Threatened Species Assessment

Euryomyrtus ramosissima subsp. *prostrata*
Nodding Baeckea

Taxonomy

Euryomyrtus ramosissima subsp. *prostrata* (Hook. f.) Trudgen

The taxon is distinguished from subsp. *ramosissima* by its generally narrower, sparser leaves and smaller flowers. Some plants from between Sydney and Jervis Bay in New South Wales are intermediate between the 2 subspecies (VicFlora 2020).

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 A3bce+4bce; B2ab(iii)

Species Information

Description and Life History

The taxon is a prostrate or procumbent shrub, 8-20 cm high, sparsely branched; branches often rooting at the nodes. Leaves spreading, linear to linear-lanceolate, 3-10 mm long, papery; apex usually acute; base rounded; margins often minutely ciliate toward apex. Flower solitary, in axils, white or pink, 3-5 mm across, deflexed at anthesis; pedicel often longer than leaf; bracteoles 2, more or less cordate, c. midway along pedicel, persistent; hypanthium obconical; calyx-lobes rounded, margins toothed; petals orbicular, 1-2.5 mm wide, margins crenulate; floral trichomes few or absent; stamens 3-10, those opposite petals longer than those opposite calyx-lobes, filaments straight; ovary 3-celled, convex, ovules usually 4 per cell. Fruit 3-4 mm diam.; seeds reniform, 2-3 per cell. The taxon flowers mostly from June to February (VicFlora 2020).

Generation Length

The generation length of *Euryomyrtus ramosissima* subsp. *prostrata* is estimated to be 25 to 40 years. This is based on a plausible pre-settlement fire interval of 25-40 years, and the inference that the taxon is likely to be a fire-sensitive obligate seed regenerator which recruits episodically post-fire from a persistent soil-stored seedbank with only a low level of continuous recruitment in response to localised site disturbance events. Longevity is estimated to be 20-30 years with recruits reaching reproductive maturity within 2-3 years.

Distribution

The taxon is scattered discontinuously in coastal Victoria from about Moonlight Head in the Otway Range to Mallacoota, with an isolated inland record from the Grampians. The taxon also occurs in New South Wales and Tasmania (VicFlora 2020).

Although the taxon is typically confined to strictly coastal heathlands and woodlands, the taxon extends up to 10 km inland at Devondale in the western Otways, and at Anglesea. In the Grampians, the taxon is apparently confined to the Victoria Valley and the Victoria Range.

Habitat

The taxon is confined to heathlands and heathy woodlands (VicFlora 2020).

Threats

Historic decline of the taxon in response to habitat loss to agriculture or coastal development is unlikely to approach the 30% threshold, with most occurrences in coastal habitats unsuitable for agriculture.

The greatest current threat to the taxon is weed invasion of its habitat by both native and exotic plants. At Anglesea, *Acacia longifolia* subsp. *sophorae* (Coast Wattle), *A. longifolia* subsp. *longifolia* (Sallow Wattle), *Leptospermum laevigatum* (Coast Tea-tree) and *Melaleuca armillaris* (Giant Honey-myrtle) represent the greatest threats. Despite all being Victorian natives, these taxa notoriously invade native vegetation beyond their pre-settlement geographic or ecological range. *A. longifolia* subsp. *sophorae* is bird-dispersed, for example in the Grampians by Wattle Birds and Silvereyes, and in coastal sites by Starlings, Ravens, and Silver Gulls, thereby dispersing more successfully into new habitats than *L. laevigatum*. Catastrophic fire can also broadcast propagules over extended distances, as exemplified by *L. laevigatum* branches laden with fruit carried by fire storms hundreds of metres inland at Anglesea during the 1983 Ash Wednesday bushfires.

The taxon is directly and indirectly threatened by anthropogenic fire regimes resulting from climatic drying and warming and planned burning. Repeat fire events at intervals below the pre-settlement fire interval of 25-40 years represent a great threat to the taxon and its habitat, resulting in significant transformation of floristic composition and structure of the vegetation. Repeat fire events also lead to seedbank exhaustion with inadequate replenishment and facilitate weed invasion.

Long-term threats include the increasing risk of adult mortality and recruitment failure in response to extreme drought events.

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:

Eligible under Criterion A3 as Endangered

The population reduction over the next 75 to 100 years is projected to be 50 to 75%, based on (b), (c) and (e) above.

Although the impact of future threats is difficult to estimate with confidence since they operate incrementally or stochastically and with unpredictable intensity, future decline is plausibly greater than 50%.

Eligible under Criterion A4 as Endangered

The population reduction over any 75 to 120 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 50%, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Past decline is based on historic habitat loss to agriculture and coastal development, and the early impact of weed invasion following catastrophic bushfires, such as the Ash Wednesday bushfire of 1983.

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:

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 196 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 naturally at the regional and landscape scales with geographically isolated occurrences at separations greatly exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal. The only plausible vectors are ants (myrmecochory) which operate at the metre scale.

It is estimated to have 1 location, and has a continuing decline in (iii) above, based on the current and projected impact of the identified threats.

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 estimate of population size for the taxon in Victoria.

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.

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 (2020). Flora of Victoria, Royal Botanic Gardens Victoria: *Euryomyrtus ramosissima* subsp. *prostrata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/eb57293a-5ff2-4a4d-980b-cfe5a3a9a0ef