

## *Temognatha flavocincta* Jewel Beetle

### Taxonomy

*Temognatha flavocincta* (Gory & Laporte, 1838)

### 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

Criteria A2c+3c+4c; D2

### Species Information

#### Description and Life History

The life history of *Temognatha flavocincta* is not fully known. Adults are generally not common and usually emerge from November to mid December or occasionally during late January to early February. As with other *Temognatha* species, emergences of *T. flavocincta* do not occur annually and can be up to ten years apart. When this species does emerge, the event usually coincides with mass flowerings of either *Eucalyptus costata* (Yellow Mallee) in spring and early summer or *E. leptophylla* (Narrow-leaved Mallee) in mid/late summer. At these infrequent times many other species of Buprestidae also emerge more or less simultaneously. When the other more common species such as *T. pubicollis* and *Stigmodera sanguinosa* in spring/early summer or *T. heros* and *T. mitchellii* in mid/late summer are flying, it is often (but not always) a good cue to find *T. flavocincta*. The adults of *T. flavocincta* feed avidly on nectar in the flowers of the above-mentioned eucalypts and when observed are usually feeding amongst the freshest available blossom in company with other Buprestidae, e.g. *Castiarina* and/or *Stigmodera* and/or *Temognatha* species. The larvae of *Temognatha* spp. are endophagous feeders (i.e. borers) in the living timber of their respective larval host plants. Those of *T. flavocincta* may be borers in the Trunks and/or larger branches of *Eucalyptus* spp., possibly *E. leucoxylon* (Yellow Gum) and/or in the lignotubers of Yellow Mallee or perhaps in the woody parts of one or more other *Eucalyptus* species.

#### Generation Length

The generation length of *T. flavocincta* is suspected to be 5 to 10 years. Generation length can be longer in some circumstances, e.g. prolonged dry periods. Only four adult flight periods were observed in 32 years.

#### Distribution

*T. flavocincta* occurs in remnant eucalypt woodland and mallee communities throughout western-central and north-western Victoria, i.e. in the Goldfields, Wimmera and Mallee districts. However, the most recent records indicate that it may now be restricted to comparatively large areas of these two habitat types in Victoria. Outside Victoria *T. flavocincta* has been recorded in South Australia and Western Australia.

#### Habitat

The taxon occurs in mallee, mallee-heath and semi-arid eucalypt woodland habitats that contain Yellow Gum and/or Yellow Mallee and/or one or more other *Eucalyptus* species.

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## Threats

Specific threats to this taxon have not been recorded, but there are generic threats to habitat. The taxon historically declined in both area and extent since European settlement, due to the extensive clearing of eucalypt woodland and mallee habitats for forestry and agriculture across much of western Victoria, especially during the past 100 years.

Ongoing removal (mostly for firewood) of some eucalypts, particularly Yellow Gum, in Victorian State forests may have minor, localised impacts on habitat quality. Further land clearing for agricultural purposes in areas containing Yellow Mallee could threaten the taxon by reducing habitat quality and extent, although clearing of native vegetation is regulated under the Victorian Planning Provisions.

While fire is considered to be an important potential impact, arguably this impact is relatively short term. By far, land clearing and climate change are the most important factors underpinning long term trends in declines or recovery.

## 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>			

## Evidence:

### Eligible under Criterion A2 as Vulnerable

The population reduction over the past 15 to 30 years is suspected to be 10 to 35%, based on (c) above.

This is based on widespread fires within the taxon's habitat during the past years.

### Eligible under Criterion A3 as Vulnerable

The population reduction over the next 15 to 30 years is suspected to be 15 to 30%, based on (c) above.

Habitat in some western Victorian State forests may still be subject to small scale community forestry including firewood collection. Clearing of mallee vegetation may occur in the future on private land noting that legal clearing

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is regulated under the Victorian Planning Provisions. The taxon could also be susceptible to local reductions in number due to bushfire.

## Eligible under Criterion A4 as Vulnerable

The population reduction over any 15 to 30 year period, including both past and future, is suspected to be 10 to 40%, based on (c) above.

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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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.

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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)	
<u>C2</u>	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			

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## Evidence:

### Ineligible under Criterion C

It is suspected that there are 2,000 to 3,000 mature individuals, but this qualifier is too weak and other thresholds under this criterion have not been met.

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 km <sup>2</sup> 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

Burns, G. G. & 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](https://www.environment.vic.gov.au/__data/assets/pdf_file/0016/50452/Advisory_List_of_Threatened_Invertebrate_Fauna_2009_FINAL_Sept_2009.pdf))