



Styphelia attenuata Grey Beard-heath

Taxonomy

Styphelia attenuata A. Cunn. (F. Muell.)

Up until 2020 this taxon was known as *Leucopogon attenuatus* A. Cunn

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A3ce+4ce; D2

Species Information

Description and Life History

The taxon is a decumbent to ascending shrub to c. 40 cm high; branchlets pubescent. Leaves ascending to subappressed, oblong to elliptic, 2-7 mm long, 1-2 mm wide, convex, ± concolorous, grey-green, minutely scabrous-hispid above, papillose beneath, sometimes with a few longer hairs; margins minutely denticulate, somewhat recurved; apex obtuse, with slender mucro to c. 1 mm long. Flowers white (pink in bud), solitary (rarely 2 or 3) in axils; bracteoles ± orbicular, 1-1.5 mm long, glabrous, or hispidulous toward apex; sepals ovate, 1.9-2.5 mm long, obtuse, glabrous to sparsely hispidulous; corolla 3-4 mm long, lobes equal to or slightly longer than tube, acute, spreading, densely long-bearded within; anthers lacking sterile tips; ovary glabrous, 5-locular, style 0.5-0.9 mm long, not exerted. Fruit ellipsoid, obovoid, ridged, 2-3 mm long. The taxon flowers from August to October (VicFlora 2018).

Generation Length

The generation length of *Styphelia attenuata* is estimated to be 35 to 70 years. The taxon is a long-lived perennial. It is likely to be a fire-sensitive, obligate, seed regenerator (OSR) and killed by intense fire. It probably recruits episodically from a persistent soil-stored seedbank at pre-settlement fire intervals of 35-70 years or more. The taxon may resprout following low intensity fire events and may also recruit opportunistically following localised disturbance events or in favourable seasonal conditions.

Distribution

The taxon occurs in the Eastern Highlands where it is scattered and generally rare, mostly south of the Divide in Central and East Gippsland such as Mt Hedrick near Maffra, Benambra-Wulgulmerang area and Mt Tingaringy. It extends to lowland elevations near Orbost and in the Genoa district with a disjunct inland record at Pine Mountain in the North East. The taxon also occurs in Queensland, New South Wales and the Australian Capital Territory (VicFlora 2018).

Habitat

The taxon is scattered and generally rare, but is locally abundant on dryish, rocky, usually elevated sites, extending to lowland elevations at Newmerella near Orbost and in the Genoa district (VicFlora 2018).

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Threats

Current threats are difficult to identify with confidence although several emerging threats can be identified. Although the taxon is well adapted to dry and often rocky habitats, it is likely to be at increasing long-term risk of adult mortality and recruitment failure in response to extreme and extended drought events, as predicted with climate change. The taxon may also be at long-term risk of seedbank depletion and local extinction in response to repeat fire events, also predicted with climate change, at intervals approaching the tolerable fire interval (TFI) for the taxon. This risk is currently mitigated by the relatively low rate of fuel accumulation in dry and rocky habitats. The taxon may also be threatened by casual or targeted browsing by Sambar Deer (*Rusa unicolor*), particularly during the early stages of recruitment.

The taxon is unlikely to have suffered significant historic decline through habitat loss to agriculture or habitat modification following forestry operations since almost all records are on public land in sites of low productivity.

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:

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 100 years is projected to be 15 to 35 percent (midpoint 25%), based on (c) and (e) above.

An estimate of future decline is based on the plausible impact of the identified threats.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 105 to 210 year period, including both past and future (up to 100 years in the future), is estimated to be 15 to 45 percent (midpoint 30%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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The taxon may have declined through the early impacts of the identified threats. The estimate of future decline is based on the plausible impact of the identified threats.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 23,733 km² which exceeds the threshold for criterion B.

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA, is estimated to be 186 km² but other thresholds under this criterion have not been met.

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>	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)
<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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals. There is no available estimate of total population size although it is likely to be in the thousands since the taxon is often recorded as locally common.

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 ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. It has a restricted distribution, with three locations. This restriction means that the taxon could become Critically Endangered or Extinct in a time frame of one or two generations in response to the identified threats, notably adult mortality and recruitment failure in response to extreme and extended drought events, and repeat fire events.

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

VicFlora (2020). Flora of Victoria, Royal Botanic Gardens Victoria: *Styphelia attenuata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/9c051af8-89ee-4bf6-94de-d9a781358179>