



Eucalyptus froggattii Kamarooka Mallee

Taxonomy

Eucalyptus froggattii Blakely

This is the only taxon in Victoria with highly glandular leaves showing no veinlets. It is easily identified by its dark rough and bronze smooth bark, glossy crown and angled buds and fruits (VicFlora, 2019).

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988*.

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

Proposed conservation status

Critically Endangered in Australia

Criteria A2ac; B2ab(iii,iv,v)

Species Information

Description and Life History

The taxon grows to 6 m as a multi-stemmed mallee or to 9 m as a tree. Its bark is rough and fibrous, grey to grey-brown on lower stems or its trunk, which then becomes smooth, grey-green and peeling in strips higher up. Adult leaves are alternate, thick, shining green, 7.5 cm long, 1.2-2 cm wide; the lateral veins are faint, marginal vein prominent and up to 3 mm from the margin. Flowers, 5-11, are borne freely in terminal panicles or often in clusters rising from the axils during January to April. Buds are quadrangular, strongly fourangled, on short, thick pedicels and the bud cap is hemispherical with a sharp point. Fruit is pear-shaped and strongly fourangled, on thick, flattened pedicels, valves 4 or 5 (DSE, 2003)

Generation Length

The generation length of *Eucalyptus froggattii* is inferred to be 100 to 150 years. This is based on the lignotuberous mallee habit which resprouts from epicormic buds at ground level for successive generations of stems or ramets. This is also based on the inference that the age of multi-stemmed individuals of mallee habit is likely to greatly exceed the average interval between bushfire events.

Distribution

The taxon is endemic to Victoria. It is disjunctly distributed in mallee scrubs and woodlands north-west of Nhill, south-west of Horsham, near Charlton, and north of Bendigo (VicFlora, 2019).

Habitat

The taxon occurs in small mallee stands on fine textured soils on flats and lower landscapes. The higher terrain is usually occupied by mallee dominated by *E. polybractea* and/or *E. viridis*. It often grows in association with *E. behriana*, and less commonly with *E. polybractea*, *E. viridis*, and *E. microcaropa*. Average rainfall is around 450 mm, with hot dry summers and cool wet winters.

Threats

The Kamarook Mallee occurs on fairly deep fertile soils and has been eliminated from a large part of its former range by clearing for agriculture. Only some of the stands are adequately protected in reserves. On private land and roadsides there is little regeneration, and it is subject to clearing, accidental damage from road maintenance, and unsuitable management.

There is evidence of damage to Kamarooka Mallee by stock and rabbits, so successful conservation of the taxon depends heavily on excluding grazing by domestic stock and rabbits (DSE 2003).

Weed invasion poses a threat due to the continuous exposure of the taxon to propagules from the surrounding agriculture areas. There is some evidence of smothering weeds being present and this may be attributing to poor recruitment of seedlings (DSE 2003).

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 style="text-align: center;"><i>based on any of the following:</i></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>			

Evidence:

Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 300 to 450 years is estimated to be 50 to 80%, based on (a) and (c) above. Past decline has resulted from extensive historic clearing for agriculture.

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 B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 228 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 at geographic and landscape scales, and has a continuing decline in (iii), (iv) and (v) above, based on the lack of recruitment of smaller stands.

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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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				

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Evidence:

Ineligible under Criterion C as Data Deficient

No reliable estimate of the total population size for the taxon is available.

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 km ² or number of locations ≤ 5 [Ⓜ]

Evidence:

Ineligible under Criterion D

No reliable estimate of the total population size for the taxon is available.

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.

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SAC (1991). *Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 79 Eucalyptus froggattii*

VicFlora (2019). *Flora of Victoria, Royal Botanic Gardens Victoria: Eucalyptus froggattii* Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/b7cf0687-3887-430a-a455-df957db80886>