



Eucalyptus glaucescens Tingaringy Gum

Taxonomy

Eucalyptus glaucescens Maiden & Blakely

It may be confused with *E. perriniana*, which can be distinguished by the connate juvenile leaves (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

The taxon is a mallee, or tree to 50 m tall; bark rough, fibrous on lower trunk of trees, shedding above in ribbons; upper trunk and bark of mallees smooth, orange, grey or whitish. Juvenile leaves sessile, opposite for many pairs, orbicular, to 7 cm long, 8 cm wide, bluish-grey or glaucous; adult leaves petiolate, alternate, broadly lanceolate to lanceolate, 7-12 cm long, 1.3-2.5 cm wide, concolorous, dull, green; reticulation dense. Inflorescences axillary, unbranched; peduncles to 0.6 cm long, 3-flowered; buds glaucous, sessile or shortly pedicellate, cylindrical, to 1 cm long, 0.5 cm diam., scar present; operculum much shorter than hypanthium, slightly beaked; stamens inflexed; anthers dorsifixed, cuneate; ovules in 4 vertical rows; flowers white. Fruit sessile, cupular, to 1.2 cm long, 1 cm diam.; disc level to descending; valves 3(4), below rim; seed black, flattened-ellipsoid or cuboid, often with dorsal ridge, hilum ventral. The taxon flowers from February to May (VicFlora, 2019).

The taxon is sometimes a tall erect tree (e.g., on Mt Erica), but it occurs as a mallee on very rocky mountain tops (VicFlora, 2019).

Generation Length

The generation length of *Eucalyptus glaucescens* is estimated to be 120 to 250 years. This is based on a plausible longevity of 150-300 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 60-120 years.

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

Distribution

In Victoria, the taxon is restricted to high mountain areas, for example, Mt Tingaringy, Brumby Point, Mt Hotham, Baw Baw Plateau, and Mt Erica (VicFlora, 2019).



Eucalyptus glaucescens Tingaringy Gum

Habitat

In Victoria, the taxon is restricted to high mountain areas. The taxon sometimes occurs as a tall erect tree, but occurs as a mallee on very rocky mountain tops (VicFlora, 2019).

Threats

Key long term threats to the taxon include climatic warming and drying, operating synergistically with imposed anthropogenic fire regimes, and browsing pressure from native and exotic herbivores, particularly during early stages of post-fire vegetative resprouting and seed recruitment. However, these threats may take decades to become evident, given the inferred drought tolerance of at least the mallee form of the taxon, its great longevity, and its ability to resprout successfully from the lignotuber or main stems.

The taxon is potentially threatened by the combined impact of climatic drying and warming and imposed anthropogenic fire regimes, resulting in an increased risk of adult mortality, recruitment failure, and the long-term risk of local extinction. The rate at which any projected decline is likely to occur is dependent on the frequency, intensity and landscape scale of future fire events, and the intensity and duration of extreme drought events. The taxon may also be at risk of recruitment failure due to targeted intense browsing pressure by Sambar Deer (*Rusa unicolor*), which are known to occur at high density throughout the alpine region and may target seedling recruits or vegetative resprouts. The taxon may be further threatened by the projected impact of climate change on the recruitment potential of the taxon, based on the modelled impact on almost every Eucalypt taxa in the Central Highlands of Victoria (Nitschke and Hickey, 2007). This study predicts that by 2085 the taxon will have nil to very low potential to recruit from seed anywhere within the Central Highlands of Victoria, including on the upper slopes of the Baw Baw Plateau which is its current stronghold in Victoria.

Given the tendency for many mallee stands to be locally restricted to mountain summits, such occurrences are at great risk from the repeated practice of clearing the summits of prominent mountains for lines of sight for fire-spotting, trig stations, telecommunications facilities, or visitor access and enjoyment of 360 degree panoramas. A clear example of this destructive practice was the bulldozing, decades ago, of all vegetation, including the removal of lignotuberous stumps, from the summit of Mt Tingaringy on the state border overlooking the Byadbo Wilderness in the Kosciuszko National Park in New South Wales, largely eliminating the type population of *E. glaucescens* or Tingaringy Gum.

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> <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

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

Eucalyptus glaucescens Tingaringy Gum

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 10,039 km² and the Area of Occupancy (AoO) is estimated to be 125 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>	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				

Evidence:

Ineligible under Criterion C as Data Deficient

There is no available estimate of population size for the taxon.

Eucalyptus glaucescens Tingaringy Gum

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 impact of the identified long term threats.

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.

Nitschke, C. R., and Hickey, G. M. (2007). *Assessing the Vulnerability of Victoria's Central Highlands Forests to Climate Change*. Technical report.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus glaucescens*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/fc38b8b1-4743-4c5f-a74f-37262d5ecfc9>