

Threatened Species Assessment

Tyto tenebricosa tenebricosa Sooty Owl

Taxonomy

Tyto tenebricosa (Gould, 1845)

Current conservation status

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

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

Proposed conservation status

Endangered in Victoria

Criterion C2a(ii)

Species Information

Description and Life History

The Sooty Owl, like all masked-owls, has a complete facial disc, huge ear-openings, a pectinate middle claw, dark irises and flap-like upper eyelids. It is thick-set and robust, with broadly rounded wings and dense downy feathering reaching the toes. It has a crouched posture, large black eyes, a round mask with dark grey border and a grey disc darkest near the eyes. Females are much larger than males, particularly in feet, bills and weight. Hollands (2008) and Pizzey and Knight (2012) provide more detailed descriptions of the taxon.

Generation Length

The generation length of the Sooty Owl is estimated to be 6 years. This is based on congeners in the Action Plan for Australian Birds (Garnett et al. 2011). BirdLife International (2019) also gives a figure of 6 years.

Distribution

In Australia, an endemic race of the species, *T. t. tenebricosa*, occurs in coastal central and southern Queensland, New South Wales and Victoria. In eastern Victoria, a sub-population of the Sooty Owl occurs from near Melbourne, east and north-east to the border with New South Wales. Within that area, the Sooty Owl is numerically rare (1-9 individuals per 100km²). Individuals of a small and isolated sub-population in the Strzelecki Range, South Gippsland, were most recently recorded in 1991. Elsewhere in Victoria, the Sooty Owl is absent or very rare (<1 individual per 100km²) (Silveira et al. 2001).

Habitat

In Victoria, the Sooty Owl occurs in closed forests (rainforests), tall open-forests and some open forests across a range of Ecological Vegetation Classes (EVCs) (Silveira et al. 2001). Sooty Owls inhabit mainly wet Mountain Grey Gum gullies, rainforest and Mountain Ash forest in large areas of continuous forest. They are absent in some areas where the habitat seems suitable (i.e. Otway Ranges, Wilsons Promontory and Strzelecki ranges), perhaps because forest patches are too small or too fragmented (Emison et al. 1987).

Threats

As per the text in the Sooty Owl Action Statement (Silveira et al. 2001): The Sooty Owl is dependent on closed forests (rainforests), tall open-forests and some open-forests.

Historically, land clearing associated with the expansion of agriculture removed a proportion of the Sooty Owl's former habitat in eastern Victoria. From Melbourne to the NSW border, the area of native 'forest' (all woody vegetation with a height greater than 2m and a foliar cover greater than 10%) has decreased from 85,170 km² in 1869 to, at most, 47,207 km² in 1987 (Woodgate and Black 1988); an overall loss of at least 45%. A decline in the population of the Sooty Owl may have already occurred commensurate with the loss of habitat (SAC 1991).

This probable population decline has left the Sooty Owl more susceptible to catastrophic events (SAC 1991), such as extensive bushfire. Furthermore, habitat may now be fragmented, exposing the Sooty Owl to the threats of reduced dispersal opportunity and genetic isolation (SAC 1991). The 2019-20 bushfires in eastern Victoria affected 47% of the likely habitat for the Sooty Owl across Victoria.

Historically, forestry operations since European settlement and major bushfires have also modified the structure of tall open forests and reduced the extent of rainforests in eastern Victoria. There is evidence that the Sooty Owl is somewhat resilient to the impacts of forestry operations provided sufficient conservation measures are implemented (Cann et al. 2002).

Spatial analysis of likely habitat for the Sooty Owl indicates that 50% occurs within the Comprehensive, Adequate and Representative (CAR) reserve system, including parks, reserves and special protection zones in State forest. Species-specific protections for the Sooty Owl are included in the Victorian Code of Practice for Timber Production 2014 (the Code) for the Central Highlands, East Gippsland, Gippsland and North East Forest Management Areas. Other more general prescriptions such as protection and buffering of rainforest and streams also provide protection from timber harvesting. In recent years, modified harvesting and forest regeneration practices have been implemented in native forest that are designed to further mitigate the potential threat from forestry operations to threatened species and their habitats.

Dr Rohan Bilney (pers. comm. May 2019) noted that: 'Exotic species (particularly predators reducing prey availability) and wildfire are overwhelmingly the main issues as they affect the entire landscape.'

Tyto tenebricosa tenebricosa

Sooty Owl

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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

Tyto tenebricosa tenebricosa

Sooty Owl

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 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
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 is estimated to be 58,000 km² and the Area of Occupancy (AoO) is estimated to be 2,850 km², both of which exceed the thresholds for criterion B.

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				

Tyto tenebricosa tenebricosa

Sooty Owl

Evidence:

Eligible under Criterion C2 as Endangered

It is estimated that there are 1,000 to 3,000 (midpoint 2,000) mature individuals. Silveira et al. (2001) gave the following figures "...the population size in eastern Victoria may be of the order of about 400 to 900 breeding pairs. That estimate will need to be revised after follow-up searches conducted at detection sites determine the proportion of those sites that are occupied by breeding pairs, and after the extent of potential Sooty Owl habitat is determined for eastern Victoria." The number of mature individuals is extrapolated from that.

The number of mature individuals is projected to continue to decline, and the percentage of mature individuals in one subpopulation is 95-100 %.

Large fires in 2003, 2006 and 2009 removed much breeding habitat, as hollow trees were destroyed or felled. It can be assumed that the Millennium Drought had a reasonable impact, but the extent of population changes is unknown. Since European settlement the number of Sooty Owls in Victoria must have declined dramatically following changes in prey availability and overall biomass. (R. Bilney pers. comm. May 2019).

Criterion D - Very small or restricted populations			
	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 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

It is estimated that there are 1,000 to 3,000 (midpoint 2,000) mature individuals.

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

References

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Tyto tenebricosa tenebricosa Sooty Owl

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