



Epacris rhombifolia Mountain Coral Heath

Taxonomy

Epacris rhombifolia (L.R. Fraser & Vickery) Menadue

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2ce; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

E. rhombifolia is a slender, erect shrub to c. 2 m high. Branchlets pubescent. Leaves semi-appressed to spreading, rhombic, 2-4.5 mm long, 1.5-3.5 mm wide, virtually flat, venation indistinct, glabrous, apex acute, shortly mucronate, slightly incurved at tip; base cuneate to truncate; margins entire or minutely serrulate toward the apex; petiole 0.3-0.8 mm long. Flowers shortly pedicellate in axils along branches; bracts c. 16-20; sepals ovate to ovate-elliptic, 1.5-2.5 mm long, acute; corolla white, campanulate, tube c. 1-2 mm long, shorter than calyx, lobes 1.5-2 mm long; anthers enclosed or partly exerted; ovary glabrous, nectary scales rounded, style straight-sided, to c. 0.5 mm long, glabrous. Capsule depressed-globose, c. 2 mm diam. Flowers Dec.-Mar. (VicFlora 2019).

Vital attribute data were not available for this taxon, but they are likely to be similar to other alpine bog *Epacris* taxa, which are capable of regeneration from sprouts and seeds, tolerant of establishment in mature vegetation, take 5 years to reach reproductive maturity, live for around 50 years, and maintain a soil seedbank for around 100 years. Viable reproductive maturity might take longer, as seedlings found 2 years after the 2009 fire were in low density, and only 3-7 cm high (Tolsma *et al.* 2012).

Generation Length

The generation length of *Epacris rhombifolia* is estimated to be 30 to 50 years. It is a long-lived perennial that under a pre-settlement disturbance regime of fire once or twice per century would generally live to end of reproductive age of up to 50 years.

Distribution

E. rhombifolia is known in Victoria from subalpine wet heaths near Lake Mountain (Mt Bullfight, Blue Range), Mt Baw Baw and surrounds, and the Snowy Range north of Licola. It is also found in New South Wales. (VicFlora 2019).

Habitat

E. rhombifolia is found in bogs and along water courses at high altitudes and subalpine wet heathlands (Menadue and Crowden 2015; VicFlora 2019).

Threats

Due to the taxon's reliance on bog habitat, threats would include anything that would physically disturb the habitat or dry it out, including trampling by feral ungulates, climate change leading to drying out of the habitat and increasing the frequency of fire, and willow invasion post-fire. The taxon possibly only has a small soil seed bank (Tolsma *et al* 2012), hence it is likely to be particularly susceptible to successive fires.

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> <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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 90 to 150 years is estimated to be 30 to 50%, based on (c) and (e) above.

Anecdotal evidence suggests that alpine bog, the main habitat for this taxon, has reduced by around 50% since settlement due to a combination of livestock grazing and increased fire. It is assumed that the total population 150 years ago was up to double the current population.

The causes of the 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 3,597 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, considering its limited dispersal ability, the barriers to dispersal, and the lack of habitat separating them.

It is estimated to have 3 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above, as a result of the defined threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 80 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 3 locations, and has a continuing decline in (i), (ii), (iii), (iv) 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

It is estimated that there are 12,000 to 25,000 (midpoint 15,000) mature individuals, which exceeds the thresholds for criterion C.

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 D as Vulnerable

The taxon is estimated 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.



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Tolsma, A., Sutter G. and Coates F.I. (2011). Recovery of Victorian Rare or Threatened Plant Species After the 2009 Bushfires. *Black Saturday, Victoria 2009 - Natural Values Fire Recovery Program*, Report to the Department of Sustainability and Environment.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Epacris rhombifolia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/dfb12b08-ecb6-467f-8e6d-4fce57ac1e9f>