Threatened Species Assessment

Myoporum montanum
Waterbush

Taxonomy

Myoporum montanum R. Br.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a shrub or small tree to c. 8 m high, glabrous; branches tuberculate or non-tuberculate. Leaves alternate, lanceolate to elliptic, rarely linear, mostly 3.5-14 cm long, 2-10 mm wide, apex attenuate, margins entire; petiolate. Inflorescences 1-7-flowered; pedicels 5-15 mm long, glabrous. Sepals more or less ovate, 1.5-3 mm long, acute to acuminate, valvate, glabrous or glandular-hairy; corolla 6-8 mm long, glabrous outside, inside of lobes pubescent, white, often spotted purplish on lobes and upper tube; stamens slightly exserted; ovary glabrous, style glabrous or pubescent. Fruit subglobose, 4-7.5 mm diam., succulent, reddish-purple, drying brownish. Flowers mainly June-November (VicFlora 2017).

Generation Length

The generation length of *Myoporum montanum* is estimated to be 20 to 50 years. It is presumed to be more than short-lived, as it has been reported as growing to 4m. The Urban Forests Ecosystem Institute (2019) website gives a lifespan of 50-150 years for *M. insulare*, however this figure seems surprisingly high. In the absence of any definitive information, the longevity of *M. montanum* is estimated to be in the order of 30-70 years. It is suspected to reach reproductive maturity within around five years.

Distribution

The taxon is scattered across northern Victoria where it is uncommon to rather rare. It occurs in all mainland States (VicFlora 2017).

Habitat

The taxon grows mostly in mallee, grey box, and riparian woodland communities, but also in rocky gorges.

Threats

Threats to the taxon variously include the effects of climate change such as decreased rainfall and failed recruitment/reproduction, especially due to drought conditions, increased frequency and intensity of fire, browsing and soil disturbance by feral animals such as goats, deer, pigs, rabbits, and domestic stock, weed invasion, works and spraying in roadside remnants, clearing for residential development and agriculture, and genetic bottlenecks issues associated with small population sizes.

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 Vulnerable

The population reduction over the past 60 to 150 years is suspected to be 10 to 40% (midpoint 20%), based on (a), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 60 to 100 years is suspected to be 10 to 40% (midpoint 20%), based on (b), (c) and (e) above.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 60 to 150 year period, including both past and future (up to 100 years in the future), is observed to be 10 to 40% (midpoint 20%), based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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 368 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 both naturally and anthropogenically. Much of the former habitat has been either cleared or significantly modified, and the taxon is often confined to very small populations in localised remnants.

It is suspected to have 5 locations, and has a continuing decline in (ii), (iii), (iv) and (v) 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 insufficient evidence to determine the number of mature individuals.

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. 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

Urban Forests Ecosystems Institute (2019). SelecTree: Tree Detail. Common Boobialla *Myoporum insulare.* Available from: https://selectree.calpoly.edu/tree-detail/myoporum-insulare

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Myoporum montanum.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/97fd9113-12d9-43eb-ab33-8952e6b313a3