



Pultenaea acerosa Bristly Bush-pea

Taxonomy

Pultenaea acerosa R. Br. ex Benth.

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

Criterion B1ab(iii)

Species Information

Description and Life History

The taxon is a rigid, much-branched shrub to 60 cm high; stems terete, covered with white woolly hairs. Leaves alternate, linear-terete, 5-10 mm long, grooved on upper surface, glabrous, spreading or recurved; stipules 3-5 mm long, tapering into long, very slender tips, densely white-woolly on margin and midrib. Inflorescence a head-like cluster of 5-10 flowers at tips of branches; bracts absent; stipules of floral leaves slightly enlarged; calyx 5-6 mm long, glabrous, lobes tapering abruptly into long, slender points, margins ciliate; bracteoles attached immediately below calyx tube, ovate to lanceolate, with long, slender tips, margins ciliate, midrib occasionally hairy; standard 7-8 mm wide; ovary and lower half of style hairy. Pod ovate, covered with pale hairs, slightly exceeding calyx. The taxon flowers from October to November (VicFlora 2019).

Generation Length

The generation length of *Pultenaea acerosa* is estimated to be 15 to 25 years. The average interval of fire in the Big Desert area where this taxon occurs is around 20 years (Wellington & Noble 1985) and such fires would kill mature plants and recruitment would follow the fire.

Distribution

In Victoria, the taxon occurs in the Big Desert Wilderness Area and slightly further south in Yarrangook Nature Conservation Reserve. The taxon is widespread across the border in South Australia (VicFlora 2019).

Habitat

The taxon occurs in mallee vegetation on deep sand.

Threats

The taxon is threatened by a change in fire frequency. This could include a decrease in frequency, causing a lack of recruitment but the senescence of mature plants or, alternatively, it could cause an increase killing plants before they reach a reproductive age. A decrease in rainfall may also decrease recruitment.

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> <ul style="list-style-type: none"> (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.

Pultenaea acerosa Bristly Bush-pea

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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 34 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented. One of the subpopulations is isolated from the others by unsuitable habitat (i.e. cleared land) and the dispersal capability of this taxon is suspected to be relatively low since it reproduces by seeds, such that if they are dispersed by an animal vector it would be ants (Berg 1975).

It is estimated to have 1 location. It has a continuing decline in (iii) above due to climate change, specifically periods of insufficient rainfall and inappropriate fire regimes (e.g. change in the frequency and intensity of bushfires).

Pultenaea acerosa

Bristly Bush-pea

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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals. None of the three records of this taxon in Victoria indicate the number of individuals in the population, therefore, there is no available information about past, current or future population size.

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 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

Berg, R.Y. (1975). Myrmecochorous plants in Australia and their dispersal by ants. *Australian Journal of Botany*, 23, 475-508.



Pultenaea acerosa
Bristly Bush-pea

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Wellington, A.B., & Noble, I.R. (1985). Post-fire recruitment and mortality in a population of the mallee *Eucalyptus incrassata* in semi-arid, south-eastern Australia. *Journal of Ecology*, 73, 645-656.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Pultenaea acerosa*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/6a35be5e-193c-4a6d-b0ba-113e5c074a4b>