Threatened Species Assessment

Eucalyptus fulgens
Green Scentbark

Taxonomy

Eucalyptus fulgens Rule

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criterion A2abce+3bce+4abce

Species Information

Description and Life History

The taxon is a tree to 20 m tall, similar to *E. aromaphloia* but differing in the following characters: juvenile leaves sessile or very shortly petiolate, opposite at first, soon alternate, ovate to elliptic, to 7.5 cm long, 2 cm wide, hardly glaucous, dull bluish-green. On taller regrowth becoming ovate to lanceolate, glossy, green; adult leaves to 18 cm long, 1.8 cm wide, glossy, green. Fruit hemispherical to cupular. Flowers autumn (VicFlora 2019).

Generation Length

The generation length of *Eucalyptus fulgens* is estimated to be 150 to 200 years. The taxon is estimated to live between 150 to 200 years. Field observations suggest that it is probably not a regular or strong lignotuberous resprouter, nevertheless it is able to survive severe fire events due its fibrous bark which provides for epicormic growth post fire, thereby extending longevity beyond the pre-European settlement fire interval.

Distribution

The subpopulations are sporadic and occur in west Gippsland from the Latrobe Valley to the Yarra Valley (Rule 1996) and east from Healesville and Woori Yallock to the Latrobe Valley near Driffield (VicFlora 2019).

Habitat

The taxon's preferred habitat is heavy soils of sandstone origin on ridges and slopes, where the annual rainfall across the range exceeds 800 mm with a winter maximum. It generally grows in pure stands, although it may mix with several other taxa including *E. radiata, E. consideniana, E. ovata, E. pryoriana, E. cephalocarpa, E. conspicua, E. obliqua* and *E. dives* (Rule 1996).

Threats

The region in which *E. fulgens* occurs has been subjected to extensive clearing particularly for dairy farming. Although reduced to sporadic populations, the it is still abundant in some forested areas that have escaped clearing (Rule 1996). Most occurrences are small and patchy on freehold land in fragmented urban, peri-urban or rural landscapes, where they are subject to a wide range of edge effects including weed invasion, intense browsing pressure, inadvertent loss to road construction and maintenance, fire management activity, and urbanisation.

All occurrences are increasingly threatened by inappropriate fire regimes with some sites never being burnt due to being perpetually protected from fire, whilst other sites are exposed to over-frequent fire including planned burning. Anthropogenic fire regimes along with climatic drying and warming increase the risk of repeat fire at intervals below the tolerable fire interval for the taxon.

The taxon is not a strong resprouter from the lignotuber, and because increasing fire intensity reduces the likely success of epicormic resprouting from the stem, the taxon is at increasing dependence on seed recruitment. However, seed recruitment is highly threatened by intense drought stress, competition from weeds and overabundant native taxa, and targeted browsing by Sambar Deer (*Rusa unicolor*) which are now abundant throughout the range of the taxon.

Recruitment failure has been identified as a current threat to this taxon in the DSE Biodiversity Action Plan for the Gembrook Landscape Planning Zone, prepared in 2005 by Merril Halley and Michelle McHugh.

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 Endangered

The population reduction over the past 450 to 600 years is estimated to be 50 to 75% based on (a), (b), (c) and (e) above.

Past reduction of the taxon's population is based on historic habitat loss to agriculture and urban development. The mapped extent of the "Green Scentbark Herb-rich Foothill Forest" floristic community within the Yarra Ranges Shire (estimated at 2479 ha at settlement) declined by 55% to 1111 ha current modelled extent. Therefore, there is 45% remaining within the Shire. Populations to south of the Yarra Ranges Shire and closer to metropolitan Melbourne (e.g. Mullum corridor, Frankston, Cardinia Shire, Latrobe Valley) are likely to be more severely depleted.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 50 to 85% (midpoint 65%) based on (b), (c) and (e) above.

Future reduction of the taxon's population is based on identified threats including habitat fragmentation and exposure to edge effects, incremental habitat loss to urbanisation and agricultural intensification, inappropriate fire regime, climatic drying and warming, targeted browsing by Sambar Deer, and the increasing risk of repeat fire events and recruitment failure.

Eligible under Criterion A4 as Endangered

The population reduction over any 450 to 600 year period, including both past and future (up to 100 years in the future), is estimated to be 60 to 75%, based on (a), (b), (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 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 B as Vulnerable

The Extend of Occurrence (EoO) is estimated to be 10242 km², and the Area of Occupancy (AoO) is estimated to be 568 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, has 2 locations, and has 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:

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 km2 or number of locations ≤·5

Evidence:

Eligible under criterion D2 as Vulnerable

The taxon is inferred to be very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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