

## *Prasophyllum argillaceum* Delicate Leek-orchid

### Taxonomy

*Prasophyllum argillaceum* D.L.Jones & D.Rouse

This taxon was previously known as *Prasophyllum* aff. *petilum* (Wangaratta) sensu Rouse (2002).

Plants resembling *P. argillaceum* are known from similar, seasonally wet grassy woodland habitat near Murchison. They differ from *P. argillaceum* in having generally shorter, broader floral segments, more divergent lateral sepals and less spreading petals. While tentatively included here with *P. argillaceum*, the Murchison population is likely to be described as a distinct species (VicFlora 2019).

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)

### Species Information

#### Description and Life History

Flowering stem slender, 15-30 cm tall. Leaf-blade to 20 cm long, 2-3 mm diam. at base, apex erect, senescent at flowering. Flowers 10-25, small, white, pale brown or reddish brown, scented, in a moderately crowded spike 6-15 cm long; ovary obovoid, to 3 mm long; sepals 4-5 mm long, dorsal sepal ovate-acuminate, lateral sepals free, lanceolate, recurved, parallel to divergent; petals linear, 4-5 mm long. Labellum subsessile, 4-4.5 mm long, reflexed through about 90 deg. near middle, often constricted above bend, lamina white, margins irregular; callus plate prominently raised, broad at base then tapered, extending almost to the labellum apex. Column appendages blunt, c. 1.5 mm long. Flowers September-October (VicFlora 2019).

#### Generation Length

The generation length of *P. argillaceum* is estimated to be 30 to 50 (midpoint 40) 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, every 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 endemic in Victoria where it is known only from near Wangaratta and perhaps Murchison.

#### Habitat

The taxon's occurrence near Wangaratta is known only from a patch of remnant grassland/*Eucalyptus camaldulensis* grassy woodland on winter-wet clay soils. If the Murchison orchids are found to be *P. argillaceum*,

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they occur in similar, seasonally wet grassy woodland (VicFlora 2019). The grassland habitat is similar to that of *Prasophyllum petilum* in New South Wales and the Australian Capital Territory which it resembles.

### Threats

The taxon is threatened by habitat fragmentation, weed invasion, grazing and pugging by stock, and climatic drying.

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

### Evidence:

#### Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

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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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 (EoO) across the taxon's range is estimated to be 8 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the AoO to ensure consistency with the definition of AoO as an area within EoO.

It is estimated to have 1 location. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

The taxon is considered to occur in one location as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present.

#### Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 8 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is estimated to have 1 location. It has a continuing decline in (i), (ii), (iii), (iv) 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 C2 as Critically Endangered

It is estimated that there are 100 to 250 mature individuals. The taxon's population is subject to a continuing decline due to the identified threats. The percentage of mature individuals in one subpopulation is 90-100%.

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 <sup>2</sup> or number of locations ≤ 5

### Evidence:

#### Eligible under Criterion D as Endangered

It is estimated that there are 100 to 250 mature individuals.

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

### References

- Backhouse, G., and Jeanes, J. (1995). *The Orchids of Victoria*. Melbourne, Victoria: Melbourne University Press.
- 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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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](https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

Jones, D, L. (2006). *A complete guide to native orchids of Australia including the island territories*. Frenchs Forest, N.S.W.: New Holland.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Prasophyllum argillaceum*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/90a2e3c2-864e-42dd-afe8-2c54e80472dc>