



Caladenia stricta Upright Spider-orchid

Taxonomy

Caladenia stricta (R.J. Bates) R.J. Bates

Other previous names are *Arachnorchis stricta*, *Caladenia dilatata* var. *stricta*, *Calonema stricta*, *Calonemorchis stricta* (Backhouse et al. 2016)

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2bc+4c; B2ab(iii,v)

Species Information

Description and Life History

Flowering plant 15-40 cm tall. Leaf 6-10 cm long and 10-15 mm wide, spotted red at base. Flowers solitary; perianth segments 1.5-3 cm long, green with red central stripe, not clubbed; lateral sepals and petals spreading, linear-lanceolate, 2-4 mm wide at base, tapered to filiform tips. Labellum curved forward with lateral lobes erect and mid-lobe recurved, 3-lobed, 14-17 mm long and 14-16 mm wide (when flattened), green at base with dark purple mid-lobe, separated by a white band; comb-teeth to 5 mm long, green, not rising above anther tip, mid-lobe with small teeth; lamina calli in 4-6 rows, crowded into a central band, purplish black, extending just onto mid-lobe, narrowly to broadly club-shaped, to 2 mm long at base of labellum, diminishing in size towards apex. (VicFlora 2019). Leaves appear in winter and plants flower in September and October setting seed and going dormant in late spring. It flowers well in years of good winter rains but sporadically or not at all in dry years (Backhouse et al. 2016).

Generation Length

The generation length of *Caladenia stricta* 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 taxon occurs in western and north-western Victoria, mostly from the Little and Big Desert regions. The altitude range is 50-150 metres ASL (Backhouse et al. 2016).

Habitat

The taxon grows in mallee woodland and heath, extending to drier open woodland in the south, on well-drained sandy loam soils (Backhouse et al. 2016).

Caladenia stricta

Upright Spider-orchid

Threats

Populations are assumed to have been lost in the 1950s when marginal land in the Wimmera was cleared.

Future threats include predicted impacts of increased fire frequency and intensity, fire prevention activities and drying and warming of the habitat.

The taxon readily hybridises with several co-occurring spider-orchids including *Caladenia cardiochila* and *C. lowanensis*, forming a bewildering array of hybrids (Backhouse et al. 2016). While hybridisation is common there is no evidence to date that genetic swamping is a major threat to this species as good numbers of genetically pure plants seem to be maintained within these hybridisation zones.

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 style="text-align: center;">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>			

Evidence:

Eligible under Criterion A2 as Endangered

The population reduction over the past 60 to 120 years is inferred to be 30 to 50 %, based on (b) and (c) above.

The species was only described in 1987 so there is little information on populations before that date. However, it can be assumed that a significant amount of habitat has been lost to agriculture in last 120 years, primarily in the Wimmera.

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 60 to 100 years is inferred to be 20 to 30 %, based on (c) above.

Caladenia stricta Upright Spider-orchid

This is based on the predicted impacts of increased fire frequency and intensity, fire prevention activities and drying and warming of the habitat.

Eligible under Criterion A4 as Endangered

The population reduction over any 60 to 120 year period, including both past and future (up to 100 years in the future), is projected to be 20 to 50 %, based on (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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 12,290 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to have 3 locations, as each subpopulation may be at risk from extreme fire events at an unsuitable time of year.

It has a continuing decline in (iii) and (v) above, based on the impacts of the identified threats

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 48 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has 3 locations and has a continuing decline in (iii) and (v) above.

Caladenia stricta Upright Spider-orchid

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 25,000 to 35,000 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 25,000 to 35,000 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.

Bates, R. (1987) *Caladenia stricta*: new status for an Australian terrestrial orchid. *The Orchadian* 8(12): 247



Caladenia stricta
Upright Spider-orchid

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

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Caladenia stricta*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/30a02c72-5992-48e8-bfe0-fc6ac9d5a39c>