

Threatened Species Assessment

Saccolaimus flaviventris Yellow-bellied Sheathtail Bat

Taxonomy

Saccolaimus flaviventris (Peters, 1867)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2002).

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

Proposed conservation status

Vulnerable in Victoria

Criteria A2bc+3c+4bc

There are very few records from Victoria, and it is not known if the taxon is a rare resident, an autumn migrant or a vagrant. In this assessment a precautionary approach has been taken and it has been assumed that it is a resident. Also, there are markedly fewer definite records (i.e. based on specimens) in the past decade than in the previous decade.

A second major assumption has been made in that this reflects an actual decline in numbers, although there is a high degree of uncertainty in this assumption.

The third assumption is that although the records of the taxon are widely spread throughout Victoria, due to the high, fast-flying nature of this species, it is assumed that there is genetic exchange across this area, and hence just one subpopulation in Victoria. Again, there is a high degree of uncertainty. Depending on the level of uncertainty, the assessment could deliver between Endangered under C2a(ii) and Data Deficient. However a conservative approach is to continue to categorise it as threatened until more is known about its true status.

Species Information

Description and Life History

The Yellow-bellied Sheathtail-bat is a large insectivorous bat up to 87 mm long. It has long, narrow wings, a glossy, jet-black back, and a white to yellow belly extending to the shoulders and just behind the ear. It is the largest of the Victorian microbats and has a distinct flattened head and sharp muzzle with forward-pointing nostrils. They are 76-87mm in head-body length and weigh between 30-60g. The tail is covered with an extremely elastic sheath that allows variation in the tail-membrane area. Males have a prominent throat pouch; females have a patch of bare skin in the same place.

Most individuals are found dead, or in an exhausted condition in exposed situations, and so little can be gleaned on their life history. The majority of individuals found in Victoria have been males (Lumsden and Menkhorst 1995).

Yellow-bellied Sheathtail Bats tend to roost in trees (especially spouts) but no roost sites have ever been found in Victoria (Lumsden pers. comm.). In northern Australia beetles were the main dietary item. The bats are usually solitary, but sometimes small groups of up to 10 individuals are reported. Most individuals are found dead, or in an exhausted condition in exposed situations. No individuals have been trapped during surveys in Victoria, and so there is no information on life history specific to Victoria. The limited dispersal capability of this taxon results in a substantial legacy of fragmentation consequences, and incremental extirpations of subpopulations.

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Generation Length

The generation length of the Yellow-bellied Sheathtail-bat is inferred to be 3 to 6 years. The generation length for other species of emballonurids in the Mammal Action Plan (Woinarski et al 2014) is listed as 3-4 years, but this implies a longevity of only 7-9 years, and many species of microbats live longer than this, so the upper limit has been extended to 6 years.

Distribution

Yellow-bellied Sheathtail Bats are widespread and common in northern Australia, although sparsely distributed. They are rare and poorly known in Victoria. There are 31 definite records of this species on the Victorian Biodiversity Atlas (VBA), plus some additional records from bat detector recordings, however these have a lower level of confidence. The definite records are from across Victoria with no obvious patterns in distribution. There are records from southwestern, northern, northwestern and eastern Victoria, as well as a number from Melbourne. The vast majority of records are between January and June and as a result it has been suggested that this taxon is an autumn migrant to Victoria, however there is also the possibility that it is a vagrant, or equally possible that there are low density resident populations in Victoria that are just more likely to be found in autumn.

Habitat

Victorian records have come from urban, agricultural, semi-arid, and tall wet forest habitats (Lumsden and Menkhorst 1995).

Threats

As so little is known about the ecology of the taxon in Victoria, it is difficult to identify potential threats. If there is a resident population, as it is a hollow-dependent species, a reduction in large, old trees with hollows is likely to be a threat. As it is a high, fast-flying taxon it may be impacted by collisions with wind farms.

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%

<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p>	<p>based on any of the following:</p>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
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Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 9 to 18 years is suspected to be 5 to 30%, based on (b) and (c) above.

There have been less confirmed records in the past decade than in the previous decade, however there is a high level of uncertainty in trends.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 9 to 18 years is suspected to be 5 to 30%, based on (c) above.

As current trends are not known, and threats are uncertain, it is difficult to predict future trends.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 9 to 18 year period, including both past and future, is inferred to be 5 to 30%, based on (b) and (c) above. The causes of reduction may not have ceased, be understood or be reversible.

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 (EEO)	< 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, based on accepted, post-1970 records in the VBA, is estimated to be 119,416 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 VBA, is estimated to be 136 km² but other thresholds under this criterion have not been met.

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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:

Ineligible under Criterion C

It is inferred that there are 100 to 1,000 (midpoint 500) mature individuals, but this qualifier is too weak and other thresholds under this criterion have not been met.

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 inferred that there are 100 to 1,000 (midpoint 500) mature individuals.

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

References

DSE (2013). *Advisory List of Threatened Vertebrate Fauna in Victoria - 2013*. Department of Sustainability and Environment, Melbourne

Lumsden, L.F. and Menkhorst, P.W. (1995). Yellow-bellied Sheathtail Bat. Pp. 161-162. in *Mammals of Victoria. Distribution, Ecology and Conservation*. (Ed. P.W. Menkhorst). Oxford University Press: Melbourne



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SAC (2002). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 564 *Saccolaimus flaviventris*

Woinarski J., Burbidge A. and Harrison P. (2014) *The Action Plan for Australian Mammals 2012*. CSIRO Publishing.