

**Advice to the Minister for Sustainability, Environment, Water, Population
and Communities from the Threatened Species Scientific Committee (the Committee)
on Amendment to the list of Threatened Species under the
*Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)***

1. Name

Sternula nereis nereis

This species is commonly known as the Fairy Tern. It is in the Family Laridae.

2. Reason for Conservation Assessment by the Committee

This advice follows assessment of information provided by a public nomination to list the Fairy Tern. The nominator suggested listing in the vulnerable category of the list.

This is the Committee's first consideration of the species under the EPBC Act.

3. Summary of Conclusion

The Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 3 to make it **eligible** for listing as **vulnerable**.

The highest category for which the species is eligible to be listed is **vulnerable**.

4. Taxonomy

The subspecies is conventionally accepted as *Sternula nereis nereis* Christidas and Boles, 2008. This is one of two subspecies of *Sternula nereis* found in Australia. *Sternula nereis exsul* is also known to occur in rare instances in the Coral Sea (Carter and Mustoe, 2007). For the purpose of this advice, the term 'Fairy Tern' refers to *Sternula nereis nereis*.

5. Description

The Fairy Tern is a small (22–27cm) grey and white bird with long, narrow wings and a bright orange bill. The upper bill is often black at the base. The Fairy Tern has a bulky body with a round-bellied appearance, a large white forehead and the legs are yellow to orange-yellow. The space between the eye and bill is white with a black patch in front of the eye. It has a black crown, nape and pearly-grey upperparts which blend into the whitish rump and tail (Simpson and Day, 2004).

Non-breeding Fairy Terns have a dusky orange-brown bill which is blackish at the tip. The crown is white and the upper wing is the same as the breeding adult but the outer primary feathers are less contrasting with no dark shoulder bar (Simpson and Day, 2004).

Juvenile Fairy Terns have a dark brown bill and legs. The crown is streaked dusky and buff with a dark ear patch. The outer wing is dark greyish and the inner wing is pale grey and white (Simpson and Day, 2004).

6. National Context

The Fairy Tern occurs along the coasts of New South Wales, Victoria, Tasmania, South Australia and Western Australia, and as far north as the Dampier archipelago near Karratha (Garnett and Crowley, 2000).

The Fairy Tern is listed as vulnerable under the Tasmanian *Threatened Species Protection Act 1995*, endangered under the South Australian *National Parks and Wildlife Act 1972* and threatened under the Victorian *Flora and Fauna Guarantee Act 1988*. The Fairy Tern is a listed marine species under the EPBC Act.

The subspecies occurs in a number of protected areas, such as several nature reserves on islands in Western Australia, and the Corner Inlet Ramsar site in Victoria.

The Fairy Tern occurs in the following Natural Resource Management (NRM) regions across Australia: Adelaide and Mount Lofty Ranges; Corangamite; East Gippsland; Eyre Peninsula Kangaroo Island; North; Northern Agricultural; Northern and Yorke; Port Phillip and Western Port; Rangelands; South Australian Murray Darling Basin; South Coast; South East; South West; Swan; West Gippsland; Southern Rivers; North, North West and South Tasmania.

The subspecies occurs in the following Interim Biogeographic Regionalisation for Australia (IBRA) Bioregions across Australia: Carnarvon; Dampierland; Eyre Yorke Block; Flinders; Gawler; Kanmantoo; Murray Darling Depression; Naracoorte Coastal Plain; Pilbara; South East Coastal Plain; South East Corner; Swan Coastal Plain; Victorian Volcanic Plain; Warren; Yalgoo; Sydney Basin; Flinders; Ben Lomond; Tasmanian South East; Tasmanian West; Tasmanian Southern Ranges; Tasmanian Northern Slopes and King.

7. Relevant Biology/Ecology

Fairy Terns utilise a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands, beaches and spits. The subspecies may migrate within southern Western Australia and Tasmania, where they are seen less frequently during the winter months. They are more sedentary in the north of Western Australia, and in South Australia and Victoria (Hill *et al.*, 1988). The Fairy Tern feeds on small bait size fish including *Engraulis australis* (Anchovy), *Sardinops neopilchardus* (Pilchards) and *Spratelloides robustus* (Blue Sprats) (Taylor and Roe, 2007). They are also known to feed on plant material, molluscs and crustaceans in inshore waters around island archipelagos and on the Australian mainland (Van de Kam *et al.*, 2004).

Fairy Terns nest in small colonies on coral shingle on continental islands or coral cays, on sandy islands and beaches inside estuaries, and on open sandy beaches (Hill *et al.*, 1988; Higgins and Davies, 1996). They nest above the high water mark often in clear view of the water and on sites where the substrate is sandy and the vegetation low and sparse. Nests typically consist of a shallow scrape in the sand which is often lined with small shells and vegetation. Female Fairy Terns lay one to two eggs in a sand scrape. Colonies tend to occupy areas rather than specific sites, and nest sites are often abandoned after one year, even if they have been successful (Saunders and de Rebeira, 1985). Interbreeding has been recorded between Fairy Terns and the Little Tern in South Australia (Cox and Close, 1977), Victoria (Norman *et al.*, 1996) and New South Wales (Ross *et al.*, 1999).

The oldest recorded individuals are 17 years of age and the generation length is estimated to be 11 years (Birdlife International, 2008).

Given the exposed nature of its nesting and roosting sites the species is vulnerable to extreme weather events such as storms, floods, high tides and wind blown sand which can cause breeding failure in a particular region and put an entire breeding season at risk at that locality. For example, at Corner Inlet in Victoria the flooding of nest sites by high tides as well as the smothering of nest sites by wind-blown sand occurs on a regular basis (Garnett and Crowley, 2000). From 1992 to 1997, high tides, flooding, storms, and cyclones in New Zealand were responsible for the loss of 40 per cent of eggs and chicks of the New Zealand Fairy Tern (*Sternula nereis davisae*) (Parrish and Honnor, 1997).

8. Description of Threats

The major threats to the Fairy Tern include: predation by introduced mammals and birds; disturbance by humans, dogs and vehicles; increasing salinity in waters adjacent to Fairy Tern colonies; irregular management of water levels; and weed encroachment.

While nesting, Fairy Terns make a simple scrape in the sand which makes them highly susceptible to disturbance and predation. Nesting Fairy Terns or their eggs have been observed to be predated on by foxes (*Vulpes vulpes*), dogs (*Canis familiaris*), cats (*Felis catus*), Black Rats (*Rattus rattus*), Silver Gulls (*Larus novaehollandiae*), Pacific Gulls (*Larus pacificus*), harriers (*Circus* spp.) or ravens (*Corvus* spp.) (Saunders and de Rebeira, 1985; Hill *et al.*, 1988).

Disturbance by humans, dogs and vehicles cause the direct destruction of nests or the desertion of nests allowing gulls and other predators to eat eggs, or causing the chilling or overheating of eggs (Garnett and Crowley, 2000; Birdlife International, 2008).

Particularly in the Coorong in South Australia, increasing salinity in waters adjacent to Fairy Tern colonies has led to a collapse in the numbers of prey fish, and a subsequent decline in Fairy Tern numbers (Birdlife International, 2008).

Irregular management of water levels upstream of Fairy Tern colonies, principally as a result of water extraction for irrigation, can result in water levels being too high, flooding nests, or too low which allows predators to walk across to the breeding colonies that were previously isolated (TBC, 2008). Weed encroachment often leads to nest sites being overgrown by vegetation rendering them unsuitable for breeding (Garnett and Crowley, 2000).

The only potential threat identified for this species is from oil spills. Particularly in Victoria, the species' breeding habitat may be vulnerable to oil spills given the close proximity of offshore oil facilities.

9. Public Consultation

The nomination was made available for public exhibition and comment for 30 business days. No comments were received.

10. How judged by the Committee in relation to the criteria of the EPBC Act and Regulations

The Committee judges that the subspecies is **eligible** for listing as **vulnerable** under the EPBC Act. The assessment against the criteria is as follows:

Criterion 1: It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers

Fairy Tern populations appear to be declining predominantly in South Australia and Victoria. In South Australia and Tasmania, there is estimated to be only a few hundred pairs. In Victoria, there is estimated to be only 120–150 pairs. In Western Australia there are approximately 1600 pairs and the population appears to be relatively stable. In New South Wales the population is increasing and is estimated to be approximately 70 individuals (Birdlife International, 2008).

The total population of the Fairy Tern was estimated to be 5600 individuals in 1974 (TBC, 2008). Recent data indicates that the population in 2007 was approximately 4300 (TBC, 2008). Although this represents a decline of approximately 24 per cent over three generations of the subspecies, the Committee considers this does not represent a substantial reduction in numbers for the purposes of this criterion.

The Committee judges that the subspecies has not undergone and is not likely to undergo at least a substantial reduction in numbers in the immediate future. Therefore, as the subspecies has not been demonstrated to have met any of the elements of Criterion 1, it is **not eligible** for listing in any category under this criterion.

Criterion 2: Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited

The subspecies' extent of occurrence is approximately 380 000 km² as it occurs along the coasts of New South Wales, Victoria, Tasmania, South Australia and Western Australia. The area of occupancy is estimated to be 1150 km². Consequently, the subspecies' geographic distribution is not considered very restricted, restricted or limited.

The Committee does not consider that the subspecies' geographic distribution is precarious for its survival, nor is it very restricted, restricted or limited. Therefore, as the subspecies has not been demonstrated to have met the required elements of Criterion 2, it is **not eligible** for listing in any category under this criterion.

Criterion 3: The estimated total number of mature individuals is limited to a particular degree; and either

(a) evidence suggests that the number will continue to decline at a particular rate; or

(b) the number is likely to continue to decline and its geographic distribution is precarious for its survival

The total number of mature individuals of the Fairy Tern is estimated to be between 3000 and 9000 individuals, which the Committee considers is limited for the purposes of this criterion (Baling *et al.*, 2009). Fairy Tern population numbers appear to be predominantly declining in South Australia and Victoria. In South Australia and Tasmania, there is estimated to be only a few hundred pairs. In Victoria, there is estimated to be only 120–150 pairs. In Western Australia there are approximately 1600 pairs and the population appears to be relatively stable. In New South Wales the population is increasing and is estimated to be approximately 70 individuals (Birdlife International, 2008).

Overall population numbers have declined by approximately 24 per cent over the past three generations (1974–2007), and this decline is expected to continue at least at this rate over the next three generations or 33 years as there is no evidence that the threats affecting this subspecies are abating. The likely ongoing decline is therefore considered to be substantial for the purposes of this criterion. The threats affecting this subspecies include: predation by introduced mammals and birds; disturbance by humans, dogs and vehicles; increasing salinity in waters adjacent to Fairy Tern colonies (principally in the Coorong wetlands in South Australia); irregular management of water levels; and weed encroachment.

In addition, the Fairy Tern is found in the coastal zone and this area is subject to increasing pressure from urban development. This is likely to intensify the identified threats to this subspecies over time, increasing disturbance by humans, dogs and vehicles, predation by introduced mammals, and weed encroachment.

The Committee considers that the estimated total number of mature individuals of the subspecies is limited and that evidence suggests that the number will continue to decline at a substantial rate for the purposes of this criterion. Therefore, the subspecies has been demonstrated to have met the relevant elements of Criterion 3 to make it **eligible** for listing as **vulnerable**.

Criterion 4: The estimated total number of mature individuals is extremely low, very low or low

The total number of mature individuals is not considered to be low, very low or extremely low for the purposes of this criterion. Therefore, as the subspecies has not been demonstrated to have met this required element of Criterion 4, it is **not eligible** for listing in any category under this criterion.

Criterion 5: Probability of extinction in the wild that is at least

- (a) 50% in the immediate future; or**
- (b) 20% in the near future; or**
- (c) 10% in the medium-term future**

There are no data available to estimate a probability of extinction of the subspecies in the wild over a relevant timeframe. Therefore, as the species has not been demonstrated to have met the required elements of Criterion 5, it is **not eligible** for listing in any category under this criterion.

11. CONCLUSION

Conservation Status

Sternula nereis nereis (Fairy Tern) was nominated for inclusion in the list of threatened species referred to in section 178 of the EPBC Act. The nominator suggested listing in the vulnerable category of the list.

The Committee accepts that the total number of mature individuals of the Fairy Tern is limited as it is estimated to be between 3000 and 9000 individuals (Baling et al., 2009). There has been a decline in the population numbers of approximately 24 per cent over the past three generations (1974–2007), and this decline is expected to continue over the next three generations or 33 years as there is no evidence that the threats affecting this subspecies are abating. The likely ongoing decline is therefore considered to be substantial for the purposes of Criterion 3. Therefore, the subspecies has been demonstrated to have met the relevant elements of Criterion 3 to make it **eligible** for listing as **vulnerable**.

The highest category for which the subspecies is eligible to be listed is **vulnerable**.

Recovery Plan

The Committee considers that there should be a recovery plan for this subspecies. This subspecies is migratory, occurring across multiple states and requires a complex suite of recovery and threat abatement actions to address threats such as water management in the Murray Darling Basin, across these state boundaries, involving a wide variety of land managers and other stakeholders. In addition, there is a wide variety of policies and laws affecting the protection of this subspecies' habitat in the coastal zone. For example, policies related to dog access to beaches vary widely across Australia.

12. Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **vulnerable** category:

Sternula nereis nereis

- (ii) The Committee recommends that there should be a recovery plan for this subspecies.

Associate Professor Robert J.S. Beeton *AM FEIANZ*

Chair

Threatened Species Scientific Committee

13. References cited in the advice

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