

Threatened Species Assessment

Cymbonotus lawsonianus Bear's-ear

Taxonomy

Cymbonotus lawsonianus Gaudich.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(iii)

Species Information

Description and Life History

The taxon has leaves ovate to lanceolate, lamina mostly 4-10 cm long and 1-4.5 cm wide, margins irregularly toothed or shallowly lobed, upper surface green, glandular-pubescent, lower surface white-woolly; petiole-like base to 5 cm long. Capitula 8-15 mm diam.; peduncles to 4 cm long. Ligules 6-10 mm long. Cypselas oblong, c. 2.5 mm long, curved gibbous, outer face finely pubescent, virtually smooth, inner face deeply excavated beneath a longitudinal aperture. The taxon flowers throughout the year (VicFlora, 2018).

Generation Length

The generation length of *Cymbonotus lawsonianus* is suspected to be 5 to 10 years. The closely related *Cymbonotus preissianus* has a potential longevity of at least 10 years, with seed production occurring within the second year of growth. *C. lawsonianus* is a smaller plant and may not be as long-lived, particularly as it occupies drier more drought-stressed sites. The genus does appear to have some potential to form a seed bank. Integrating these interpretations, the generation time is suspected to likely be in the range of 5-10 years.

Distribution

The taxon is scattered across northern Victoria from the 'Upper Murray' (precise locality unknown) to the Hattah-Kulkyne National Park and south to the Little Desert, with a few eastern collections from dryish areas south of the Great Dividing Range (e.g. Buchan, Heyfield, Omeo, upper Snowy River areas). The taxon also occurs in Queensland, New South Wales and Australian Capital Territory (VicFlora, 2018).

Habitat

The taxon occurs on dry woodlands (e.g. dominated by Yellow Box and White Box) (VicFlora, 2018).

Threats

Threats to the taxon include decreased rainfall due to climate change, soil disturbance due to the activities of pigs and weed invasion and predation by exotic arthropods. There have been instances of damage from herbicide application due to plants being mistaken for Cape Weed by uninformed workers.

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:

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.

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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 151 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented. While there are more extensive areas of suitable habitat in East Gippsland, populations elsewhere in the state largely occur in disjunct locations in historically fragmented habitat.

It is inferred to have 4 locations. The larger populations of the drier forests and woodlands of East Gippsland are regarded as representing a location. The populations along the Murray River arguably represent another, although the potential impacts of climate change may be more immediate in the far north-west than at Barmah. The remaining populations occur in the more generally fragmented habitat and in the north and west of the state are subject to similar threats. The populations south of Traralgon would appear to be in a climatically different zone, with a different range of key weed species and management issues.

It has a continuing decline in (iii) above due to the identified threats.

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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 as Data Deficient

There is no available population data. While some populations occur with more fragmented vegetation, populations in the Snowy River - Deddick area can be of large size.

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

There is insufficient evidence to determine the number of 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.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Cymbonotus lawsonianus*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cf65886b-3d98-4c7c-a489-0df7354983ac>