

Pterostylis planulata Grampians Rustyhood

Taxonomy

Pterostylis planulata D.L. Jones & M.A. Clem.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2c+4c

Species Information

Description and Life History

The taxon is a flowering plant to 20 cm tall, stem leaves 3-4, closely sheathing. Rosette leaves 5-8, elliptic to ovate, 1.8-3 cm long, 4.5-8 mm wide. Flowers 1-7, porrect, c. 1.5 cm long, transparent with green lines and suffusions; dorsal sepal with straight or upcurved filiform point 20-30 mm long; lateral sepals deflexed, conjoined part broadly ovate in outline when flattened, shallowly concave to nearly flat, margins slightly upcurved, densely ciliate, free points filamentous, 20-35 mm long, deflexed, more or less parallel, c. 10 mm apart at the tips; petals with a poorly developed proximal flange. Labellum oblong-ovate to oblong-obovate, 5.5-7 mm long, 3-3.5 mm wide, dark green, thin-textured, margins scalloped; marginal hairs 9-12 pairs, c. 1 mm long, white, spreading; basal lobe sloped backwards, with 2 prominent, forward-pointing hairs c. 3 mm long. The taxon flowers from October to November (VicFlora, 2018).

Generation Length

The generation length of *Pterostylis planulata* is estimated to be 20 to 40 (midpoint 30) years. Generation time for non-colonial terrestrial orchids is estimated to be a nominal 30 years based on the annual replacement of the mother tuber by daughter tubers. Whilst somatically immortal, each individual is susceptible to endogenous exhaustion or environmental causes of mortality at rates likely to result in replacement at intervals of several decades only. Such orchids are classed as obligate seed regenerators as they are reliant on seed-based recruitment for population maintenance.

Distribution

The taxon is localised in western Victoria between Halls Gap and Kaniva (Backhouse *et al.*, 2016). The taxon also occurs in South Australia (VicFlora 2018). The taxon is somewhat restricted to the Little Desert, where it is invariably found in small to large populations of single, scattered plants. It seems to be replaced in the Big Desert by the very similar *P.* 'north-west mallee', which has previously been confused with *P. planulata* (Backhouse *et al.* 2016).

Habitat

The taxon grows in mallee, mallee heath and dry woodland, sometimes in rocky areas, on well-drained clay loams, sometimes gravelly soils. The altitude ranges from 100-350 metres above sea level (Backhouse *et al.*, 2016). It grows in shallow soils on rock ledges under low shrubs (VicFlora, 2018).

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Threats

There has probably been some historic decline in distribution and abundance, based on the wide distribution of current subpopulations and the extensive habitat clearing and degradation that has occurred across the range of the taxon.

Some subpopulations and habitat may be risk from disturbance, grazing and increasingly dry conditions from declining rainfall. Very small subpopulations are highly susceptible to stochastic events causing major decline or local extinction within a very short time frame.

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>	<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>
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Evidence:

Eligible under Criterion A2 as Endangered

The population reduction over the past 60 to 120 years is inferred to be 45 to 65%, based on (c) above.

Past decline is based on extensive loss of habitat and degradation that has occurred across the range of the taxon.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A4 as Endangered

The population reduction over any 60 to 120 year period, including both past and future (up to 100 years in the future), is inferred to be 45 to 65%, based on (c) above.

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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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4,315 km² and the Area of Occupancy (AoO) is estimated to be 28 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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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			

Evidence:

Ineligible under Criterion C

The taxon is known from at least seven subpopulations. It is estimated that there are 340 to 670 mature individuals, based on sporadic surveys and Victorian Biodiversity Atlas records but other thresholds under this criterion have not been met.

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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:

Eligible under criterion D as Vulnerable

It is estimated that there are 340 to 670 individuals.

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

References

Backhouse, G., Kosky, B., Rouse, D., and Turner, J. (2016). *Bush Gems: A Guide to the Wild Orchids of Victoria, Australia*. Melbourne, Victoria: EBook.

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

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Pterostylis planulata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e642999e-7e37-411c-be17-8d4318dc29b3>