



Pimelea biflora Matted Rice-flower

Taxonomy

Pimelea biflora N.A. Wakef.

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 prostrate mat-forming undershrub; stems hairy when young. Leaves opposite, shortly petiolate, narrowly elliptic or elliptic, 4–10 mm long, 1–5 mm wide, concolorous, mid green, with short appressed hairs on undersurface, glabrous above. Inflorescence terminal, 2-flowered; involucral bracts absent or not differentiated from leaves. Flowers bisexual or rarely female, with short appressed hairs outside, glabrous inside, distally red, paler below; floral tube 4–7 mm long, style-portion 2–5 mm long, circumscissile above ovary; sepals 1–2 mm long; pedicel hairy; stamens inserted below and exceeded by sepals; anthers opening towards centre of flower; style not exerted. Fruit dry, enclosed. Flowers December-January (VicFlora 2019).

It is a small matted shrub to c. 10 cm high, assumed to be fire-sensitive, and recovers post-fire from a soil-stored seedbank of unknown longevity. Reproduction is by seed only, and inflorescences are 2-flowered and terminal. Its breeding system is unknown, however it is likely to be routinely self-pollinating, but also probably insect pollinated, particularly by Lepidoptera visiting for a nectar reward. Flowers are bisexual or rarely female, suggesting outcrossing or self via insects. Recruitment is continuous but there is likely to be a pulse of post-fire germinants. Fruits are passively dispersed but also perhaps by adhering to mammals.

Generation Length

The generation length of *Pimelea biflora* is suspected to be 30 to 60 years. This is based on the longevity of plants and continuous recruitment, hence population turnover.

Distribution

The taxon occurs in north east alpine and subalpine Victoria. It is also found in New South Wales and the Australian Capital Territory at similar altitudes.

Habitat

The taxon occurs in alpine and sub-alpine treeless *Poa* dominated tussock-grassland and open herbfields and heathland, on substrates derived from granite, Tertiary basalt, and other geologies. It is found at an altitude of c. 1,500 m where snow cover persists for up to 5 months.

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Threats

Threats to the taxon include the effects of climate change such as decreased rainfall and snowfall, increased evaporation, and extreme temperatures, increased frequency and intensity of fire, soil loss of bare post-fire substrates resulting from severe rainfall events, weed invasion, and grazing and mechanical damage by horses, deer, rabbits, and hares.

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

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 148 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is observed to be severely fragmented as it is widely scattered over c. 185 km southwest to northeast, and most subpopulations are thereby reproductively isolated.

It is inferred to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the impacts of the identified threats, particularly climate change, weed invasion, and feral mammals.

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

No reliable estimate of the total population size for the taxon is available.

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:

Ineligible under Criterion D

There is insufficient evidence to determine the number of mature individuals.

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:

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Rye, B.L. (1990). *Pimelea*. In D. Chapman (Ed) *Flora of Australia* Vol 18 (pp. 134-211). Melbourne, CSIRO.

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