Threatened Species Assessment

Pultenaea altissima
Tall Bush-pea

Taxonomy

Pultenaea altissima F. Muell. ex Benth.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is a shrub or small tree 2-3 m high; branches often drooping; stems angled, glabrous. Leaves alternate, narrowly obovate or oblanceolate 5-15 mm long, 1-2 mm wide, glabrous, concave; lower surface darker than upper; apex obtuse; margin flat or incurved; stipules 1.5-2 mm long, dark brown. Flowers axillary, clustered at tips of branches, often appearing umbellate; pedicels 1-2 mm long; bracts absent, persistent stipules present on floral leaves; calyx 4-5 mm long, glabrous; bracteoles attached at base of calyx tube, broadly ovate, c. 1 mm long, glabrous; standard 9-10 mm wide; ovary and style glabrous. Pod turgid, glabrous. The taxon flowers from September to October (VicFlora 2019).

Generation Length

The generation length of *Pultenaea altissima* is estimated to be 35 to 70 years. This is based on a plausible longevity of 25-50 years or more, and an inference that the taxon is a fire-sensitive obligate seed regenerator (OSR), recruiting episodically following rare fire events at a plausible pre-settlement interval of 35-70 years or more. The taxon may also recruit opportunistically (i.e. trickle recruitment) in response to localised site disturbance events.

Distribution

The taxon is restricted to the upper reaches of the Genoa River in East Gippsland and at Warrenbayne near Benalla, Chiltern and the Warby Ranges in the North East. It also occurs in Qld and NSW (VicFlora 2019).

Habitat

The taxon is restricted in Victoria to riparian forest and scrubs along the Genoa River and in a few box-ironbark forests in north-east Victoria (VicFlora 2019). Along the Genoa River, the taxon is associated with *Acacia floribunda* (White Sallow-wattle), *Acacia lanigera* (Woolly Wattle), *Calytrix tetragona* (Common Fringe-myrtle), *Dodonaea triquetra* (Large-leaf Hop-bush), *D. viscosa* (Sticky Hop-bush), *Grevillea neurophylla* (Granite Grevillea), *Kunzea* sp. (Upright form) (Forest Burgan), *Lasiopetalum macrophyllum* (Shrubby Velvet-bush), *Leptospermum obovatum* (River Tea-tree), *Pomaderris aspera* (Hazel Pomaderris) and *Tristaniopsis laurina* (Kanooka).

Near Chiltern, the taxon is recorded in association with *Eucalyptus sideroxylon* subsp. *sideroxylon* (Mugga). The habitat of the stands at Warrenbayne and the Warby Ranges is not recorded.

Threats

The taxon may have suffered minor historic decline between Genoa and Wangarabell in East Gippsland and, potentially, a more significant decline in the North East, in response to habitat loss to agriculture.

Key current and future threats include climatic drying and warming, and the increasing risk of repeat fire events at intervals below the tolerable fire interval (TFI) for the taxon, which is likely to be a OSR. The taxon may also be threatened by targeted or casual browsing by Sambar, particularly during the vulnerable early stages of post-fire recruitment as has been observed for *Pultenaea weindorferi* (Swamp Bush-pea). Sambar have undergone an explosive eruption in population density and local penetration throughout the forested regions of Victoria with a constantly expanding list of plant taxa reported to be targeted for herbivory or antler rubbing. However, the impacts of the 2019/20 wildfires may have reduced numbers, which may potentially be kept low by intense targeted control.

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:

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.

Past and future declines cannot be estimated with any confidence since there is no longitudinal monitoring data for Victorian occurrences.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 15,485 km² and the Area of Occupancy (AoO) is estimated to be 40 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 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.

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 D2 as Vulnerable

The taxon is estimated to be very restricted. It has a restricted distribution, with two locations and an estimated AoO of 40 km2, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within one or two generations in response to the impact of the identified threats.

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.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Pultenaea altissima*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/d9248579-a10a-4474-a6cf-9ceebf6c3a96