



Rhynchoedura ornata Beaked Gecko

Taxonomy

Rhynchoedura ornata Günther, 1867

It is currently unclear whether in Victoria, this taxon is *Rhynchoedura angusta* or *R. ormsbyi*. The study undertaken by Pepper et al. (2011) did not include samples from Victoria. Tissue samples have recently been collected to allow the molecular analyses needed to resolve this issue (Joanna Sumner, Museums Victoria, personal communication to N. Clemann and V. Craigie).

Current conservation status

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

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,v)

Species Information

Description and Life History

From Robertson and Coventry (2019): The back and sides of the Beaked Gecko are rich red-brown, overlain by a fine network of dark brown; superimposed on this pattern are numerous white to yellow dark-edged spots, often more concentrated in the midline and larger on the sides and tail. The underside is white, with an abrupt change from the side colour. Usually, there are one or two yellow patches below and behind the eye. The most distinctive feature of this gecko is the large beak shaped rostral scale, which usually has a longitudinal medial groove.

The Beaked Gecko has a specialist diet, foraging at night on the ground, where it preys almost entirely on termites; the beak-shaped head may facilitate the handling of such small prey. Females lay two parchment-shelled eggs in late spring to early summer (Robertson and Coventry 2019).

Generation Length

The generation length of Beaked Gecko is estimated to be 2 to 3 years. This is based upon data obtained for the closely-related *R.ornata*. (Read 1999)

Distribution

Victorian Beaked Geckos are restricted to the far north-west of the State. They have been recorded in the vicinity of Red Cliffs (these are old records from the 1920s, and the species probably no longer occurs in this area). Recent records are from chenopod shrublands south of the Murray River west of Mildura, and further west near Lake Walla Walla, also from hopbush shrublands south of Robinvale. The main cluster of recent records is north of the Sunset Country near Meringur. A record in the north of the Sunset Country requires confirmation.

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Habitat

A terrestrial gecko, the taxon occurs in the Black Box Woodland, Pine-Buloke Woodland and sometimes Mallee ecosystems, where it shelters within small spider holes during the day (Robertson and Coventry 2019)

Threats

A short-lived taxon, the Beaked Gecko can potentially be eliminated from areas by periods of habitat unsuitability lasting two years or more. Any process that destroys soil integrity, such as stock grazing or prolonged drought, could remove shelter sites. Its current highly fragmented distribution in Victoria is likely to be result of such processes.

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 10 years is suspected to be 10 to 30%, based on (a), (c) and (e) above.

Within this taxon's broad but highly fragmented distribution, habitat loss due to various agricultural enterprises has considerably reduced extent of habitat for this taxon, and continues to do so. It is probable that exotic predators exert considerable pressure on populations of this taxon.

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 10 years is suspected to be 10 to 30%, based on (c) and (e) above.

Habitat loss due to various agricultural is expected to continue, as is the effects of exotic predators.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 10 year period, including both past and future (up to 100 years in the future), is suspected to be 10 to 30%, based on (a), (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:

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 56 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented, as all subpopulations are separated by cleared or unsuitable land, are all considered to be threatened and there is little or no opportunity for re-colonisation should a subpopulation be lost.

It is estimated to have 3 locations. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, on the basis of ongoing habitat loss and the impacts of exotic predators.

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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.

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 D2 as Vulnerable

The taxon is inferred to be very restricted. It has a restricted distribution, with three locations, such this restriction makes the taxon capable of becoming Critically Endangered or even Extinct within a time period of one or two generations, in response to the impacts of the identified threats.

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



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Pepper, M., Doughty, P., Hutchinson, M. and Keogh, S. (2011). Ancient drainages divide cryptic species in Australia's arid zone: Morphological and multi-gene evidence for four new species of Beaked Geckos (*Rhynchoedura*). *Molecular Phylogenetics and Evolution* 61: 810-822.

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SAC (1994). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 338 *Rhynchoedura ornata*