Threatened Species Assessment

Myoporum brevipes
Pale Myoporum

Taxonomy

Myoporum brevipes Benth.

Accepted species

Taxon number: 503876

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2001).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2bce+3bce; B1ab(ii,iii,v)+2ab(ii,iii,v); C2a(i,ii); D

Species Information

Description and Life History

The taxon is a decumbent or erect shrub to c. 2 m high, glabrous; branches tuberculate. Leaves alternate, clustered, linear, oblong, obovate to oblanceolate, mostly 3.5–40 mm long and 2–8 mm wide, both surfaces often prominently tuberculate, glabrous, green or brownish, apex obtuse or rarely acute, margins entire or rarely toothed; c. sessile. Inflorescences 1–6-flowered; pedicels 3.5–9 mm long, glabrous, often tuberculate. Sepals ovate, 1.2–4.5 mm long, acute, imbricate basally, glabrous or sometimes with glandular hairs on margins; corolla 4–6 mm long, glabrous outside often with tubercles on lobes, inside of lobes more or less glabrous, white or pink, often spotted, throat pilose; stamens exserted; ovary and style glabrous. Fruit globose, c. 5 mm diam., white, drying brownish. Flowers mainly Oct.–Feb. (VicFlora 2018).

Generation Length

The generation length of *Myoporum brevipes* is estimated to be 3 to 10 years based on its suspected disturbance requirement, where reduced competition may favour germination and seedling establishment, as well episodic rainfall events at times suitable for supporting recruiting plants.

Distribution

The taxon is currently known in Victoria from a few surviving individuals near Boinka, about 70 km west of Ouyen, in a clearing along a roadside about 70 km west of Ouyen. One other site, further west towards Murrayville, and known from just one individual, has gone extinct. The taxon also occurs in South Australia and Western Australia. The Victorian occurrence is at the east end of the taxon's geographic range.

Habitat

When collected in 1989, the Boinka subpopulation spread over nearly a kilometre in a disturbed *Eucalyptus gracilis* stand beside the highway on shallow red sand over limestone as well as in the roadside drain and along a railway line. The individual near Murrayville occurred on a roadside on red sand dune fields almost completely devoid of

native vegetation adjacent to cropland in what was once Mallee woodland and shrubland (Geoffrey Allen, pers. comm.).

In other states, the taxon grows on calcareous sandy loams or on sand dunes in coastal or inland saline lake systems in open situations in mallee, *Melaleuca* or *Acacia* shrubland and is frequently found on disturbed soils along roads and tracks (Chinnock 2007). Murfet (1996), also noted the taxon 'seems to like growing in disturbed areas' as none were seen growing in nearby mature mallee.

It is possible that the Victorian subpopulation occurs in drier and more marginal habitat than occurrences in other states, as suggested by artificially wetter area that the remaining individuals survive in, namely a culvert in sand that shows evidence of being wetter than surrounding sand by a thin clay surface sediment layer.

Threats

The solitary plant near Murrayville that was collected in 2001 was noted to be in poor condition due to vehicle damage. It could not be found in 2019.

The Boinka subpopulation has substantially declined since it was first collected in 1989, and the few remaining roadside individuals and recruits are threatened by wind-blown sand accumulation, and a limited gene pool that may affect its chances of reproduction and the viability of recruits. Grazing of recruiting individuals by rabbits or kangaroos may be a threat, although the palatability of younger plants is not known. Weeds are not considered a threat to the remaining individuals.

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 A2 as Critically Endangered

The population reduction over the past 10 to 30 years is estimated to be 80 to 90%, based on (b), (c) and (e) above.

The Boinka site had an estimated number of 50-100 plants, when it was first recorded in 1989. In 2001, efforts were made to secure the evidently declining subpopulation by propagating 33 plants sourced from just three remaining individuals. These three remaining plants, had died when surveyed in 2019.

The propagated plants were planted on a Boinka roadside and in a nearby vegetated Stone Reserve. These propagated plants have also declined over time and the subpopulation appears to have been further supplemented in the intervening years, based on the locality and the type of plant guards and posts used (Geoffery Allen, pers. comm.). The subpopulation consisted of just four plants in 2019.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Critically Endangered

The population reduction over the next 10 to 30 years is projected to be 50-100%, based on (b), (c) and (e) above and the past decline.

This is based on additional pressure from weed invasion, roadworks, grazing, and the plant's small population size.

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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented based on its limited dispersal ability, the barriers to dispersal and/or the lack of habitat separating them. Such fragmentation precludes the possibility of recolonisation in the event of local extinction.

It is inferred to have one or two locations. The Boinka subpopulation is threatened by inappropriate road management, such as dumping of soil, clearing of vegetation, and weed invasion. If the plant still exists near Murrayville, then it may be subject to different threats, namely vehicle damage.

It has a continuing decline in (ii), (iii) and (v) above, based on the current and projected impact of the identified threats.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 8 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 one or two locations and has a continuing decline in (ii), (iii) and (v) above.

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:

Eligible under Criterion C2 as Critically Endangered

The taxon is estimated to have four mature individuals. On 9 January 2019 the Boinka site was revisited by Geoffrey Allen, and he found no evidence of the 3 plants that mapped on 20 Oct 1999 on Ouyen Hwy E of Megaws Road (3.5km W of Boinka). He found 4 plants still alive that had been planted into the roadside on Ouyen Hwy E of Megaws Road. He revisited the site near Murrayville on 9 January 2019, and found no evidence of the original Morrisons Plain Road plant, nor any new plants in its original vicinity (G. Allen pers. comm. January 2019).

It has an estimated continuing decline, the number of mature individuals in each subpopulation is 50 or fewer and the percentage of mature individuals in one subpopulation is 90-100 %.

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 D as Critically Endangered

The taxon is estimated to have 4 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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