



Caladenia ampla Dainty Spider-orchid

Taxonomy

Caladenia ampla (D.L. Jones) G.N. Backh.

This poorly known taxon is part of the *Caladenia reticulata* complex, which was recently split up into a multitude of segregate species (VicFlora 2018).

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 A2bce+4bce; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a flowering plant 15-22 cm tall. Leaf 6-10 cm long, 5-7 mm wide. Flowers solitary (rarely 2); perianth segments 2.8-3.7 cm long, cream to yellowish with reddish streaks, sometimes wholly reddish; dorsal sepal 3-3.7 cm long, 2.5-3 mm wide, oblong-lanceolate basally, tapered and ending in a thickened osmophore 6.5-9 mm long; lateral sepals 3-3.7 cm long, 4-5 mm wide, ovate-lanceolate basally, tapered and ending in a thickened osmophore 6-8 mm long; petals 2.8-3.2 cm long, 2-3 mm wide, narrow-lanceolate basally, tapered to an acuminate tip, sometimes with an apical cluster of glands. Labellum curved forward with apex recurved, lamina broadly ovate, unlobed or obscurely 3-lobed, 14-16 mm long, 10-12 mm wide (when flattened), cream with prominent red veins and dark red apex; marginal calli in 9-12 pairs, 1-2.5 mm long at base, reducing in length distally; lamina calli in 4 rows, extending half to two-thirds of way to labellum apex, linear to foot-shaped, c. 2 mm long at base of lamina, decreasing in size towards apex. The taxon flowers from September to October (VicFlora 2018).

Generation Length

The generation length of *Caladenia ampla* is inferred to be 20 to 60 (midpoint 40) years. This is based on generation time for non-colonial terrestrial orchids, estimated to be a nominal 30 years based on the annual replacement of the mother tuber by daughter tubers. Whilst somatically immortal, individuals are 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 taxon is endemic to Victoria, where it is known only from the Central Victorian Goldfields region (St Arnaud, Deep Lead) (VicFlora 2018), it only occurs in two locations in this region. It is likely to have occurred in larger numbers in a broader area, but due to no records past or present occurring outside of the central Victorian region, it is safe to assume that the taxon was not further distributed.

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The area that the taxon occurs within is a highly active orchid conservation area, meaning surveys for similar taxa conducted by numerous conservation groups would have, to date, uncovered new populations if they were to exist. Thus, there is a high level of confidence that the two locations for this taxon are the only ones that exist.

Habitat

The taxon has been recorded only in mallee scrub and woodlands, on well-drained gravelly soils (VicFlora 2018).

Threats

The subpopulations are considered at risk from human visitation/trampling, habitat fragmentation and low genetic diversity, site degradation due to macropod browsing pressure, inappropriate fire regimes and increasingly dry conditions from declining rainfall and consequent increase in severity and intensity of bushfires. Very small subpopulations are highly susceptible to stochastic events causing major decline or local extinction within a very short time frame.

The Hard Hills Nature Conservation Reserve (NCR) is protected from browsing pressure by a large enclosure, which in turn increases the risks to the plants through trampling and human activity. Whereas the Dalyenong site is unfenced, making it more inconspicuous but at higher risk from browsing pressure.

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 Critically Endangered

The population reduction over the past 60 to 120 years is suspected to be 50 to 85 %, based on (b), (c) and (e) above.

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There is no reliable information for past reductions in population size because there have been no dedicated surveys for this taxon, but habitat loss suggests there has been a significant decline.

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

Eligible under Criterion A2 as Endangered

The population reduction over the next 60 to 10 years is projected to be 40 to 70%, based on (c) and (e) above.

Future decline is based on the projected impacts of climate change, genetic bottlenecking and macropod browsing pressure at one site.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 60 to 120 years period, including both past and future (up to 100 years in the future), is suspected to be 40 to 85%, based on (b), (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 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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas. The EoO has been made equal to the AoO to ensure consistency with the definition of AoO as an area within EoO.

The taxon is estimated to be severely fragmented, considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them. There are only two subpopulations, and these are a minimum of 15 km from each other.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the impacts of the identified threats, such as climate change, genetic bottlenecking and macropod browsing pressure at one location. Additionally, continuing decline is heavily dependent on continued conservation actions.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records from the VBA. As above, it is severely fragmented and has a continuing decline in (i), (ii), (iii), (iv) and (v).

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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 C as Endangered

It is estimated that there are 150 to 200 mature individuals. Across the two known locations for this taxon, a total of 115 individuals have been recorded. Considering the potential of undetected individuals and for there to be other locations or subpopulations, it is estimated that the total population will be roughly a maximum of 200 mature individuals.

There is estimated to be a continuing decline of 30% within two generations.

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:

Eligible under Criterion D as Endangered

The taxon is estimated to have 150 to 200 mature individuals.

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

References

Backhouse, G.N. (2007). New combinations in the terrestrial orchid genera *Caladenia* R.Br. and *Pterostylis* R.Br. (Orchidaceae) for Victoria, Australia. *The Victorian Naturalist*, 124.

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.

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

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Caladenia ampla*. Retrieved from:

<https://vicflora.rbg.vic.gov.au/flora/taxon/7d2248c8-86e9-49ed-a5cf-2302b5f6734f>