Threatened Species Assessment

Acrobolbus cinerascens
Grey Pouchwort

Taxonomy

Acrobolbus cinerascens (Lehm. & Lindenb.) Bastow.

Current conservation status

Categorised as Vulnerable in the 2014 Advisory list of rare or threatened flora (DEPI 2014).

Proposed conservation status

Critically Endangered in Victoria

Criteria A3bce+4bce

Species Information

Description and Life History

This is a marsupial leafy liverwort with unequally bilobed leaves that are intensely papillose and contain dark brown oil bodies.

Generation Length

The generation length of *Acrobolbus cinerascens* is inferred to be 11 to 25 years as proposed by Hallingbäck *et al.* (2000) for 'long' life taxa ('long-lived shuttles - perennial stayers') that are known to produce sporophytes.

Distribution

In Victoria the taxon is known only from three widely areas: the Otways, Wilsons Promontory, and the Baw Baw Range. It also occurs in Tasmania, New South Wales and New Zealand.

Habitat

The taxon grows in very wet gullies in Cool Temperate Rainforest and Wet Sclerophyll Forest.

Threats

As a taxon that occurs in cool temperate rainforest and wet sclerophyll forests it is threatened by increased fire frequency and intensity and drying of the habitat as a result of climate change. The two subpopulations on Wilson Promontory could not be relocated by D. Meagher in 2015 and may be extinct as a result of severe storm damage and landslides at both sites. The subpopulation in the Baw Baw Range was not relocated during an intense bryophyte survey by D. Meagher and N. Scarlett in 2008-09. The subpopulation in the Otways is in an area prone to Myrtle Wilt.

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:

Eligible under Criterion A3 as Critically Endangered

The population reduction over the next 33 to 75 years is projected to be 50 to 100%, based on (b), (c) and (e) above.

It is possible that all Victorian subpopulations are extinct. The taxon has not been seen in Victoria since 1995. If it does persist, all subpopulations are at sites that have been subject to disturbance or stress. Three of the four subpopulations are in Cool Temperate Rainforest, which is listed under the *Flora and Fauna Guarantee Act 1988* as a threatened community.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 33 to 75 year period, including both past and future, is suspected to be 50 to 100 %, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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:

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) is estimated to be 4,830 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented, considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating the individuals.

It is estimated to have 1 to 3 locations. The two Wilsons Promontory subpopulations may have been impacted or destroyed by severe weather and landslides, the Baw Baw ones may be extinct and the Otways one is in danger from the identified threats.

It has a continuing decline in (i), (ii), (iii), (iv), (v) above due to the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) is estimated to be 16 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 1 to 3 locations and has a continuing decline in (i), (ii), (iii), (iv), (v).

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 suspected that there are 40 to 300 mature individuals, but this qualifier is too weak to satisfy the criterion.

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 D 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

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

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