

Thryptomene calycina Grampians Thryptomene

Taxonomy

Thryptomene calycina (Lindl.) Stapf

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a shrub 1-3 m high, spreading or erect. Leaves oblong to obovate, 5-14 mm long, 2-4 mm wide, sessile, flat, keeled below; apex obtuse, sometimes with a short recurved point. Flowers white, often pinkish in bud, 1-3 in upper leaf axils; pedicel 2-6 mm long; hypanthium obconical, 2-4 mm long, smooth, ribs 5, faint; sepals and petals similar, broadly elliptic, c. 1.5 mm long; stamens 5, filaments less than 0.5 mm long; ovary small, near summit of tube, ovules 2. The taxon flowers mostly between July and November (VicFlora 2016).

Generation Length

The generation length of *Thryptomene calycina* is suspected to be 15 to 25 years. *T. denticulata* from Western Australia is noted as having a lifespan of 5-10 years (Wikipedia 2019), however the larger-sized *T. calycina* may be longer-lived than this. It is a medium-sized perennial shrub, and plants of *T. calycina* cultivated for cut flowers are available for harvesting in two or three years. Germination may be fire dependant with additional recruitment in response to favourable seasons or localised site disturbances. In the absence of better information, a lifespan of 10-20 years is suspected, with a generation length of 10-15 years.

Distribution

The taxon's natural distribution is confined to the Grampians, including the Western Black Range. It is naturalised at Black Rock, a south-eastern suburb of Melbourne.

Habitat

The taxon occurs in heathlands and heathy woodlands, mostly on sandy soils.

Threats

Potential threats to populations of the taxon include climate change, particularly decreased rainfall, increased frequency and intensity of fire, and failed recruitment/reproduction due to drought conditions. Weed invasion and potential *Phytophthora cinnamomi* (Cinnamon Root-rot Fungus) are also threats. No information is available on the potential effects of browsing by deer or wallabies.

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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:

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 45 to 75 years is suspected to be 5 to 50% (midpoint 10%), based on (c) and (e) above.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 45 to 75 year period, including both past and future, is suspected to be 5 to 40%, based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,102 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to have one location as it has a geographically localised distribution and is subject to a similar range of threats across this range.

It has a continuing decline in (iii) above based on the impacts of the identified threats, such as climate change, drought conditions, weed invasion, and Cinnamon Root-rot Fungus.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 256 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon has one location and a continuing decline in (iii) 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.

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 (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Thryptomene calycina*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/f1e05cd3-8118-4e30-892f-b896a0b88c00>

Wikipedia (2019). *Thryptomene denticulata*. Retrieved from: https://en.wikipedia.org/wiki/Thryptomene_denticulata