Threatened Species Assessment

Prasophyllum roseum
Pink-lip Leek-orchid

Taxonomy

Prasophyllum roseum sensu Rouse (2002)

The species was named and described in 2017; it was previously known as *Prasophyllum.* sp. aff. *fitzgeraldii* A. It is closely related to the South Australian *P. fitzgeraldi*i, but that species has a darker pink to reddish labellum lamina and the callus plate has a different structure. The true *P.fitzgeraldii,* as represented by the type specimen from the Lofty Ranges, S.Aust., in not believed to occur in Victoria.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Prasophyllum fitzgeraldii* (SAC 1997).

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

Proposed conservation status

Critically Endangered in Victoria

Criterion C2a(i,ii)

Species Information

Description and Life History

Flowering stem slender, 20-50 cm tall, wholly greenish. Leaf-blade 15-40 cm long, 2-4 mm diam. at base, erect, free for less than half its length, apex senescent at flowering. Flowers fragrant, 10-30, not widely opening, mostly green with a pink labellum, in a moderately dense raceme 3-8 cm long; ovary sessile, obovoid, 4-6 mm long, papillose; sepals 4-6 mm long, dorsal sepal ovate-lanceolate, acute, green with darker streaks, lateral sepals free, linear-lanceolate, parallel to slightly divergent, recurved, green with brownish streaks, apex entire or bidentate; petals oblong, 4-5 mm long, incurved to slightly spreading, green to pink. Labellum sessile, ovate to ovate-lanceolate, 4-5 mm long, reflexed at right-angles near middle, lamina pink, rarely white, channelled, proximal margin entire, distal margin crenulate and papillate; callus ovate, 2-2.5 mm long, raised, narrowing distally and extending to just beyond labellum bend, dark or yellowish-green, velvety. Column appendages oblong, to 2 mm long, greenish-white. Flowers Sep.-Oct.

Generation Length

The generation length of *Prasophyllum roseum* is suspected to be 20 to 50 (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 (OSRs) reliant on seed-based recruitment for population maintenance.

Distribution

In Victoria, the taxon is confined to the west between Edenhope, Nhill, and Stawell. The Pomonal subpopulation has not been seen for over 20 years and may be extinct (VicFlora 2017). The taxon is likely to have been more widespread and abundant but most habitat has been lost in clearing for agriculture.

Habitat

The taxon occurs in heathy woodland and box-ironbark forest on clayey and/or gravelly (often lateritic) soils (VicFlora 2017).

Threats

Most habitat has been lost in clearing for agriculture, with a resultant likely loss of subpopulations. Although remaining habitat is protected in reserves, subpopulations are likely to decline over time from habitat changes through impacts of disturbance, weeds, predation, drying conditions from reducing rainfall and modified fire regimes. Very small subpopulations are at risk from stochastic events. It is highly unlikely that such small subpopulations will survive without direct and sustained management intervention.

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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 Critically Endangered

The population reduction over the past 60 to 150 years is inferred to be 40 to 90%, based on (a), (c) and (e) above.

The taxon is likely to have been more widespread in region prior to extensive clearing for agriculture.

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

Eligible under Criterion A3 as Endangered

The population reduction over the next 60 to 100 years is projected to be 30 to 80% (midpoint 60%), based on (c) and (e) above.

Subpopulations are likely to decline from habitat changes through impacts of disturbance, weeds, predation, drying conditions from reducing rainfall and modified fire regimes.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 60 to 150 year period, including both past and future (up to 100 years in the future), is inferred to be 50 to 90%, based on (a), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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 B as Endangered

The Extent of Occurrence (EoO) is estimated to be 1,407 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 12 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

Any two of (a), (b) or (c) above are also satisfied.

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 Critically Endangered

It is estimated that there are 100 to 300 mature individuals, based on sporadic surveys. There is estimated to be a continuing decline of 20 to 60% within one generation.

Eligible under Criterion C2 as Endangered

It is estimated that there are 100 to 300 mature individuals. The number of mature individuals is projected to continue to decline and the number of mature individuals in one subpopulation is fewer than 250.

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 km2 or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Endangered

It is estimated that there are 100 to 300 mature 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 Tuner, J. (2016). *Bush Gems: A Guide to the Wild Orchids of Victoria, Australia* EBook: Melbourne, Victoria.

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

Jones, D.L. and Bates, R.J. (2017). Five New Species in the complex of taxa surrounding *Prasophyllum fitzgeraldii* Orchidaceae). *Australian Orchid Review* 82 (3): 29-45.

SAC (1997). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 422 *Prasophyllum fitzgeraldii*

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Prasophyllum roseum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/97fb6b07-4c74-4b54-b91a-c99555e4bfe4