

Pomaderris paniculosa subsp. *paniculosa* Inland Pomaderris

Taxonomy

Pomaderris paniculosa subsp. *paniculosa* F. Muell. ex Reissek

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2c+4ce; B2ab(i,ii,iii,iv,v); C2a(i)

Species Information

Description and Life History

The taxon is a shrub 1-3 m high, branchlets greyish or rusty stellate-pubescent. Leaves elliptic to obovate, 8-15 mm long, 6-12 mm wide, obtuse to shallowly emarginate; margins entire, rarely obscurely toothed; upper surface glabrous, or shortly hispid with simple or stellate hairs; lower surface densely stellate-pubescent, entirely greyish, or with scattered larger rusty hairs, secondary veins apparent; stipules 2-4 mm long. Inflorescences mostly axillary clusters, rarely paniculate, 1-7 cm long, 0.5-2 cm wide, 10-50-flowered; bracts deciduous; pedicels 1-3 mm long. Flowers cream or greenish, indumentum greyish or rusty, densely stellate-pubescent; hypanthium 1-1.5 mm long; sepals 1.5-2 mm long, persistent; petals absent; disc absent; ovary inferior, summit stellate-pubescent, style branched from near base. Operculum membranous, c. two-thirds mericarp length. Flowers September-October (VicFlora 2017).

Generation Length

The generation length of *Pomaderris paniculosa* subsp. *paniculosa* is estimated to be 15 to 40 years. This is based on the longevity of closely related taxa (e.g., *P. paniculosa* subsp. *paniculosa*, and *P. oraria*) and relatively low fire frequency in vegetation in which it occurs (in the order of 50 years). Its longevity is plausibly 50 years or more and it is expected to become reproductive after about 4 years.

Distribution

The taxon is currently known from north-central Victoria, but historically it also occurred in mallee areas of the north-west, at Dimboola, Jeparit, and 'Beyond Lake Albacutya'. Its current known distribution is in an area bounded approximately by St Arnaud, Charlton, Boort, and Kamarooka.

Habitat

The taxon occurs in mallee and woodland communities of north-central Victoria, with *Eucalyptus melliodora*, *E. microcarpa*, *E. behriana*, *Callitris glaucophylla*, *Acacia spp.*, and *Pittosporum angustifolium*. Soils are often shallow and stony and may include laterite (buckshot gravel). Some populations occur in the vicinity of watercourses but it is not clear that are then within a true riparian zone (based on National Herbarium of Victoria records (MEL); Neville Walsh, pers. obs.).

Historic occurrences further north-west note habitat of limestone-based soils, a geological type not noted in contemporary records.

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Threats

In the past the taxon has been subject to clearing for agriculture, but this threat is probably of minor concern these days.

Current and future threats include increased drying and warming due to climate change, browsing by rabbits and wallabies, and possibly goats, leading to reduced survivorship of seedlings and population reduction over time.

Several recorded occurrences are from roadside remnants for which weeds and inadvertent damage through roadworks etc. are particularly a threat (MEL herbarium specimen records; pers. obs.).

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>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p> <p>based on any of the following:</p>			

Evidence:

Eligible under Criterion A2 as Endangered

The population reduction over the past 45 to 120 years is inferred to be 70%, based on (c) above.

Past reduction is based on extensive clearing across the taxon's area of occupation, and the absence of recent records through areas of its former range including Lake Albacutya, Dimboola, and Jeparit.

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

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 45 to 100 years is projected to be 30%, based on (c) and (e) above.

Future decline is based on incremental loss of roadside plants, reduced recruitment rates, death of adults from drought and over-browsing.

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Eligible under Criterion A4 as Endangered

The population reduction over any 45 to 120 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 70%, based on (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 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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 5,963 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

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

It is estimated to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the impacts of the identified threats, including climatic warming and drying, and browsing by herbivores.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 128 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 1 location, 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:

Eligible under Criterion C2 as Endangered

It is estimated that there are 300 to 1,200 mature individuals, based on recorded population numbers (few records, between 1 and 50 plants; applying an average range of 10-40), extrapolated over known and assumed extant subpopulations (ca. 15 post-1970 records, plus a further 15 unrecorded populations assumed).

The number of mature individuals is projected to continue to decline due to the identified threats, and the number of mature individuals in each subpopulation is less than 250.

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

It is estimated that there are 300 to 1,200 individuals.



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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

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