



Corybas aconitiflorus Spurred Helmet-orchid

Taxonomy

Corybas aconitiflorus Salisb.

Synonyms: *Corybas cheesemanii*, *Corysanthes aconitiflorus*, *Corysanthes cheesemanii* and *Corysanthes bicalcarata*.

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+4ac; B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

Leaf broadly ovate to cordate, apex abruptly acuminate, grey-green above, usually reddish or purplish below, membranous, 10–20 mm long, 9–21 mm wide. Flower dull reddish-purple, pedicel inconspicuous; dorsal sepal hooded, ellipsoid, not markedly contracted at base, curved and enclosing the labellum, apex acute and often upturned, 17–25 mm long when flattened out; lateral sepals and petals linear, tapered, sepals c. 2 mm long, petals c. 1 mm long. Labellum about half the length of dorsal sepal, more or less upright, the tubular part much longer than the expanded part, very narrow towards base; auricles expanded into 2 conspicuous horn-like spurs which project down along the ovary and remain closed; lamina whitish, often marked with red or purple, convex, often undulate; margin entire but sometimes appearing serrulate due to sparse fringe of hairs, recurved. Column very narrowly winged (VicFlora 2015).

Flowers from May to August. 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 aconitiflorus* is estimated to be 25 to 50 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 occurs in south-eastern Victoria, east from Melbourne to the NSW border, often close to the coast. The altitude range is 5-150 metres ASL. It also occurs in Tas, NSW, Qld (Backhouse et al. 2016). It is localized and uncommon in southern parts of eastern Victoria with isolated westerly occurrences near Portland and Edenhope.

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Habitat

The taxon grows in damp, shady places in coastal scrubs, heath, heathy woodland and moist foothill forest, usually on sandy loam soils, especially where there is a deep leaf litter layer (Backhouse et al. 2016).

Threats

Populations have been lost to land clearance particularly in the Dandenong region and West Gippsland. Plants are threatened by human recreational activity, particularly those in coastal regions. A large population at Shallow Inlet occurs in a coastal camping zone. Populations near Grantville and Heath Hill occur on private property and in the future could be threatened by development. Future climate effects and increased fire may lead to a greater decline. The taxon may be impacted by more frequent and intense bushfires.

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

Eligible under Criterion A2 as Endangered

The population reduction over the past 45 to 60 years is estimated to be 35 to 60 %, based on (a) and (c) above.

Populations have been lost due to land clearance, particularly in the Dandenong region and West Gippsland. Plants are threatened by human recreational activity, particularly those in coastal regions.

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

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 45 to 60 years is estimated to be 25 to 45%, based on (c) above.

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Coastal populations are threatened by human recreation activity. A large population at Shallow Inlet occurs in a coastal camping zone. Populations near Grantville and Heath Hill occur on private property and in the future could be threatened by development. Future climate effects and increased fire may lead to a greater decline.

Eligible under Criterion A4 as Endangered

The population reduction over any 45 to 60 years period, including both past and future (up to 100 years in the future), is estimated to be 25 to 50 %, 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 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 B as Endangered

The Area of Occupancy (AoO) is estimated to be 164 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.

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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:

Ineligible under Criterion C

It is estimated that there are 40,000 to 80,000 mature individuals, which exceeds the thresholds for criterion C.

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:

Ineligible under Criterion D

It is estimated that there are 40,000 to 80,000 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.



Corybas aconitiflorus
Spurred Helmet-orchid

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Corybas aconitiflorus*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/105d52d3-a404-436d-8bc2-8b68e1687e23>