

Threatened Species Assessment



Philotheca myoporoides subsp. *brevipedunculata* Suggan Buggan Wax-flower

Taxonomy

Philotheca myoporoides subsp. *brevipedunculata* M.J. Bayly

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

Criteria B1ab(iii)+2ab(iii); D

Species Information

Description and Life History

The taxon is a shrub to c. 1 m high. Leaves oblong-elliptic to obovate, 11-19 mm long, 4-7 mm wide, flat to slightly concave above, midrib distinct on lower surface, apex rounded to obtuse. Inflorescences 1(-3)-flowered; peduncles 0-2 mm long. Flowers August (1 record) (VicFlora 2016).

Generation Length

The generation length of *Philotheca myoporoides* subsp. *brevipedunculata* is estimated to be 5 to 15 years. This is based on Rutaceae taxa, including *Philotheca*, and how long they take to mature after post fire recruitment, which for most taxa is at least four years, and the longevity of most taxa, which may be between 10 and 20 years (Auld 2001).

Distribution

In Victoria, the taxon is recorded from a single collection in the Rocky Range Faunal Reserve, 5 km SW of Suggan Buggan in far East Gippsland. It also occurs in New South Wales.

Habitat

The taxon occurs in dry, rocky open forest in rain-shadow country.

Threats

The taxon is threatened by inappropriate fire regimes, mainly fires that are too infrequent as it is likely to reach reproductive age quickly. Other plausible threats include recruitment failure in response to extreme drought stress, climatic drying, and browsing.

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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 style="text-align: center;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> (a) direct observation [<i>except A3</i>] (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.

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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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location as it is only known from a single collection in Victoria.

It has a continuing decline in (iii) above based on the current and projected impact of the identified threats, such as inappropriate fire regimes, extreme drought stress, climatic drying, and browsing.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is estimated to have 1 location and has a continuing decline in (iii) 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 as Data Deficient

The taxon is estimated to have 0 to 50 mature individuals, however other thresholds under this criterion have not been met.

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: AaO: < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Critically Endangered

The taxon is estimated to have 0 to 50 mature individuals. Its sole collection in Victoria from 1984 mentions that less than 20 plants were seen. It has not been recorded in Victoria since, and as a result it is unknown what the current number of mature individuals are, however it is unlikely that it has more than doubled its population since that time.



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Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

Auld, D. (2001). The ecology of the Rutaceae in the Sydney region of south-eastern Australia: poorly known ecology of a neglected family. *Cunninghamia* 7: 213-239.

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

Rozefelds, A.C. (2001). Notes on the *Philotheca myoporoides* complex (Rutaceae) in Victoria. *Muelleria* 15: 15-18.

VicFlora (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Philotheca myoporoides* subsp. *brevipedunculata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/1bbdc68b-5070-4658-bcd9-c28d4e279144>