Threatened Species Assessment

Pomaderris discolor
Eastern Pomaderris

Taxonomy

Pomaderris discolor (Vent.) Poir.

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 A3ce+4ce; B2ab(i,ii,iii,iv,v); C2a(i)

Species Information

Description and Life History

The taxon is a shrub 2-5 m high; branchlets greyish, finely stellate-pubescent with scattered simple hairs. Leaves ovate or elliptic, 30-95 mm long, 15-40 mm wide, acute, margin recurved, upper surface glabrous above, lower surface greyish below with stellate hairs, and sparse to mid-dense simple hairs over veins, simple hairs absent or sparse on internerves; stipules 4-6 mm long, deciduous. Panicles pyramidal, 3-6 cm long; bracts deciduous. Flowers cream, externally with sparse to mid-dense simple hairs and dense stellate hairs; Pedicels 1.2-2.5 mm long; hypanthium 0.5-1 mm long; sepals 1.2-1.7 mm long, deciduous; petals spathulate, 0.8-1.2 mm long, early deciduous, or absent; disc absent; ovary inferior, summit simple-pubescent, style branched above midway. Operculum membranous, c. half mericarp length. The taxon flowers September to October (2017).

Generation Length

The generation length of *Pomaderris discolor* is estimated to be 10 to 30 years. This is based on a longevity of plausibly 20-40 years, a pre-settlement fire interval plausibly in the 40-100 year range (nominally 60 years) and the likelihood that occasional, episodic fire-induced mass recruitment greatly exceeds the proportion of recruitment responding continuously to small scale soil disturbances. The taxon is likely to behave as an obligate seed regenerator (OSR), with negligible capacity to resprout following intense fire events. In the event that fire intervals exceed longevity, the taxon is expected to persist as a soil-stored seedbank.

Distribution

The taxon is restricted in Victoria to East Gippsland, primarily east of Sale with most records east of Orbost. It also occurs in south-eastern to central New South Wales (VicFlora 2017). Westerly outliers have been recorded from Mullungdung State Forest (1975) and 'Monkey Creek' (1854). The Mullungdung specimen cannot be found and some doubt must exist about its identity or origin. There are at least two Monkey Creeks in Gippsland, one near Bruthen, the other near Rosedale, not far from the Mullungdung site which tends to support the notion of a western outlying population.

Habitat

The taxon occurs principally in moist lowland forests, often in gully-heads or in an ecotone with Warm Temperate Rainforest (VicFlora 2017). Commonly associated species include *Eucalyptus bridgesiana, E. globoidea, E.*

sideroxylon, Angophora floribunda, Acacia mearnsii, Exocarpos cupressiformis, Kunzea ericoides s.l., Daviesia latifolia and *Bursaria spinosa.*

Threats

It is possible that there is been habitat loss and fragmentation through land clearing for agriculture or housing, and habitat modification as a result of historic forestry operations and, more recently, planned burning. Some past decline is likely also through targeted browsing by stock or Sambar Deer (*Rusa unicolor*). Sambar are likely to selectively browse the taxon, and/or because of their generally erect habit, use them as 'rub trees', an impact which has been observed for related species e.g. *P. aspera* (Mulvaney et al. 2017) and *P. vacciniifolia* (Neville Walsh, pers. obs.).

The taxon is potentially threatened by imposed anthropogenic fire regimes and climatic warming and drying, which synergistically increase the risk of recruitment failure in response to repeat fire events and extreme drought stress.

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 120 to 240 years is estimated to be 10 to 40%, based on (c) and (e) above.

This is based on the assumption that habitat quality has been compromised through land clearing, planned burning, historic forestry operations, and targeted browsing by stock or Sambar.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is estimated to be 30 to 50%, based on (c) and (e) above.

This is based on the projected declines in population size and habitat quality due to changes in climate and bushfire regimes.

Eligible under Criterion A4 as Endangered

The population reduction over any 120 to 240 year period, including both past and future (up to 100 years in the future), is suspected to be 35 to 55%, based on (c) and (e) above.

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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 14,495 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

It is estimated to have fewer than five locations, based on the likelihood of the identified threats occurring across the ecological and geographic range of the taxon in Victoria. It has a continuing decline in (i), (ii) and (v) above, based on the current and projected impact of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 164 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, it has fewer than five locations and has a continuing decline in (i), (ii) and (v).

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 Endangered

It is estimated that there are 900 to 3,000 mature individuals. The total population estimate is based on the projection of there being approximately 60 populations in Victoria (28 or so represented by collections at MEL), with between 10 and 50 plants per population.

The number of mature individuals is projected to continue to decline, and the number of mature individuals in each subpopulation is fewer than 250.

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

Mulvaney, J., Seddon, J. and Orgill, O (2017). Monitoring impacts of Sambar deer (*Rusa unicolor*) on forests in the Cotter catchment, ACT. ACT Govt Conservation Research Technical Report.

VicFlora (2019). Flora of Victoria, Royal Botanic Gadens Victoria: *Pomaderris discolor*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/112a5a8b-be8b-4351-aca0-18a66b72f5ef