Threatened Species Assessment

Sternula albifrons
Little Tern

Taxonomy

Sternula albifrons (Pallas, 1764)

The Little Tern was previously found in the genus Sterna (terns and gulls) and was listed under the Flora and Fauna Guarantee Act 1988 as *Sterna albifrons*. Current taxonomic research using mitochondrial DNA (Bridge et al. 2005) supported the subdivision of Sterna and recognized the genus Sternula for the Little Terns, which includes Fairy Tern and Little Tern (*S. albifrons sinensis*) (Christidis and Boles 2008).

There appear to be three populations of Little Tern (western Pacific) that occur along the coast of Australia: an Asian-breeding population that visits Australia in its non-breeding season; a northern Australian population that nests in northern Australia; and a south-eastern Australian population that nests in eastern Australia. The taxonomic relationship between the three populations is not known. There has been some past speculation that the Australian breeding populations are actually a separate subspecies from the birds breeding in Asia, but this has not been demonstrated or widely accepted. Asian-breeding birds and Australian-breeding birds differ markedly in phenology, timing of moult and breeding, but morphological differences are modest. Two reports in the 1990s (Donnellan 1995, 1996) on whether genetic differences exist amongst the populations that occur in Australia are inconclusive.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Sterna albifrons* (SAC 1991).

Categorised as Vulnerable in the 2013 Advisory list of threatened vertebrate fauna in Victoria (DSE 2013).

Proposed conservation status

Critically Endangered in Victoria

Criterion C2a(ii)

Species Information

Description and Life History

The Little Tern is the smallest Australian representative of the family Laridae (Gulls and Terns) with a wingspan of 20-23 cm. The plumage of the upper parts is a uniform light blue-grey. The underparts are white. In breeding plumage adult Little Terns are characterised by a black crown and nape, black lores and a yellow bill with a black tip. In non-breeding plumage the bill is dark grey to black, the crown is predominantly white speckled with black and the nape dark grey to black. Non-breeding birds also have a dark carpal (shoulder) bar. The lores are white. Male and females are similar. A closely related species which often shares the same breeding habitat is the Fairy Tern. The Fairy Tern lacks the black lores and carpal bar, is a paler grey on the back, has a brighter yellow bill, and is slightly larger. The breeding distribution of the Little Tern ranges from the coast of Spencer Gulf, South Australia and Tasmania and from eastern Victoria through New South Wales.

Generation Length

The generation length of the Little Tern is estimated to be 8 to 10 years. This is based on information in the 2000 Action Plan (Garnett & Crowley. 2000), NSW Recovery Plan (2003) and the Little Tern management reports for East Gippsland. The oldest Little Tern recorded in Australia was a non-breeding bird recovered in the Hunter River

estuary over 17.5 years after being banded there (Leishman 1995). Although records are currently limited in Australia, one banded bird recaptured at Botany Bay in 1998 was still breeding at 13 years, and birds are capable of breeding at 2 years (G. Ross, pers. comm.).

Distribution

In Victoria, Little Terns have been recorded from Mallacoota to Nelson (Victorian Biodiversity Atlas (VBA) data). Emison et al. (1987) noted that they were rare west of Port Phillip Bay and only infrequently reported from Western Port. From 1985 to 2010, Little Terns were recorded mainly in Corner Inlet, Gippsland Lakes, Lake Tyers and in estuaries from Marlo to Mallacoota. They have been recorded sporadically and in low numbers from Rams Island and French Island (Tortoise Head) in Western Port, from the western side of Port Phillip Bay and from the Portland-Warrnambool area of western Victoria. A large proportion of Victorian records are of birds in non-breeding plumage during the austral summer, and these are considered to be migrants from eastern Asia. In addition there is a small breeding population. The current breeding distribution is more fragmented within the range due to a loss of many sites (BirdLife Australia Birdata records). Non-breeding migrants, believed to be from Asia, are also found down the north-western Australian coast as far south as Shark Bay (Garnett 1992). Most Little Terns do not stay in Victoria over winter, but return in late September each year, presumably from the tropics.

Most Little Terns leave East Gippsland in the winter. Individuals banded in Victoria have been resighted in NSW, which suggests a northwards migration. A small flock of the species has sometimes been recorded overwintering by Lake Wellington, Gippsland Lakes since 1990 (J. Reside pers. comm. 1990).

Habitat

In Victoria Little Terns nest on beaches and islands associated with estuaries where the substrate is sandy and the vegetation is low and sparse. Such conditions are created by the movement of sand at the ocean entrances to inlets, on ocean beaches, unstable islands in estuaries and more recently by deposits of dredge spoil. Little Tern seem to prefer to nest on exposed sand or shingle, e.g. recently deposited dredge spoil. The nests are usually a shallow depression in sand or shingle, and are often sited just above highwater mark and close to driftwood or other flotsam (Beruldson 1980).

Threats

Little Terns face numerous threats during the breeding season (DCNR and Jim Reside Reports) including predation by avian and mammalian species (e.g. Silver Gull *Chroicocephalus novaehollandiae*, ravens *Corvus coronoides*, raptors, Cat, Dogs and especially Red Fox); indirect and direct human disturbance through beach use (e.g. walkers, off-leash dogs, fishermen and boats; habitat loss through degradation, modification and land development; vegetation encroachment which can lead to failure of nesting; depletion of food sources (small surface-shoaling fish) close to breeding sites; and stochastic environmental factors including tides (e.g. storm and high tides) and weather (e.g. extreme hot or cold temperatures).

Little Tern breeding occurs along beaches and islands during spring and summer and, as a result, often places birds in direct contact with people pursuing recreational activities such as fishing, boating and dog walking. Recreational activities can lead to the trampling of the well-camouflaged chicks and eggs. However, just the presence of humans, dogs, foxes and predatory birds (e.g. raptors, ravens) near a colony can cause incubating birds to become agitated and unsettled and, as a consequence, lift from their nests. Exposed eggs and chicks are then vulnerable to being covered in wind swept sand or to becoming chilled or heat stressed. Unsupervised dogs can enter colonies, chase brooding birds and trample eggs (Reside et al. 1989).

Foxes and predatory birds may have similar effects on a colony. The presence of Red Fox at breed sites is known to cause colony abandonment (F. Bedford pers. comm. 2017). Avian predators such as Silver Gulls and Pacific Gulls (*Larus pacificus*) may take advantage of the disturbance and take eggs and chicks from the colonies. A number of species of raptors have been recorded over breeding sites in east Gippsland and probably take fledgling and possibly adult terns. In the 1993/4 season, an Australian Hobby (*Falco longipennis*) persistently harassed a mixed colony of Fairy Terns and Little Terns at Lake Tyers. Ravens took advantage of the disturbance, moved in and consumed dead and dying chicks after the site was abandoned.

Nesting out in the open, Little Tern are exposed to a range of dynamic climatic conditions. Nests can be inundated by high tides, wave wash and wind-blown sand. It is predicted that sea level rises and inundation from storm

surges along the 90-mile beach and Gippsland Lakes may cause traditional breeding and roosting sites to become unavailable (Sjerp and Charteris 2008).

Breeding declines of Little Tern colonies in recent years in East Gippsland may partly be due to the inability of small colonies to protect themselves from various threats, especially if they occur simultaneously.

IUCN Criteria

Criterion A. Population size reduction.
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.

A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(*a) cannot be used for A3*]

A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

based on any of the following:

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 24 to 30 years is inferred to be 20 to 30%, based on (a), (c) and (e) above.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 40,248 km² which exceeds the threshold for criterion B.

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 988 km² but other thresholds under this criterion have not been met.

Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals				

Evidence:

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 200 to 250 mature individuals. There are thought to be approximately 3000 birds in Australia (Garnett and Crowley 2000), most of which are not in Victoria.

The information collected over the last 25 years indicates that the distribution of Little Tern has remained comparatively constant during this time frame however their abundance has ranged from an average of 241 breeding birds/year from 1985-1990 to an average maximum of 334 breeding birds/year from 1995-2000. Currently, the Little Tern population breeding in Victoria is estimated to be about 200-250 individual breeding birds (Bedford and Bramwell, unpublished 2013).

The number of mature individuals is projected to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100%. Continuing decline is based on documented declines and the small population in eastern Australia.

Criterion D. Very small or restricted population	Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)	< 50	< 250	< 1,000
D2 Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.	-	-	D2. Typically: AoO < 20 km2 or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Endangered

It is estimated that there are 200 to 250 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

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