitigation strategies to reduce the level and extent of those impacts. The policy aims to promote ecologically sustainable development that allows for the continued ecological function of important habitat for migratory shorebirds (DEWHA 2009aj).

International

Australia has played an important role in building international cooperation to conserve migratory birds. In addition to being party to international agreements on migratory species, Australia is also a member of the Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitats in the East Asian-Australasian Flyway (Flyway Partnership), which was launched in Bogor, Indonesia on 6 November 2006. Prior to this agreement, Australia was party to the Asia-Pacific Migratory Waterbird Conservation Strategy and the Action Plan for the Conservation of Migratory Shorebirds in the East Asian-Australasian Flyway and the East Asian-Australasian Shorebird Site Network.

The East Asian-Australasian Flyway Site Network, which is part of the broader Flyway Partnership, promotes the identification and protection of key sites for migratory shorebirds. Australia has 17 sites in the network (Partnership EAAF 2008): Kakadu National Park, Northern Territory (1 375 940 ha) Parry Lagoons, Western Australia (36 111 ha) Thomsons Lake, Western Australia (213 ha) Moreton Bay, Queensland (113 314 ha) Hunter Estuary, NSW (2916 ha) Corner Inlet, Victoria (51 500 ha) The Coorong, Lake Alexandrina & Lake Albert, South Australia (140 500 ha) Orielton Lagoon, Tasmania (2920 ha) Logan Lagoon, Tasmania (2320 ha) Western Port, Victoria (59 297 ha) Port Phillip Bay (Western Shoreline) and Bellarine Peninsula, Victoria (16 540 ha) Shallow Inlet Marine and Coastal Park, Victoria

Discovery Bay Coastal Park, Victoria

Bowling Green Bay, Queensland

Shoalwater Bay, Queensland

Great Sandy Strait, Queensland

Currawinya National Park, Queensland

Species Profile References

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