Threatened Species Assessment

Sminthopsis murina murina
Common Dunnart

Taxonomy

Sminthopsis murina murina (Waterhouse, 1838)

This is also known as the Slender-tailed Dunnart.

Blacket et al. (2006) confirmed that *Sminthopsis murina tatei* differed from *S. murina murina* (from south-eastern Australia); however, they also stated 'Specimens of *S. murina murina* were found to be genetically divergent from each other, and this subspecies appears to be paraphyletic, as suggested by previous morphological evidence.' Given that the distribution of *S. murina* is almost continuous along the east coast (Dickman et al. 2008; Fox 2008), differences may be clinal or there may be several undescribed taxa.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The Common Dunnart is a dasyurid marsupial with a sharply pointed snout, large, bulging black eyes; delicate white hind feet, a grey-brown head and body and a white belly. Dunnarts have an average body length of 80 to 100 mm, a tail length of 80 mm and weighs 25–40.8 grams for males and 16.5–25.4 grams for females. Animals shelter in a cup shaped nest of dried grass and leaves built in a hollow logs or under grass tussocks, rocks or fallen bark. It is an insectivore that eats a wide range of terrestrial arthropod prey such as beetles, cockroaches, cricket larvae and spiders. The Common Dunnart is adapted to early to mid-seral stages following fire and appears to benefit from periodic burning of its habitat (Menkhorst 1995, Fox 2008). During cold weather the Common Dunnart may enter periods of torpor (Menkhorst 1995).

The breeding season is from August/September to March, during which females give birth to two litters of 8-10 young. Females may live to breed a second year, but males usually die after mating. (Fox 2008).

Generation Length

The generation length of the Common Dunnart is estimated to be 1.5 years. This is based on the Mammal Action Plan for *S. m. tatei* (Woinarski et al. 2012).

Distribution

Common Dunnarts occur in eastern Australia, from west of the Flinders Ranges, western and northern Victoria., New South Wales and eastern Queensland (Fox 2008).

Habitat

Dunnart habitats include dry forest and woodland, mallee scrub, mallee heathland, dry sclerophyll forests and dry heath. These areas have sparse ground and shrub cover but have dense leaf and bark litter in Victoria (Menkhorst 1995, Fox 2008).

Threats

Threats include habitat loss and fragmentation due to vegetation clearing for agriculture and development; predation by feral animals such as Red Foxes and feral Cats; habitat destruction by feral herbivores such as cattle, rabbits and camels; and the use of pesticides in agricultural areas, which can kill the insects that dunnarts eat. Given that a dunnart's home range can be as small as 50m, bushfires can wipe out an entire population.

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.

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:

Eligible under Criterion B2 as Vulnerable

The Area of Occupancy (AoO) across the taxon's range is estimated to be 712 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is projected to be severely fragmented. There are multiple, small isolated subpopulations that are all at risk from predation, and considering the limited dispersal capacity of this species, there is increased extinction risk and little or no probability of recolonisation should subpopulations become extinct.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above. Future fires are highly likely and predation, particularly by feral cats, is an on-going threat with no current effective control measures. Inappropriate fire regimes resulting in dense vegetation over large areas are also likely to impact this taxon and its habitat.

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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals. The majority of records are pre-2000 which could reflect low survey effort. However, it is also likely that this taxon occurs in low numbers.

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:

Ineligible under Criterion D

There is insufficient evidence to determine the number of 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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