Threatened Species Assessment

Chiloglottis seminuda
Bare-tip Wasp-orchid

Taxonomy

Chiloglottis seminuda D.L. Jones

The taxon is a poorly known and is very similar to *Chiloglottis reflexa*, but can be distinguished by the smaller flowers in which the calli mass does not extend to the tip, leaving the apical third of the labellum free of calli. The labellum apex is usually more rounded with shallowly curved from margins, and the lateral sepals also generally curve outwards and downwards. However, there is considerable variation in both *C. reflexa* and *C. seminuda*, and it can be difficult to assign some plants to either species, especially as both species apparently grow together at one site in East Gippsland (Backhouse et al. 2016).

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* SAC (2001).

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is a small, deciduous terrestrial orchid, growing to 80 mm tall, with a pair of elliptical basal green leaves. The stem bears a single small greenish brown to reddish purple flower, to 15 mm across. The sepals and petals are short and narrow. The labellum is the most prominent feature, and has a central mass of shiny black calli, including a large proximal notched callus. The apical third of the labellum is free of calli (hence the common name Bare-tip Bird-orchid), a feature that readily distinguishes this orchid from similar taxa in Victoria. In Victoria, the taxon was detected flowering in spring, in April and May (Bishop 2000; SAC 2001).

The first record of this orchid in flower in Victoria was in September, and it was thought that the taxon generally flowered in spring. A couple of other colonies have since been discovered and these flower in autumn, so it seems the spring flowering was an unusual occurrence (Backhouse et al. 2016).

Generation Length

The generation length of *Chiloglottis seminuda* is estimated to be 30 to 60 (midpoint 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 is confined to a small area in the vicinity of Genoa in East Gippsland. Two subpopulations occur on protected private land and a third occurs on public land. Searches in the general area by experienced observers over many years now have failed to locate any additional populations, and no flowering plants have been seen

since 1983. Given its distribution and habitat preferences in New South Wales, especially for wet forest on sandstone escarpments, its distribution in Victoria is likely to be very limited (SAC 2001).

The taxon appears to be a rare orchid that has been recorded only a few times in Victoria, all in a very limited area. However, there is considerable potential habitat in the region, and the taxon undoubtedly occurs elsewhere in East Gippsland. Like most wasp-orchids, only a small proportion of plants flower, making identification of the many large colonies of Chiloglottis leaves that occur in the region even more difficult. It is probably overlooked and also mistaken for *C. reflexa* (Backhouse et al. 2016).

Habitat

The taxon grows in tall lowland / foothill open forest on well-drained grey sandy loam soils (Backhouse et al. 2016; VicFlora 2018). Furthermore, the taxon grows with a dense shrubby understorey, amongst emergent granite boulders (Jones 1991; Bishop 2000). The altitude range is 140-350 metres above sea level (Backhouse et al. 2016).

Threats

A single small population at Genoa Peak has not been seen for over 30 years and is the only indication of any decline. There is little current threat to subpopulations of this taxon, with two subpopulations occurring on protected private land and a third occurring on public land. If ownership or management of the properties were to change then the subpopulations on private land could be at risk of future decline. Although some habitat has been cleared for agriculture in the region, extensive apparently suitable forested habitat remains. It is likely that other subpopulations exist in the region, which is heavily forested and difficult to search.

The taxon was detected in flower in spring after a bushfire had burnt the surrounding vegetation the previous summer. Since then the site has become overgrown with dense regrowth following the fire, and although leaves have been seen, no further flowers have been seen. The site is protected within the Croajingalong National Park, and aside from the unknown influence of fire, no obvious threats are apparent (SAC 2001).

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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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 is estimated to be 12 km² and the Area of Occupancy (AoO) is estimated to be 12 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 2,100 to 5,200 mature individuals, but other thresholds under this criterion have not been met.

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:

Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. It has a restricted distribution, with an AoO of 12 km^2 and with one location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a timeframe of one or two generations, because of the potential effects of property ownership or management changes.

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

References

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.

Bishop, T. (2000). *A Field Guide to the Orchids of New South Wales and Victoria* (2nd ed.). Sydney: University of New South Wales Press.

SAC (2001). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 525 *Chiloglottis seminuda*.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Chiloglottis seminuda*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/2f239c24-229c-41e3-9838-826e394b0614