

Prasophyllum sp. aff. *montanum* Mountain Leek-orchid

Taxonomy

Prasophyllum sp. aff. *montanum* A sensu Rouse (2002)

VicFlora does not recognise *Prasophyllum* aff. *montanum* A as a distinct taxon. Accordingly this assessment combines *Prasophyllum* aff. *montanum* A and B as *Prasophyllum* spp. aff. *montanum*.

(VicFlora 2016): *Prasophyllum* sp. aff. *montanum* is related to *P. montanum* but usually flowers earlier, has smaller flowers with free lateral sepals and a different labellum structure.

Prasophyllum sp. aff. *montanum* differs from the following taxa (inserted from Backhouse et al. 2016):

“*Prasophyllum sylvestre*, which occurs in Gippsland, flowers from late spring to early summer and has a white to pale pink labellum that is often pinched about the mid-point, has a green to pinkish callus and has relatively long, narrow, upcurved column appendages. *Prasophyllum* sp. aff. *validum*, which is widely distributed at low altitude across inland Victoria, flowers in late spring to early summer and has relatively long, narrow, upcurved column appendages and joined lateral sepals.”

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criterion B2ab(iii,v)

The Advisory list of rare or threatened plants in Victoria (DEPI 2014) identified *Prasophyllum* sp. aff. *montanum* A as rare. VicFlora does not recognise this taxon, and treats it as a synonym of *Prasophyllum* sp. aff. *montanum*, which is now the subject of this assessment.

Species Information

Description and Life History

The taxon has a flowering stem slender to stout, 40-80 cm tall. Leaf-blade 15-20 cm long, 3-6 mm diam. at base, apex suberect, senescent at flowering time. Flowers 10-50, mostly greenish or yellowish green with pink or white markings, fragrant, in a moderately crowded spike 15-20 cm long; ovary obovoid, 4-6 mm long; sepals 8-10 mm long, dorsal sepal ovate-lanceolate, lateral sepals free, linear-lanceolate, recurved, parallel or slightly divergent; petals linear-oblong, 8-10 mm long. Labellum sessile, porrect, 6-8 mm long, recurved at about right angles near middle, lamina usually pink or white, margins wavy to crinkled, apex apiculate; callus plate prominently raised, greenish, wrinkled, channelled, broad at base then tapered, extending almost to the labellum apex. Column appendages linear-oblong, c. 2 mm long (VicFlora, 2015).

The taxon flowers from late November to early January. Leaf probably arises in early spring with plants flowering in early summer, setting seed and going dormant by late summer (Backhouse et al., 2016).

Generation Length

The generation length of *Prasophyllum* sp. aff. *montanum* 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



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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 reliant on seed-based recruitment for population maintenance.

Distribution

The taxon is endemic to Victoria, where it occurs in the foothills and mountains of the east, from Alexandra to the NSW border. The altitude ranges from 300-1,100 metres ASL (Backhouse et al., 2016). The taxon is conserved in National Parks, including Alpine and Snowy River NP. The loss of potential habitat has been fairly low.

Habitat

The taxon grows on dry, stony ridges and slopes in open forest and montane woodlands, on clay loam, often gravelly soils (Backhouse et al., 2016; VicFlora, 2015).

Threats

The taxon has suffered historic decline through habitat degradation caused by a range of ongoing threatening processes. Past, current, and future threats include herbivory by a range of exotic organisms such as slugs, snails, Red-legged Earth Mites, rabbits, goats, domestic stock (i.e., horses, sheep, cattle) and, potentially, feral deer. The taxon is also threatened by continuing incremental habitat loss and degradation through agricultural intensification in some districts, roadside management, and fire management activities. The taxon is threatened in all habitats by incremental weed invasion and increased competition. It is at increasing risk of climatic drying and warming, and increasing frequency and intensity of fire, including planned burning, bushfire, and back-burning. The taxon may also be threatened by soil compaction, surface erosion, leaf litter loss, destruction of cryptogamic crusts and moss beds, and by a decline in mycorrhizal fungal activity.

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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 [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 60 to 120 years is suspected to be 30%, based on (c) and (e) above.

Past decline is based on the impact of the identified threats.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 60 to 100 years is projected to be 30 to 50% (midpoint 40%), based on (c) and (e) above.

Past decline is based on the impact of the identified threats.

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 30 to 50% (midpoint 40%), based on (c) and (e) 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:

Eligible under Criterion B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 11,200 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the landscape scale, with geographically isolated occurrences situated at separations typically exceeding the dispersal range of the taxon.

It is estimated to have 1 location based on the pervasive impacts of the identified threats, which are likely to operate consistently across the Victorian range of the taxon.

It has a continuing decline in (iii) and (v) above, based on the current and projected impact of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 40 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 1 location and has a continuing decline in (iii) and (v) 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:

Eligible under Criterion C1 as Vulnerable

It is estimated that there are 2,500 to 5,000 mature individuals, based on DEWLP records and personal observations.

There is estimated to be a continuing decline of 30 to 50% within three generations.

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 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.

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.



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