Threatened Species Assessment

Pomaderris briagolensis
Olive-leaf Pomaderris

Taxonomy

Pomaderris briagolensis Messina

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criterion B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C1

Species Information

Description and Life History

The taxon is a shrub to 2 m high; branchlets pubescent with dense rusty stellate hairs. Leaves obovate, 12-24 mm long, 6-10 mm wide; apex obtuse to truncate or slightly emarginate; margins entire; upper surface glabrous or with sparse simple hairs, shining, secondary veins slightly impressed; lower surface densely covered with white stellate hairs, with scattered larger rusty stellate hairs on internerve spaces and covering veins and margin. Stipules linear-filiform to triangular 1-5 mm long, commonly persisting after leaves have fallen. Inflorescences compact, paniculate, terminal or axillary, pyramidal, to 40 mm long and 30 mm diameter; Bracts 2-3 mm long. Pedicels 1-2 mm long; hypanthium 1-1.5 mm long, densely covered with white stellate hairs and longer simple hairs; sepals 1.5-2 mm long, 0.8-1 mm wide, deciduous, outer surface covered by whitish stellate hairs and longer white and rusty simple hairs; petals absent; disc not apparent; ovary inferior, 1-1.5 mm diam., summit pubescent; style 0.7-1.7 mm long, 3-branched from near midway. Capsule 2.5-3 mm long; operculum membranous, c. half as long as nutlet. Seeds flattened-ellipsoid, 1.5-2 mm long. The taxon flowers from September to October. (VicFlora 2014).

Generation Length

The generation length of *Pomaderris briagolensis* is estimated to be 25 to 70 years. This is based on an estimated longevity in the range 20-60 years. It is also based on the likely fire sensitivity of the taxon, as well as the likely episodic fire-cued recruitment pulse at pre-settlement frequencies, plausibly in the range 25-70 years. It is also based on the likelihood that some continuous recruitment occurs in response to seasonal conditions and small-scale localised disturbances. It is also assumed that the taxon can recruit from soil-stored seed banks with a viability at least in the decadal range, which may exceed the longevity of some subpopulations.

Distribution

The taxon is endemic to Victoria, specifically at Briagolong, Johnston's Flat campground. It is very localised, and is known only from rocky sites or shallow soils along the Freestone Creek catchment near and upstream from Briagolong in eastern Victoria (VicFlora 2014). The taxon occurs in two Natural Feature Zones and within this area it is locally abundant, with populations ranging from 2-300 individuals.

Habitat

The taxon occurs on steep slopes towards valley floors down to alluvial flats, on rocky soils consisting of gravel, sand, silt and clay (LCC 1982), in Eucalyptus-dominated woodlands and riparian shrublands. Associated taxa

include *Eucalyptus bridgesiana, E. macrorhyncha, E. melliodora, Acacia floribunda, Cassinia longifolia, Kunzea ericoides* sens. lat. and *Prostanthera rotundifolia*. The altitude range is c. 70-200 m. At the site nearest the Briagolong township, *P. briagolensis* occurs with at least six other species of *Pomaderris* in a mixed shrubland. Communities in which multiple species of *Pomaderris* occur are known in several sites in south-eastern New South Wales and eastern Victoria. As at the Briagolong site, these sites share characteristics of relatively low altitude, rocky substrates and close proximity to watercourses within otherwise rather dry country.

Threats

Key threats to the taxon include the increasing risk of flash flood events, the increasing risk of severe fire impacts, and the risk of repeat fire events at intervals below the tolerable fire interval for the taxon. In addition, like many *Pomaderris* taxa, there is an increasing risk of targeted browsing by Sambar Deer (*Rusa unicolor*), particularly during the early stages of recruitment.

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 75 to 210 years is suspected to be 30 to 45%, based on (c) and (e) above.

Past decline is difficult to estimate with confidence, although it is likely that the taxon extended downstream along Freestone Creek between Briagolong, potentially approaching the Princes Highway.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 75 to 100 years is projected to be 20 to 45%, based on (c) and (e) above.

Future decline is based on the plausible impact of identified threats.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 75 to 210 year period, including both past and future (up to 100 years in the future), is estimated to be 25 to 45%, 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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 16 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of the AoO as an area within the EoO.

It is estimated to have two locations, one near Briagolong where its habitat is surrounded by agricultural land, and all other subpopulations 15 kilometres upstream north of Cullodon. The two sites are subject to different threats; th upstream site being more likely to be threatened by fire and browsing.

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

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 30 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has two locations and has a continuing decline in i), (ii), (iii), (iv) 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 C1 as Endangered

It is estimated that there are 300 to 1,000 mature individuals, based on Messina et al. (2010), who state that the taxon is locally abundant, with populations ranging from 2-300 individuals.

There is estimated to be a continuing decline of 15 to 45% within two generations.

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 Vulnerable

It is estimated that there are 300 to 1,000 individuals, and 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

Messina, A., Walsh, N.G., & Whiffin, T. (2010). Recognition of a new species of *Pomaderris* (Rhamnaceae) in eastern Victorian based on morphological and chemical data. *Muelleria*, 28(2), 136-145.

VicFlora (2014). Flora of Victoria, Royal Botanic Gardens Victoria: *Pomaderris briagolensis*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/4e9a67a4-5a6f-4c83-968c-88b5cf41cc7d