Threatened Species Assessment

Temognatha maculiventris
Jewel Beetle

Taxonomy

Temognatha maculiventris (Macleay, 1863)

Burns and Burns (1992) treated *Temognatha pracellens* as a distinct species. However, it was designated as a junior in synonym of *T. maculiventris* by Deuquet (1963). *T. pracellens* is simply a red or pink coloured form of *T. maculiventris* which is predominantly cream with a bright red making near the apex of the elytra. As both forms of the species can occur at the same locality they cannot be classified as separate subspecies, pers. obs. (2007), M. Peterson pers. comm. (2007) and A. Sundholm pers. comm. (2018).

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The larvae of *Temognatha* spp. are endophagous feeders (i.e. borers) in the living timber of their respective larval host plants. While it is apparent that the adults of the taxon emerge during the summer months, they tend to frequent tall eucalypts and consequently are very difficult to observe. It is one of the species that falls into a category known as the 'tall timber Temognatha' because it appears to be associated with *Eucalyptus camaldulensis* (Red Gum) and other tall *Eucalyptus* spp. However, in some instances adults will feed on nectar in the flowers of lower growing species of Myrtaceae such as *Melaleuca lanciolata* (F. Douglas pers. obs. 2007) and *Leptospermum* spp. (A. Sundholm pers. comm. 2018).

Generation Length

The generation length of *T. maculiventris* is suspected to be 4 to 10 years. The timing between adult emergences of the taxon may be considerable. Most and possibly all of the *Temognatha* spp. have synchronised adult emergences. In some species these adult emergences can be up to seven or more years apart.

Distribution

A known record is from private property adjacent to the Lake Hindmarsh Lake Reserve and the Birdcage Flora and Fauna Reserve near Rainbow. Adults were observed in 1986 at Horseshoe Bend picnic area (western side of the Wimmera River) at the eastern end of the Little Desert National Park. It is likely that the taxon still occurs at/near Horseshoe Bend because the natural habitat in the area has not been significantly altered.

Habitat

The taxon occupies Eucalypt woodland and riparian eucalypt forest habitats containing River Red Gum and/or one or more other Eucalyptus species, often Black Box.

Threats

It is highly likely that *T. maculiventris* has declined significantly in range and distribution since European settlement. This situation has been brought about by the clearing of eucalypt woodland and riparian eucalypt forest habitats for agriculture across much of Victoria.

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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:

Ineligible under Criterion B

There is insufficient information to determine the Extent of Occurrence or Area of Occupancy. Both are suspected to be 8km^2, but this qualifier is too weak to meet the threshold.

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 inferred that there are 200 mature individuals, but this qualifier is too weak to meet the threshold.

This is derived from monitoring during intermittent adult flight periods, giving results of 100 from private property adjacent to the Lake Hindmarsh Lake Reserve and the Birdcage Flora and Fauna Reserve near Rainbow; and 100 at Horseshoe Bend picnic area (western side of the Wimmera River) at the eastern end of the Little Desert National Park.

Criterion D. Very small or restricted population			
	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 km2 or number of locations ≤ 5

Evidence:

Eligible under Criterion D2 Vulnerable

The taxon is suspected to be very restricted, with possibly one or two locations. This restriction makes it possible that the taxon could become Critically Endangered or Extinct within a time frame of one or two generations in response to the loss of habitat trees and the risk of bushfires.

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

References

Burns, G. G. and Burns, A. J. (1992). The Distribution of Victorian Jewel Beetles - an ENTRECS project. *Occasional Papers from the Museum of Victoria* 5: 1-53 (1992).

DSE (2009). *Advisory list of threatened invertebrate fauna in Victoria - 2009*. Department of Sustainability and Environment, Melbourne. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0016/50452/Advisory_List_of_Threatened_Invertebrate_Fauna_2009_FINAL_Sept_2009.pdf

Deuquet, C. M., (1963). Notes on the genus Stigmodera (Buprestidae) and description of a new species. *Proceedings of the Linnean Society of New South Wales* 88(3) 336-339.