



Caladenia pilotensis Mount Pilot Spider-orchid

Taxonomy

Caladenia pilotensis D.L. Jones

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2000).

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

Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(i,ii,iii,iv,v); C2a(ii)

Species Information

Description and Life History

The taxon is a flowering plant 20-30 cm tall. Leaf 7-13 cm long, 10-15 mm wide. Flowers 1 or 2, strongly citrus-scented; perianth segments 4-8 cm long, white or creamy white, often with strong red lines, with narrow blackish glandular tips; sepals flattened at base, 3-7 mm wide; petals shorter than sepals but otherwise similar. Labellum curved forward with apex recurved and lateral lobes erect, lamina ovate, obscurely 3-lobed, 15-20 mm long and 8-11 mm wide (when flattened), cream or reddish with white or reddish calli; margins of lateral lobes fringed with linear calli to 1.5 mm long, margins of mid-lobe with shorter calli becoming tooth-like near tip; lamina calli in 4 or 6 somewhat crowded rows, extending onto mid-lobe, narrow, foot-shaped, c. 1.5 mm long at base of lamina, decreasing in size towards apex. Flowers Sep.-Oct.

Generation Length

The generation length of *Caladenia pilotensis* 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 is endemic to Victoria where it is found only on Mt Pilot near Beechworth, in woodland with a sparse understorey among large granite boulders.

Habitat

The Mount Pilot Spider-orchid occurs in *Eucalyptus polyanthemos* - *Eucalyptus gonicalyx* - *Callitris endlicheri* grassy open forest on well-drained, dark grey-brown granitic loam. Critical habitat has not been determined but is likely to consist of long unburnt woodland dominated by the above species on granite slopes.

Caladenia pilotensis

Mount Pilot Spider-orchid

Threats

The main threats for the taxon are the limited or absence of natural pollination; competition and smothering by weeds and post fire native regeneration, grazing by rabbits, kangaroos and wallabies; direct loss of plants or soil disturbance by feral pigs, inappropriate fire regime; unintended trampling and site compaction by orchid enthusiasts and in limited cases outright collection.

The conditions for seed germination and maintenance of fungal activity and response to repeat fire events is still unknown.

The taxon responded to extreme wildfire in January 2003 with prominent flowering in the following (2003) spring, however in many areas subsequent dense post fire regeneration (especially by years 3-15 post burn) resulted in significant smothering / competition (and some loss) of plants (Glen J. pers. comm.).

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;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> (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

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

Caladenia pilotensis

Mount Pilot Spider-orchid

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 51 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas.

Considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them, the individuals can be considered to be severely fragmented.

It is estimated to have 1 location as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, due to the identified threats.

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				

Caladenia pilotensis

Mount Pilot Spider-orchid

Evidence:

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 93 to 110 mature individuals, based on monitoring of known populations.

There is an estimated continuing decline number of mature individuals, and the percentage of mature individuals in one subpopulation is 90-100 %.

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 km ² or number of locations ≤ 5 [Ⓜ]

Evidence:

Eligible under Criterion D as Endangered

It is estimated that there are 93 to 110 mature individuals.

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

References

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

SAC (2000). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 497 *Caladenia pilotensis*

VicFlora (2015). Flora of Victoria, Royal Botanic Gardens Victoria: *Caladenia pilotensis*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/0788cddb-2d0e-4448-8dbd-aa77f0fd06ec>