Threatened Species Assessment

Corybas fordhamii
Swamp Pelican-orchid

Taxonomy

Corybas fordhamii (Rupp) Rupp

Other scientific names *Anzybas fordhami* (Backhouse et al. 2016).

The taxon is similar to *C. unguiculatus,* but that species flowers earlier, has a plain purplish labellum that is slightly longer than the dorsal sepal and grows in drier habitats. (VicFlora 2019).

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 A2ac+3c+4ac

Species Information

Description and Life History

Flowers from August to October. It is most often seen after the dense vegetation has been burnt, which allows easier access to swamps and plants are much more readily seen. Although it is usually seen after fires, the Swamp Helmet-orchid probably does not require fire to stimulate flowering, and most likely flowers regularly in unburnt swamps but is simply not detected in these dense habitats (Backhouse et al. 2016). However, leaves but not flowering plants were observed in in unburnt swamp (D. Rouse pers. obs.) it can be solitary or grow in colonies (VicFlora 2019).

After fertilisation, the flower stem elongates, raising the ovary to 20 cm or more above the ground, to aid seed dispersal. Most species reproduce readily by vegetative means and can form large, dense colonies containing hundreds of plants. Pollination is by fungus gnats of the family Mycetophilidae, which are tiny, mosquito-like flies, and it is thought that the flowers mimic the fruiting bodies of fungi, on which the fungus gnats lay their eggs (Backhouse et al. 2016).

Generation Length

The generation length of *Corybas fordhamii* is estimated to be 25 to 60 years. Generation time for colony-forming clonal terrestrial orchids is estimated to be a nominal 50 years (or more) based on the capacity of each clone or genet to persist for decades without reliance on seed germination for population maintenance. Whilst mortality of clones may occur for a variety of endogenous (genetically determined) or exogenous (environmental) reasons, the clonal replacement is likely to occur at multi-decadal intervals.

Distribution

The taxon is widely but sporadically distributed right across southern Victoria at an altitude range 5-75 metres ASL. It also occurs in SA, Tas, NSW, Qld (Backhouse et al. 2016).

Habitat

The taxon grows in and around swamps and watercourses under dense thickets of Scented Paperbark *Melaleuca squarrosa,* usually on low hummocks just above the water, on heavy black peaty soils (Vicflora 2019).

Threats

The Swamp Helmet-orchid is a rare species that is seldom encountered in the field. However, it grows in dense, swampy habitat that is very difficult to access, so it may be under-reported in the wild, especially given its distribution across southern Victoria. Clearance and drainage of its swampy habitat has occurred in the past, often due to coastal developments. In some areas fries has got into swamps and caused pet fires. In the future, a hotter and drier climate is likely to significantly impact its wetland habitat and some swamps near coastal towns may suffer from land reclamation as part of ongoing development activity.

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 Endangered

The population reduction over the past 75 to 180 years is estimated to be 50 to 85% (midpoint 70%), based on (a) and (c) above.

Clearance and drainage of its swampy habitat has occurred in the past, often due to coastal developments.

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 75 to 100 years is suspected to be 50 to 85% (midpoint 70%), based on (c) above.

Some swamps near coastal towns may suffer from land reclamation as part of ongoing development activity. Drying of habitat as a result of climate change is likely to lead to a significant decline.

Eligible under Criterion A4 as Endangered

The population reduction over any 75 to 180 year period, including both past and future (up to 100 years in the future), is estimated to be 50 to 85% (midpoint 70%), based on (a) and (c) 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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 64,426 km² which exceeds the threshold for criterion B.

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 104 km² but other thresholds under this criterion have not been met.

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 20,000 to 40,000 mature individuals, which exceeds the thresholds for criterion C.

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:

Ineligible under Criterion D

It is estimated that there are 20,000 to 40,000 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 Turner, J. (2016). *Bush Gems: A Guide to the Wild Orchids of Victoria, Australia.* Melbourne, Victoria: EBook.

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

Rupp, H.M.R. (1942), Corybas or Corysanthes? *The Victorian Naturalist* 59(4): 61

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Corybas fordhamii*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/2a7eafe1-b666-4fec-a328-cd509de82334