



Tympanocryptis petersi Lined Earless Dragon

Taxonomy

Tympanocryptis petersi

Until recently, this species from north-western Victoria was known in Victoria as *Tympanocryptis lineata*. Recent work by Melville et al. (2019) showed that this name applies to a different lizard that does not occur in Victoria. The Victorian occurrence of the species is now *T. petersi* (Melville et al. 2019a, 2019b).

Current conservation status

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

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

Proposed conservation status

Endangered in Victoria

Criteria B2ab(i,ii,iii,iv)

Species Information

Description and Life History

The Lined Earless Dragon is quite variable in colour throughout its range. As its name suggests, the body has several narrow, pale creamish longitudinal lines, one vertebral, two dorso-lateral, and one along each side of the body, with sometimes a further lower lateral stripe on the sides, all extending onto the base of the tail. In Victoria, this taxon is usually pale brown to grey-brown on the head, body and tail, with several broad, darker brown to blackish blotches or cross-bands on the back, and mottling on the sides. The head has paler patches, with a distinct cream or pale grey band between the eyes. The tail is alternately banded in pale and dark. This taxon is whitish below, usually with darker mottling or reticulation under the chin and throat, which is often tinged with yellow in breeding males. The Lined Earless Dragon lacks an external ear opening, the eye has prominent scaly eyelids, and the iris is pale, and the lining of the mouth is greyish pink. This species has keeled scales on the back, with scattered enlarged spinose scales that are generally shorter than they are broad at the base. It has just two pre-anal and no femoral pores. The taxon grows to a maximum snout-vent length of about 62 mm, with a total length generally less than 160 mm. (Robertson and Coventry 2019).

It is diurnal and ground-dwelling, basks on fallen timber or shrubs, and feeds on small invertebrates (Robertson and Coventry 2019). It is oviparous; a female carrying 6 eggs has been reported (Robertson and Coventry 2019). It is likely that this taxon mates in spring and lays eggs in late spring that hatch in summer; some females may produce two clutches in a year (Robertson and Coventry 2019).

Generation Length

The generation length of Lined Earless Dragon is inferred to be 1 to 2 years. In the wild some small agamid lizards typically do not live much longer than one year. However, there is some evidence (probable second clutch in a year, egg hatching not occurring until autumn) that this taxon might live longer than one year (Robertson and Coventry 2019).

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Distribution

The taxon is known from a small number of localities in north-western Victoria. The most southerly of these records is a single individual captured in a pitfall trap during extensive trapping from 1979 to 1981 in the south-east of the Big Desert (Coventry 1996); extensive trapping in that area between 2015 and 2018 failed to record this species.

Habitat

The taxon is apparently largely restricted to grassland, samphire or saltbush shrubland habitats in the Mallee and Pine-Buloke Woodland ecosystems; most populations occur in or near gypseous or saline areas (Robertson and Coventry 2019).

Threats

Threats include degradation of habitat due to grazing by domestic stock; impacts from off-road vehicles; predation by foxes and cats and climate change impacts on individuals and nest sites. Salt and gypsum harvesting may still be damaging habitat in some areas.

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 style="text-align: center;"><i>based on any of the following:</i></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:

Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A. Although there are ongoing threatening processes, there has been no recent targeted survey for this species, and there has never been sustained monitoring.

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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 (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:

Eligible under Criterion B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 6,360 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

Subpopulations are few, not connected and considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them and the ongoing threats to each, the subpopulations can be considered to be severely fragmented.

The taxon is estimated to have three locations, as the identified threats may affect all populations, but probably at different times and intensities. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above as a result of the impacts of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 28 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has three locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

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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

There is insufficient evidence to determine the number of mature individuals. There has been no recent targeted survey for this taxon, and there has never been sustained monitoring.

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:

Eligible under Criterion D as Vulnerable

The taxon is estimated to be very restricted.

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

References

Coventry, A. J. (1996). The herpetofauna of the Chinaman Well area of the Big Desert, Victoria. *Proc. Roy. Soc. Vic.* 108, 107-120.

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



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Melville J., Chaplin K., Hipsley C.A., Sarre S.D., Sumner J. and Hutchinson M. (2019a) Integrating phylogeography and high-resolution X-ray CT reveals five new cryptic species and multiple hybrid zones among Australian earless dragons. *R. Soc. Open Sci* 6:2 <https://royalsocietypublishing.org/doi/10.1098/rsos.191166>

Melville J., Chaplin K., Hutchinson M., Sumner J., Gruber B., MacDonald A.J., Sarre S.D. (2019) Taxonomy and conservation of grassland earless dragons: new species and an assessment of the first possible extinction of a reptile on mainland Australia. *R. Soc. Open Sci.* 6:190233. <http://dx.doi.org/10.1098/rsos.1902333>

Robertson, P. (2006). Field studies of the threatened Lined Earless Dragon (*Tympanocryptis lineata*), 2005-2006. Unpublished report. Wildlife Profiles, Melbourne.

Robertson, P. and Coventry, A. J. (2019). *Reptiles of Victoria: A Guide to Identification and Ecology*. CSIRO Publishing, Clayton South.

SAC (1991). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 164 *Tympanocryptis lineata lineata*.