



Acrodipsas myrmecophila Small Ant Blue Butterfly

Taxonomy

Acrodipsas myrmecophila (Waterhouse & Lyell, 1913)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1991).

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

Proposed conservation status

Endangered in Victoria

Criteria B2ab(ii,iii); D

Species Information

Description and Life History

The Small Ant-blue is very small, with a wingspan of about 20 mm, and has cryptic colouration. Its body and wings are generally dark bronze-brown, with subtle spots and markings. Females are distinguished by a broad blue area on the upper side of the forewing.

In Victoria, the main flight period (breeding season) of the Small Ant-blue is December to January, although sightings have been made in early autumn and late spring (Britton and New 1992, 1993; McCubbin 1971). During this time, males congregate on the summit of specific peaks, where they establish and defend territories around the tops of selected trees. Females flying to these prominent peaks are highly likely to find a suitable mate. This behaviour is known as 'hill-topping', and successive generations within each population will continue to utilise a specific high-point for locating mates. Hill-topping occurs from late morning to late afternoon, particularly during warm to hot weather when temperatures exceed 28°C and there is little wind. The female Small Ant-blue is thought to spend little, if any, time hill-topping. It searches for suitable oviposition (egg-laying) sites soon after mating (Britton and New 1992, 1993; Quick 1989).

As with other lycaenid butterfly species, the Small Ant-blue associates with ants, a characteristic known as myrmecophily. Typically, these butterfly-ant relationships are mutually beneficial and obligate, with the immature stages of the butterfly occurring within or close to the nests of ants. The ants obtain essential carbohydrates and amino acids from secretions produced by the caterpillars, and in turn the ants protect the butterfly caterpillars from disease, starvation, parasites and predators (Britton and New 1992). The larvae of *A. myrmecophila* are thought to feed in the immature stages of coconut ants *Papyrius* sp., *nitidus* group.

Generation Length

The generation length of *Acrodipsas myrmecophila* is inferred to be 6 to 12 months, based on life history and longevity.

Distribution

The Small Ant-blue has been recorded from NT, Qld, NSW and Vic and is rare and localised throughout its range. The only recent Victorian record is from Mt Piper near Broadford (Britton and New 1992, 1993; Crosby 1988; Quick

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1989). The taxon has been recorded previously from Ringwood, Heathmont, Glen Waverley, Lilydale, Wandin, Ocean Grove and another site near Broadford, but is believed to be extinct in these areas as a result of habitat disturbances (Britton and New 1993, Quick 1989).

The Small Ant-blue has also been recorded from isolated localities in Queensland, New South Wales, South Australia, Western Australia and the Northern Territory (Common and Waterhouse 1981).

Habitat

Most records are from prominent hilltops in open eucalypt forest.

Threats

The main threat to the taxon is clearing of the habitat that supports Coconut Ants. The Action Plan for Australian Butterflies states that the apparent remnant population at Mt Piper in Victoria is small and subject to a variety of putative threats. The management is not adequate to alleviate threats including loss of ants caused by removal of dead wood, weeds and pasture grass invasion, and successional change.

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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 10 years is estimated to be 20% to 30%, based on (a) and (c) above.

This is based on monitoring during the early 1990s, remaining habitat and the operating threats to the taxon and the colonies of coconut ants.

Eligible under Criterion A4 as Vulnerable

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The population reduction over any 10 year period, including both past and future is projected to be 20% to 30%, based on (a), (b) and (c) above.

Future reduction is estimated based on the threats to colonies of coconut ants, however the taxon seems to be more widely distributed than early records presented.

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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon 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) and (iii) above as a result of pressure from grazing activities at Mt Piper.

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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

It is estimated that there are 100 to 500 mature individuals, but other thresholds under this criterion have not been met.

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 D as Endangered

The taxon is estimated to have 100 to 500 mature individuals. The current population is estimated based on monitoring and habitat distribution.

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

References

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