

Threatened Species Assessment

Varanus varius Lace Monitor

Taxonomy

Varanus varius (White, 1790)

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2bce+3ce+4bce

Species Information

Description and Life History

From Robertson and Coventry (2019): This species is generally dark grey with an intricate lacework-like lighter patterning on the back - hence the common name of Lace Monitor. Sometimes the light areas of cream dots coalesce to form distinct fine bands across the neck and body - the tail is generally banded, with broader bands towards the tip. The head is dark grey to black, sometimes with two or three cream to yellowish bands across the snout. Dark bands extend from the lips under the chin and onto the throat where they sometimes break up into reticulate mottling. The belly is cream to pale greyish yellow, with a variable number of darker bands. Juveniles are often much more brightly marked than adults, sometimes with a bluish wash on the sides of the face and body, and bright yellow within the pale bands.

The taxon is terrestrial and arboreal, being a capable tree climber. It is a diurnal heliotherm, an apex predator, and an opportunistic carnivore and scavenger. It feeds on carrion, and live animals (small vertebrates) that it typically locates in burrows, nests or hollows. It may also eat some macroinvertebrates. Home ranges can vary in size from 14-128 ha. It is oviparous, laying eggs in active termite mounds in summer. Mature females reproduce every year, clutch sizes vary from 4 to 15.

Generation Length

The generation length of the Lace Monitor is estimated to be 8 to 15 years. Few data exist for varanid longevity. However, King and Green (1999) provide information on the longest periods in captivity for several species of monitor (5-17 years), and King and Green (1993) indicate 15-20 years is the likely life-span for large monitors, although longer life-spans, up to 50 years, are thought possible for the very largest (non-Australian) monitors (*V. komodoensis*). These same authors suggest that sexual maturity takes 4-6 years in larger varanids.

Distribution

The taxon has a broad distribution along the eastern Australian seaboard, in forests and woodlands from Cape York Peninsula (Qld) to Gippsland (Victoria) in the south and westward into western NSW and parts of South Australia. In Victoria, its stronghold is the foothill and coastal forests of East Gippsland, with records also from many West and South Gippsland locations. It is also distributed throughout remnant woodlands north of the Great Dividing Range and along the Murray River floodplain, and west through the Wimmera. Prior to December 2019 East Gippsland was regarded as the taxon's stronghold, but a significant amount of its habitat was burnt in the 2012/9/20 wildfires.

Habitat

This taxon is found mainly in treed habitats within the Damp Sclerophyll Forest, Dry Sclerophyll Forest, Riparian Forest, Box-Ironbark Forest, Red Gum and Black Box Woodland ecosystems, along the mesic forested corridors of major watercourses through the semi-arid zone (such as the Murray River) (Robertson and Coventry 2019).

Threats

The taxon is threatened by habitat loss and damage, forestry operations, inappropriate fire regimes and fuel management activities. Young animals are likely to be affected by predation by exotic animals.

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 Endangered

The population reduction over the past 24 to 45 years is inferred to be 40 to 60%, based on (b), (c) and (e) above. Past reduction of the taxon's population is based on the extent and regularity of Victorian Biodiversity Atlas (VBA) records, and extent of available habitat, especially in alienated landscapes north of the Great Dividing Range. Personal observations over several decades also informed this assessment.

Prior to 2019 East Gippsland was the taxon's stronghold, but a significant amount of its habitat was burnt in the 2019/20 bushfires. The degree of impacts to the taxon are yet to be determined.

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

Eligible under Criterion A3 as Endangered

The population reduction over the next 24 to 45 years is projected to be 40 to 60 %, based on (c) and (e) above.

Future reduction of the taxon's population is based on the projected impacts of reduced habitat availability and other threats. The regularity of VBA records, and extent of available habitat, especially in alienated landscapes north of the Great Dividing Range, as well as personal observations over several decades. In East Gippsland the population was thought to be more or less stable, but following the fires this is unlikely to be the case. There may be a risk of inbreeding among the possibly small number of survivors.

Eligible under Criterion A4 as Endangered

The population reduction over any 24 to 45 year period, including both past and future, is inferred to be 40 to 60%, based on (b), (c) and (e) 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 (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 204,973 km² and the Area of Occupancy (AoO) is estimated to be 5,437 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				

Evidence:

Ineligible under Criterion C

It is inferred that there are 5,000 to 20,000 mature individuals, but 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 5,000 to 20,000 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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