

Eucalyptus globulus subsp. *maidenii* Maiden's Gum

Taxonomy

Eucalyptus globulus subsp. *maidenii* (F. Muell.) J.B. Kirkp.

All the subspecies of *E. globulus* are notable for the saplings to more than head height, which are conspicuous with large, glaucous juvenile leaves. These can be seen along roadsides or in disturbed areas where the parent trees occur. Coppice growth of similar form can often be seen as new sprouts on upper trunks and branches. *E. globulus* is an important plantation taxon and has been the subject of several studies which have revealed that subsp. *globulus*, *bicostata* and *pseudoglobulus* intergrade extensively (VicFlora 2019).

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

Tree to 50 m tall; bark smooth, apart from base which has persistent slabs, shedding in large strips and slabs, yellowish or grey. Juvenile leaves sessile, opposite for many pairs on conspicuously winged stems, elliptic to ovate, to 15 cm long, 10.5 cm wide, glaucous; adult leaves petiolate, alternate, falcate or lanceolate, 15-30 cm long, 1.7-3 cm wide, concolorous, glossy, green to dark green; reticulation moderately dense, with numerous, mostly intersectional oil glands. Inflorescences axillary, unbranched; 7-flowered; peduncles to 2.5 cm long; buds pedicellate, to 1 cm long, 0.7 cm diameter, hypanthium obconical; operculum flattened, prominently umbonate, very warty, green, scar present; stamens inflexed; anthers cuneate; ovules in 4 vertical rows; flowers white. Fruit to 1.1 cm long, 0.7 cm diameter, pedicellate, obconical to hemispherical; disc flat to annular; valves 4 or 5, about rim level, partly covered by lobes of disc; seed black-brown, flattened-ellipsoid, shallowly reticulate, hilum ventral. Flowers January-September (VicFlora 2019).

Generation Length

The generation length of *Eucalyptus globulus* subsp. *maidenii* is estimated to be 120 to 250 years. This is based on a plausible longevity of 150-350 years. It is also based on the ability of the taxon to resprout from the lignotuber and larger stems, thereby extending the life of the individual beyond the pre-settlement fire interval estimated at 45-90 years.

Like most eucalypts in fire-prone dryland habitats, the taxon recruits episodically from an elevated or soil-stored seedbank following intense bushfire events, with only a proportion of adults killed by fire, and a majority resprouting successfully following each successive fire event. In addition, there may be a low level of opportunistic recruitment in response to outstanding seasonal conditions or localised site disturbance events.

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Distribution

The taxon has an eastern distribution in Victoria, occurring in the upper Genoa and Cann Rivers, and is recorded in the upper Brodribb and Yalmy Rivers in the Goongerah district. It is also found in NSW (VicFlora 2019).

Habitat

The taxon occurs in subcoastal ranges (VicFlora 2019), in dry, damp, or wet sclerophyll foothill forests on a range of aspects. Its commonly associated eucalypts include *E. obliqua*, *E. cypellocarpa*, *E. globoidea* and *E. sieberi*.

Threats

The taxon is likely to have suffered only minor historic decline since most occurrences are in state forest or national parks. Current and future threats include climatic drying and warming, imposed anthropogenic fire regimes which act synergistically to increase fire risk, repeat fire events, and extreme drought stress. Recruiting stands may also be threatened by targeted browsing by native and exotic herbivores including wallabies, rabbits, Sambar Deer (*Rusa unicolor*), and stock.

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;">based on any of the following:</p> <ul style="list-style-type: none"> (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:

Ineligible under Criterion A

The population reduction for this taxon is below the threshold for eligibility under criterion A

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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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 911 km² and the Area of Occupancy (AoO) is estimated to be 56 km², but other thresholds under this criterion have not been met.

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>	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			

Evidence:

Ineligible under Criterion C as Data Deficient

There is no available estimate of total population size.

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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:

Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. The taxon has a restricted distribution, occurring in a single location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations, in response to the identified threats, notably climatic drying and warming, imposed anthropogenic fire regimes which act synergistically to increase fire risk, repeat fire events, and extreme drought stress.

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.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus globulus* subsp. *maidenii*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e512acad-0785-4639-bf9f-05b3cb63ded4>