

Acanthophis antarcticus Common Death Adder

Taxonomy

Acanthophis antarcticus (Shaw & Nodder, 1802)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1994).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii); D

The last probable record of the Death Adder in Victoria was 1861 in the Mallee (Clemann et al. 2018), and it is likely that it no longer occurs in Victoria. However, it is possible that it may occur in far East Gippsland. If so, its probable numbers and range would place it into the Critically Endangered category.

Species Information

Description and Life History

The snake is viviparous, with up to 20 young per litter: Shine quoted in Cogger 2014); "Shine (1980) suggests that females may only breed every second year. it is a crepuscular/nocturnal, ambush predator." The diet consists of reptiles, mammals, birds and frogs (Shine 1991). Reed and Shine (2002) noted that the life history of this taxon renders it vulnerable to decline.

Generation Length

The generation length of the Common Death Adder is estimated to be 4 to 8 years. Shine (1980) showed that sexual maturity is attained at about 24 months for males, and 42 months for females. Consequently, 4 to 8 years of age has been arbitrarily assigned for a typically-aged breeding adult.

Distribution

Cogger (2014, p. 856) describes this taxon's distribution as: "southern continental Australia, from south-western Australia, through parts of southern and south-eastern Australia to eastern and central Queensland". Clemann et al. (2018) detailed the history of a specimen collected in north-western Victoria in 1857 during Blandowski's Lower Murray Expedition. Additionally, Clemann et al. (2018) suggest that it is probable that a record by William Lockhart Morton in the Victorian Mallee in 1861 is legitimate. Other claims of this taxon in Victoria from the late 19th and early 20th centuries are less certain, and claims in the late 20th and early 21st centuries are dubious (Clemann et al. 2018). However, given the taxon's occurrence in NSW in places very close to the Victorian border, and unverified claims of this taxon in far East Gippsland, as well as the under-surveyed nature of that region, it is plausible that Death Adders may occur near the eastern tip of the State.

Habitat

The taxon occurs in dry forest and heath with dense litter and ground vegetation.

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Threats

Bushfires and inappropriate fire regimes will remove the critical microhabitat features needed by this taxon.

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> <ul style="list-style-type: none"> (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 12 to 24 years is suspected to be 1 to 50% (midpoint 25%), based on (c) above.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 12 to 24 years is suspected to be 1 to 50% (midpoint 25%), based on (c) above.

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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:

Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be between 4 and 200 km², on the basis is that if the taxon occurs in far East Gippsland, these are plausible range parameters of that occurrence.

The taxon is inferred have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

Death Adders and their prey are reliant on complex litter and ground debris. Consequently it is probable that, if it persists in Victoria, current fire management would be resulting in continuing declines of this taxon.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be between 2 and 10 km². As above, it is inferred have 1 location, and a continuing decline in (i), (ii), (iii), (iv) and (v) above.

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				

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Evidence:

Eligible under Criterion C2 as Critically Endangered

It is likely that this taxon no longer occurs in Victoria. However, it is possible that it may occur in far East Gippsland, and in which case, there may be between 5 to 40 mature individuals.

The number of mature individuals is inferred to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100 %.

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 km ² or number of locations ≤ 5 [Ⓜ]

Evidence:

Eligible under criterion D as Critically Endangered

If the taxon still occurs in Victoria, there may be between 5 to 40 mature individuals.

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

References

Clemann, N., Stranks, T., Carland, R., Melville, J, op den Brouw, B. and Robertson, P. (2018). The death adder *Acanthophis antarcticus* (Shaw and Nodder, 1802) in Victoria: historical records and contemporary uncertainty. *Memoirs of Museum Victoria* 77: 29-40.

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Reed, R.N., and Shine, R. (2002). Lying in wait for extinction: ecological correlates of conservation status among Australian elapid snakes. *Conservation Biology*, 16(2), 451-461.

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