

Pseudanthus ovalifolius Oval-leaf Pseudanthus

Taxonomy

Pseudanthus ovalifolius F. Muell.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A2bc+3bce+4bc; B2ab(ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a monoecious spreading wiry shrub 15-60 cm high, densely branched, usually glabrous. Leaves usually alternate, oblong-elliptic, mostly 1-5 mm long, 1.5-2 mm wide, apex obtuse and often recurved, concave above, glabrous; petiole to c. 0.5 mm long. Male flowers with sepals more or less oblong, c. 2 mm long, whitish; inner 3 stamens nearly as long as sepals, outer ones shorter. Female flowers with a narrow ovary. Capsule obloid, 3-5 mm long, 1.5-2 mm wide; seed 3-4 mm long, reddish-brown. The taxon flowers from August to November (VicFlora 2018). As plants are male or female, it is possible that the taxon has no ability to produce offspring.

Generation Length

The generation length of *Pseudanthus ovalifolius* is estimated to be 20 to 40 years. This is based on the taxon possibly being a very long-lived shrub with a longevity of potentially up to 60 years, a pre-settlement fire interval plausibly in the 20-40 year range, and the likelihood that episodic fire-induced mass recruitment greatly exceeds the proportion of recruitment responding continuously to small scale soil disturbances.

Distribution

The taxon is of disjunct occurrence in Victoria, with populations in the Little Desert, Grampians, Bendigo, Brisbane Ranges, and Gippsland Lakes. The taxon also occurs in New South Wales and Tasmania (VicFlora 2018).

Habitat

The taxon is usually found on dry sandy, or shallow shaley soils, in woodland or heathland (VicFlora 2018).

Threats

The taxon is potentially threatened by imposed anthropogenic fire regimes and climatic warming and drying which, synergistically, increase the risk of recruitment failure in response to repeat fire events and extreme drought stress. Plants in the Gippsland Lakes area may be at risk from tidal inundation and increase salinity. Some populations are on private land and may be threatened by land clearing. The impacts of grazing on this taxon are currently unknown, however plants in the Gippsland area may be threatened by grazing and trampling by Hog Deer (*Axis porcinus*), and goats in the Mallee/Wimmera area may also have grazing impacts. The small population size in the Brisbane Ranges and lack of genetic diversity is a major issue for this population. Plants on sandy rises in the Mallee/Wimmera area may be at risk of invasion by weeds, particularly grasses such as *Ehrharta calycina*, while

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plants in the Gippsland area may be at risk of shrub invasion by *Kunzea* and *Leptospermum* taxa. Euphorbiaceae are not commonly known to be affected by *Phytophthora*.

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>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p> <p>based on any of the following:</p>			

Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 60 to 120 years is estimated to be 20 to 40%, based on (b) and (c) above.

Past decline is based on an estimated loss of habitat due to land clearing in the Wimmera, Bendigo, and Gippsland lakes areas.

The causes of the 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 10 to 30%, based on (b), (c) and (e) above.

Future decline is based on a predicted reduction in habitat quality due to climatic warming and drying, increased fire frequency, grazing, and weed invasion. Future decline is likely to be less than previous declines.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 60 to 120 year period, including both past and future (up to 100 years in the future), is estimated to be 20 to 40%, based on (b) and (c) above. The causes of reduction may not have ceased, be understood or be reversible.

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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 Vulnerable

The Area of Occupancy (AoO) across the taxon's range is estimated to be 132 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

It is estimated to have 6 locations as each subpopulation may be variably affected by bushfire or stochastic events.

It has a continuing decline in (ii), (iii), (iv) and (v) above as a result of drought stress, inappropriate fire regimes, the frequency and intensity of bushfires which are likely to increase in a warming and drying climate, feral animals, and weed invasion.

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

It is estimated that there are 10,000 to 30,000 mature individuals, which exceeds the thresholds for criterion C.

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

It is estimated that there are 10,000 to 30,000 mature individuals which exceeds the thresholds for criterion D.

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 (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Pseudanthus ovalifolius*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/08de803a-45ff-4625-bd0c-70203061f13f>