

Austrogammarus haasei Sherbrooke Amphipod

Taxonomy

Austrogammarus haasei (Sayce, 1902)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1996).

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

Proposed conservation status

Endangered in Victoria

Criterion B1ab(iii)+2ab(iii)

Based on restricted distribution and plausible threats, the taxon could be VU D2, but note that there have not been any targeted surveys for this species since 1999, therefore the size of any existing populations is unknown, and there is uncertainty that the population still exists, given local increases in urbanisation. Therefore a precautionary approach has been taken.

Species Information

Description and Life History

Amphipods are small, laterally flattened crustaceans, growing to between 1 and 1.65cm long (Williams 1980). Based on related taxon (*Gammarus fasciatus*), it is suspected that the *A. haasei* age of reproductive maturity is about 2 months old, the gestation period vary from 1 to 3 weeks, number of offspring between 8 and 23. It is likely that they only breeds once in its life-time. The life span is approximated between 12 and 16.5 months.

Generation Length

The generation length of *Austrogammarus haasei* is inferred to be 1 year, inferred using data from a similar species *Gammarus fasciatus* (Clemens 1950).

Distribution

The taxon is mainly known from the Dandenong Ranges National Park, Victoria. The known distribution increased between 1995 and 1999, with the taxon recorded from three additional sites in the Dandenong Ranges. The numbers of specimens collected also increased up to ten-fold (Papas et al. 1999). Papas et al. (1999) were uncertain why these numbers had increase but suggested natural annual variation in population size, unusually dry conditions between 1996 and 1999 and small variations in the sampling effort and/or strategy may have contributed to the higher number of specimens collected. They also stated that areas of organic debris, which provide favourable habitats for the species, were targeted during sampling, and thus could explain the higher numbers of specimens collected in 1999.

There have been no taxon-specific surveys for *A. hassei* in the Dandenong Ranges since 1999. In 2001/2002 Papas and Crowther (2002) looked for it in the Yarra Ranges, in an area located close by with similar topography, stream types and vegetation, but failed to locate any specimens.

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Habitat

All sites where *A. haasei* was located were characterised by riparian zones with relatively undisturbed native vegetation (Papas and Crowther, 2007).

Threats

This taxon is threatened by urbanisation, run-off from roads (both sealed and unsealed), damage to or removal of riparian vegetation and weed invasion of the riparian zone.

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:

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.

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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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 300 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location, as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present.

It is inferred to have a continuing decline (iii) above, based on the risk of habitat loss as a result of increased urbanisation and changes to water quality.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 32 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has 1 location and has a continuing decline in (iii).

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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 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 estimated 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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