

Geminoropa scindocataracta Land Snail

Taxonomy

Geminoropa scindocataracta (Gabriel, 1930)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2002).

Categorised as Vulnerable in the 2009 Advisory list of threatened invertebrate fauna in Victoria (DSE 2009).

Proposed conservation status

Endangered in Australia

Criteria B1ab(ii,iii,v)+2ab(ii,iii,v)

Species Information

Description and Life History

Geminoropa scindocataracta is a species of small air-breathing land snails, terrestrial pulmonated gastropod mollusc in the family Charopidae. This species is endemic to Australia.

Generation Length

The generation length of *Geminoropa scindocataracta* is estimated to be 2 to 4 years. The age of mature snails can be estimated from growth interruption markings on the shell. The estimation across a broad selection of charopids is that they do not live greater than 3 years.

Distribution

The type locality is in the Otway Ranges, where the taxon is endemic and unique to the area. It is a rare and extreme localised Victorian land snail, occupying a narrow distribution range in terms of abundance and distribution. However, in many cases insufficient collecting has been carried out to give exact range dimensions for the taxon.

Habitat

The taxon occurs in Cool Temperate Rainforest and Wet Forest.

Threats

Past land clearing and historic forestry activities would have had the greatest impact, especially as source/ refuge habitat such as riparian/ wet forest was not well protected.

The biggest threat to the wet forest malacofauna of the Otway Ranges is climate change, with a preliminary prediction being for a notable reduction of this taxon's habitat by 2080 (Miles 2010). While a single bushfire event is considered to be an important potential impact, arguably this impact is relatively short term. By far, land clearing and climate change (and associated droughts and altered fire regimes) are the most important factors underpinning long term trends in declines or recovery.

Geminoropa scindocataracta

Land Snail

It should be noted that native forest timber harvesting on public land has been phased out in the Otway Ranges since 2008. Harvesting on private land and in plantations may continue to have an impact, however the Code of Practice for Timber Production 2014 applies to timber harvesting and the management of plantations on public and private land, including the requirement to protect and buffer rainforest and waterways.

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> <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>			

Evidence:

Ineligible under Criterion A

Population reductions over the past of future 10 to 12 years are suspected or estimated to be less than 30%.

Geminoropa scindocataracta

Land Snail

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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 840 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented. Being of low vagility, recovery and recolonisation is typically slow and can take decades, depending on distance from source and demographics.

It is estimated to have one location, as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. It has a continuing decline in (ii), (iii) and (v) above, based on the future 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 420 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, is severely fragmented, has one location and a continuing decline in (ii), (iii) and (v) above.

Geminoropa scindocataracta

Land Snail

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 estimated that there are 20,000 to 30,000 mature individuals, which exceeds the thresholds for criterion C.

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 estimated that there are 20,000 to 30,000 mature individuals.

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

References

DSE (2009) *Advisory list of threatened invertebrate fauna in Victoria - 2009*. Department of Sustainability and Environment, Melbourne.

Miles (2010) *Quantifying and Assessing Uncertainty in Climate Change Projections for Cool Temperate Rainforests of South-eastern Australia*. Master's thesis. University of Melbourne.



Geminoropa scindocataracta Land Snail

New, T.R.; van Praagh, B.D. and Yen, A.L. (2012) Invertebrate conservation status and the limits of reliable information: Examples from Victoria, Australia. *The Victorian Naturalist*, 129 (3) 68-76.

SAC (2002). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 581 *Geminoropa scindocataracta*.

Stanisic, J; Shea, M; Potter, D; Griffiths, O. (2017). *Australian Land Snails Volume 2 - A field guide to southern, central and western species*. Bioculture Press Mauritius.