

Lasiopetalum schulzenii Drooping Velvet-bush

Taxonomy

Lasiopetalum schulzenii (F. Muell.) Benth.

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criterion B1ab(iii)

Species Information

Description and Life History

The taxon is a shrub to 2 m high. Leaves cordate, 3-7 cm long, 2-5 cm wide, drooping, stellate-hairy on both surfaces but sometimes almost glabrous above; margins somewhat sinuate; petioles 4-10 mm long. Inflorescence 5-12-flowered, more or less open; bracteoles 1-2(-3), 2-5 mm long. Calyx segments 6-10 mm long, white, the outer surface densely stellate-hairy, the inner surface glabrous or slightly hairy; petals 1 mm long, dark red-brown; anthers brownish, c. 1.5 mm long; style with conspicuous tufts of reflexed hairs. Capsule c. 4 mm diam., conspicuously hairy. The taxon flowers mainly from September to December (VicFlora 2019).

The taxon has very localised terrestrial seed dispersal, although seeds and certainly fruits are expected to float in freshwater and seawater providing a potential aquatic means of dispersal.

Generation Length

The generation length of *Lasiopetalum schulzenii* is estimated to be 15 to 25 years. This is based on a longevity of plausibly 30 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

In Victoria, the taxon occurs near Port Campbell and Portland. The taxon also occurs in South Australia (VicFlora 2019).

Habitat

The taxon is confined to clifftop and dune woodland and heathland, favouring sandy soils derived from limestone (VicFlora 2019).

Threats

This taxon is threatened by climatic drying, with increased drought likely to cause mortality and effect recruitment. Increased browsing pressure by wallabies, due to habitat loss and drought, is likely to affect this taxon. The small population size and isolation may be reducing the gene pool and potentially affecting the survival of this taxon.

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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>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 45 to 75 years is estimated to be 30 to 40% based on (b) and (c) above.

Historic decline in habitat of this taxon due to land clearing of limestone areas is expected to be considerable, possibly up to 50% since European settlement. In addition, it is likely to have once occurred in coastal limestone areas, such as Port Fairy.

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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 across the taxon's range is estimated to be 69 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented. Each discrete occurrence represents small and isolated habitat remnants in a highly fragmented and degraded rural landscape. The occurrences are separated by distances greatly exceeding the dispersal range of the taxon, which has no specialised mechanism for long-distance dispersal.

It is estimated to have one location. It has a continuing decline in (iii) above due to ongoing prolonged drought conditions, which are regarded as more extreme than historically experienced and are expected to continue and worsen into the future.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has one location and has a continuing decline in (iii).

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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

It is estimated that there are 500 to 1,000 mature individuals, but 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: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under criterion D1 as Vulnerable

It is estimated that there are 500 to 1,000 mature individuals. The current population estimate is based on herbarium record notes and general observations. Plants occur in highly localised stands where they can be quite common, with hundreds of plants present. Based on the number of sites, it is estimated there are fewer than 1000 mature individuals in Victoria.

Eligible under criterion D2 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.



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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: *Lasiopetalum schulzenii*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/3c0b6423-ef95-4f57-ab16-02032041bf95>