



Pterostylis crassa Fleshy Greenhood

Taxonomy

Pterostylis crassa (D.L. Jones) G.N. Backh.

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

Species Information

Description and Life History

The taxon is a flowering plant 15-40 cm tall, stem leaves 4-7, spreading, linear-lanceolate, 15-75 mm long, 3-7 mm wide. Rosette leaves 3-5, ovate to ovate-lanceolate, 5-25 mm long, 4-10 mm wide. Flowers 1-6, 14-16 mm long, shiny, translucent green with darker green stripes, sepal tips orange-brown; galea decurved in the distal third; dorsal sepal with an acuminate apex; lateral sepals deflexed, conjoined part broadly ovate, 13-15 mm long, 7-9 mm wide, free points 5-6 mm long, divergent; petals with anterior margin broadly curved, basal flanges absent, apex obtuse. Labellum oblong, 6-7.3 mm long, 3-3.8 mm wide, brown with a darker brown to blackish central stripe, covered with numerous, short, transparent acicular cells, apex attenuate, notched. The taxon flowers from September to October (VicFlora 2015).

Generation Length

The generation length of *Pterostylis crassa* 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 being reliant on seed-based recruitment for population maintenance.

Distribution

The taxon is endemic to Victoria, where it is apparently confined to the Omeo and Wulgulmerang districts (VicFlora 2015) in the mountains of the far east between Ensay and Stanleyville within an altitudinal range of 630-1000 metres above sea level. Much of its potential habitat is remote, rugged, and poorly accessible.

Habitat

The taxon occurs in rainshadow open forest and woodland on well-drained gravelly or stony soil (VicFlora 2015).

Threats

Subpopulations and habitat may be at risk from disturbance from changed fire regimes (especially planned burning) 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:

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 B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 2,295 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented based on the taxon's limited dispersal ability, the barriers to dispersal and/or the lack of habitat separating the individuals. Such fragmentation precludes the possibility of recolonisation in the event of local extinction.

The mountains of East Gippsland, where all subpopulations occur, is deemed as a single location due to the uniform impacts of the identified threats. It has a continuing decline in (iii) above. Most habitat is protected in the extensive forests of East Gippsland, but may be at risk from disturbance and increasingly dry conditions from reducing rainfall, possibly leading to decline and loss of some subpopulations. Up to 85% of the habitat may have been impacted by the 2020 bushfires.

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 the taxon is estimated to be severely fragmented, 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

It is estimated that there are 100 to 250 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 D as Endangered

The taxon is estimated to have 100 to 250 mature individuals based on sporadic surveys and VBA records.

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

References

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