Threatened Species Assessment

Prasophyllum sylvestre
Forest Leek-orchid

Taxonomy

Prasophyllum sylvestre R.J. Bates & D.L. Jones

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,v)+2ab(iii,v); C1

Species Information

Description and Life History

Flowering stem is slender, green, 20-50 cm tall. Flowers 5-30, to 10mm across, fragrant, arranged in a fairly long, open spike; mainly yellowish green, with some brown striations, labellum lamina white or pink, callus green to pinkish. Leaf single, terete, to 40cm long, erect, slender, green, reddish at base; free section to 15cm long, sub-erect and non-sheathing, 3-4 mm diam. at base, apex suberect, attenuated. Ovary is 4-5mm long, on a short pedicel, obovoid. Dorsal sepal to 9 mm long, ovate-lanceolate with appointed apex, obliquely deflexed or incurved. Lateral sepals to 12 mm long, obliquely erect, joined for about half their length, linear-lanceolate, tips held close together, margins incurved, apex keeled. Petals to 8 mm long, narrow, linear, incurved to spreading, acute. Labellum to 8 mm long, obovate to oblong with a short basal claw, pink or whitish, recurved at about right-angles near middle, margins slightly crenulated, apex touching or protruding between lateral sepals, distal half suddenly reflexed and constricted into a narrow tail-like portion, margins crisped or undulate. Callus linear-ovate, broad at base, raised, fleshy, channelled, yellowish or pink, glistening, extending almost to labellum apex. Column appendages pale pink, linear, sigmoid, ~ 2 mm long. Flowering time is October - November - December. Flowering is enhanced by fire and other disturbance.

Generation Length

The generation length of *Prasophyllum sylvestre* 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 (OSRs) reliant on seed-based recruitment for population maintenance.

Distribution

The distribution of the taxon is poorly known due to confusion with several closely related species. It is apparently an uncommon species restricted in Victoria to far East Gippsland (VicFlora 2015) with a western outlier at Cowwarr Weir near Heyfield in Central Gippsland.

Habitat

The taxon is found in woodlands, tall open forest, the edges of rainforests and wet closed forests. Soils are well-drained sandy loams (VicFlora 2015).

Threats

Flowering is enhanced by fire and other disturbance, suggesting the taxon is resilient under current and historic disturbance regimes. Very small stands, however, are highly susceptible to stochastic events causing major decline or local extinction within a very short time frame. In the longer term, climatic drying and warming are likely to cause an incremental contraction in the extent of available habitat. Rainforest and Riparian Forest in particular, are undergoing demonstrable decline in the region and subject to quantum contractions in extent as the frequency, intensity and landscape scale of fire events increase.

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:

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.

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 B1 and B2 as Endangered

The Extent of Occurrence (EoO) is estimated to be 3,926 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 24 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is severely fragmented anthropogenically at the landscape scale with all known occurrences at separations likely to greatly exceed the dispersal range of the taxon. Although orchid seed are very small, highly mobile and easily dispersed by wind, most seed are deposited within 10-100 m of the parent plant with very few seeds dispersed at the kilometre scale.

A single location is identified for occurrences in East Gippsland based on similar habitat, topography and climate. A second location may be identified for the disjunct western outlier at Cowwarr in Central Gippsland which may be subject to a somewhat distinct suite of threats.

It has a continuing decline in (iii) and (v) above.

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 Endangered

It is estimated that there are 300 to 1,000 mature individuals. The taxon flowers most profusely after summer bushfires, when many tens of flowering plants can be seen in some subpopulations. These events are very infrequent, only occurring every few decades, and the number of flowering plants declines rapidly in subsequent years. In most years substantially fewer than 200 flowering plants across all subpopulations are seen.

It has an inferred continuing decline, and the number of mature individuals in each 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 Vulnerable

The taxon is estimated to have 300 to 1,000 mature individuals.

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

References

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