

Peronomyrmex bartoni Ant species

Taxonomy

Peronomyrmex bartoni Shattuck & Hinkley (Shattuck & Hinkley 2002)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2000).

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

Proposed conservation status

Critically Endangered in Australia

Criterion B1ab(iii)

Species Information

Description and Life History

The taxon's lifecycle is still unknown. It is expected to nest in hollow twigs or in beetle or other galleries in larger standing timber. Host plant specificity is possible, based upon observations on *Podomyrma* spp. and nocturnal foraging is likely (Taylor 1991). It is unclear whether the infrequent records are as a result of true rarity or cryptic habits or, more likely, a combination of these factors (Shattuck 2006).

Generation Length

The generation length of *Peronomyrmex bartoni* is suspected to be two months. There is insufficient field observation to support an estimate of generation length. The generation length is based on similar genera such as *Podomyrma*.

Distribution

The taxon is known from only two sites in north central Victoria, represented by a single individual each time. Australian ants of the genus *Peronomyrmex* (subfamily *Myrmicinae*) are some of the world's rarest ants. They are known from only five specimens from four scattered localities along the east coast of Australia and two of the species have been collected only once (Shattuck 2006).

Following the discovery of the taxon in the two localities in north central Victoria, further efforts were undertaken in the late 1990s involving direct searching during the day and night and with the use of baits to try and find live populations of this taxon but with no success. No further efforts have been undertaken since this time by Museums Victoria. There is a record of the taxon from South Australia in the Atlas of Living Australia (ALA), but this is likely to be a misidentification.

P. bartoni has cryptic habits that mean that little is known of the number of sites where it occurs. Its two known sites are in conservation reserves, Inglewood Flora Reserve and Kooyoorra State Park (Muir et al.1995).

Habitat

The only two records are on Sandstone Rise Broombush and Box Ironbark Ecological Vegetation Class. *P. bartoni* has cryptic habits, so there is little known about its habitat requirements.

Threats

As this taxon is suspected to be an arboreal nester, the removal of dead or living timber could pose a threat., fire and an increase in fire regularity or severity could impact the taxon. Climate change could result in vegetation changes which could also impact the 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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas.

The taxon is known from only two disjunct subpopulations. Considering the limited dispersal ability of the congeners and the barriers to dispersal, the population can be considered to be severely fragmented.

It is inferred to have one or two locations. It is inferred to have a continuing decline in (iii) above. Due to the impact of climate change, there is likely to be a continuing decline in habitat quality.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records from the VBA. As above, it is severely fragmented, has one or two locations and has a continuing decline in (iii) 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 as Data Deficient

There is insufficient evidence to support an estimate of total population size, as only two records have been made of this taxon, both times involving the collection of a single individual in pitfall traps. Subsequent searches have not located further individuals at either of the collection sites.

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.

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

References

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