



Pultenaea tenella Delicate Bush-pea

Taxonomy

Pultenaea tenella Benth.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a trailing, semi-prostrate undershrub, branches to 40 cm long; stems terete with sparse, appressed hairs when young. Leaves in whorls of 3, elliptic, 3-5 mm long, c. 1 mm wide; apex acute but not pungent; upper surface glabrous; lower surface with a few sparse hairs on young growth, ultimately glabrous; margin inrolled; stipules lanceolate, c. 1 mm long. Flowers solitary in axils; bracts absent; calyx 5-6 mm long, covered with pale, appressed hairs; bracteoles attached below calyx tube, lanceolate, 1-1.5 mm long, brown, with sparse pale hairs; standard 9-10 mm wide; ovary and base of style covered with pale appressed hairs. Pod ovate, hairy. Flowers January-February (VicFlora 2019). *Pultenaea* taxa are often pollinated by bees (Armstrong 1979).

Generation Length

The generation length of *Pultenaea tenella* is estimated to be 20 to 60 years. DELWP's Vital Attribute database suggests that *P. tenella* is an obligate seeder, and that a portion of the soil seed bank germinates post-fire. It is intolerant of establishment in mature vegetation, takes 5 years to reach reproductive maturity, lives for up to 50 years, and has seeds that last 50+ years in the soil. However, McCarthy et al. (2003) considers it as a resprouter that takes only 1 year to reach reproductive maturity, and lives for around 30 years, whilst David Cameron (pers. comm.) suggests that the taxon is likely to live more than 50 years.

Fire is historically rare in alpine ecosystems, occurring perhaps once or twice a century and, on average, perennial shrubs are likely to reach the end of their reproductive life prior to another fire. In undisturbed vegetation, the average plant age of a re-seeder taxa is likely to be at the older end of the estimated lifespan, reflecting the recruitment pulse after the last fire and lower-level recruitment thereafter. Given the uncertainty regarding lifespan, a wider range for generation time has been estimated.

Distribution

The taxon is uncommon and inconspicuous, and is recorded from Mts Buffalo and Hotham, Bentleys Plains, Nunniong Plateau, Mt Wellington, and Lake Mountain. It is also found in NSW (VicFlora 2019).

Habitat

The taxon is restricted to damp alpine herbfields, grasslands, and the margins of bogs (VicFlora 2019).

Threats

The taxon is at risk from weed invasion, increasingly dry conditions from declining rainfall, and a subsequent increase in severity and intensity of bushfires. In some areas the taxon's habitat on the edges of bogs will disappear, while in other areas existing wet bogs might become better habitat, at least in the short term. There is no evidence that the taxon is grazed, but physical damage is likely through the activity of feral horses and deer. Subpopulations are expected to continue to decline, especially through tree invasion.

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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 60 to 180 years is estimated to be 10 to 30%, based on (c) and (e) above. Past reduction is based on a conservative estimate that around one quarter of habitat has disappeared since settlement.

The causes of reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 60 to 100 years is projected to be 20 to 50%, based on (c) and (e) above. Future reduction is based on the projected impacts of the identified threats, especially weed/tree invasion.

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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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 7,632 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented considering its limited dispersal ability and the lack of habitat separating individuals.

It is estimated to have 4 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the impacts of the identified threats, such as weed invasion, increasingly dry conditions from declining rainfall, and an increase in the severity and intensity of bushfires.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 212 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is estimated severely fragmented, has 4 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

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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 20,000 to 50,000 mature individuals, which exceeds the thresholds for criterion C.

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 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

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