

Tetratheca stenocarpa Long Pink-bells

Taxonomy

Tetratheca stenocarpa J.H. Willis

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criterion B2ab(iii,v)

Species Information

Description and Life History

The taxon is a slender shrub with trailing to ascending branches to c. 1.5 m long; stems glabrous and minutely tuberculate or with short stiff hairs and setae to 1 mm long. Leaves mostly alternate, occasionally the lower ones opposite or in whorls of 3, narrow-deltoid to suborbicular, 5-12 mm long and wide on lower stems, reduced in flowering region, acute or obtuse, margins flat or recurved, toothed, usually undulate, surfaces glabrous or with a few fine, stiff hairs particularly near margins. Inflorescences 1-3-flowered; peduncles 4-12 mm long, with dense, sometimes gland-tipped setae. Sepals broad-ovate, c. 2 mm long, deciduous; petals c. obovate, 8-13 mm long, deep lilac-pink, rarely white, deciduous; ovary glandular-hairy, ovules 4. Fruit ovate, narrow-trapeziform or elliptic, 5-10 mm long, beaked; seeds obovoid, c. 2.5 mm long. Flowers July-January (VicFlora 2017).

Generation Length

The generation length of *Tetratheca stenocarpa* is suspected to be 15 to 30 years. OEH (2019) suggests the life expectancy of *T. glandulosa* is approximately six to ten years, but given that field investigations indicate that the plant resprouts from a woody root following fire this may be an underestimate. No information on the longevity of *T. stenocarpa* was located, but observations from the Gembrook area suggest that it is considerably longer-lived. Similarly, the role of fire in stimulating germination was not confirmed, and apparently small plants may resprout. Reproductive maturity is likely to be reached within the first few years. In the absence of better information, the taxon's life span is suspected to be more in the 20 to 40 year range.

Distribution

Long Pink-bells is endemic to Victoria where it is localised near Healesville and Gembrook, on French Island, and in the Pyrete Ranges north of Melton.

Habitat

The taxon grows in heathy open-forests, extending into taller shrubby mountain forests on drier, more exposed slopes.

Threats

Threats to this taxon potentially include climate change (decreased rainfall and failed recruitment due to drought conditions), browsing by deer (appears to tolerate a certain degree of browsing from wallabies), forestry activities in

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the wettest parts of its habitat, structural modification of the vegetation due to altered fire regimes and/or loss of herbivores, residential encroachment and associated weed invasion, and possibly Cinnamon Fungus (*Phytophthora cinnamomi*).

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

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.

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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 13,429 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to have 5 locations. The disjunct occurrences at Mt Buffalo, French Island and Pyrete Range occur within different landscape context and climatic conditions. The eastern section of the main area of distribution of the taxon to the east of Melbourne is relatively intact and largely contiguous habitat reserve, whereas the western portion and northern outliers near Healesville occur within more fragmented habitat exposed to greater levels of threats.

It has a continuing decline in (iii) and (v) above based on the current and projected impact of the identified threats, such as climate change, deer browsing, altered fire regimes, residential encroachment, and weed invasion.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 304 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon estimated to have 5 locations, and has a continuing decline in (iii) and (v) above.

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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 insufficient evidence to determine the number of mature individuals. The taxon can be locally common in suitable habitat.

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 D2 as Vulnerable

The taxon is inferred to be very restricted.

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. 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



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VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Tetratheca stenocarpa*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/0d6bf0d0-a788-49c0-b9aa-274118b6ad9d>