Threatened Species Assessment

Eucalyptus ignorabilis
Grey Scentbark

Taxonomy

Eucalyptus ignorabilis s.s. L.A.S. Johnson & K.D. Hill

The taxon has been confused with *E. fulgens* (Green Scentbark), which is distinguished by the coarsely furrowed rough bark and glossy green leaves.

Plants from the Lerderderg State Park differ from the typical form of *E. ignorabilis* by the lanceolate juvenile leaves and slightly lustrous rather than dull adult leaves. Further work is warranted to understand if and at what rank these trees west of Melbourne should be recognised.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A4ce; D2

Species Information

Description and Life History

The taxon is a tree to 20 m tall; bark rough, firm, spongy over whole trunk becoming ribbony on the branches; smooth bark on branches and saplings orange. Juvenile leaves very shortly petiolate, opposite for few nodes, broadly lanceolate to ovate, 4.5-9 cm long, 1.5-3 cm wide, green; adult leaves petiolate, alternate, lanceolate or falcate, 8-18 cm long, 1.5-2 cm wide, concolorous, dull, green to grey-green; reticulation dense, with obscure, scattered oil glands. Inflorescences axillary, unbranched; peduncles to 0.8 cm long, 7-flowered; buds pedicellate, ovoid, to 0.5 cm long, 0.5 cm diam., scar present; operculum conical; stamens inflexed; anthers dorsifixed, cuneate; ovules in 4 vertical rows; flowers white. Fruit pedicellate, cupular to campanulate, to 0.5 cm long, 0.5 cm diam.; disc raised-annular, valves 3, broad, exserted; seed dark brown, flattened-ellipsoid, shallowly reticulate, lacunose, hilum ventral (VicFlora 2019).

The taxon is a tree 5 to 20 metres tall, usually single-stemmed, forming an inconspicuous lignotuber (Nicolle 2006).

Generation Length

The generation length of *Eucalyptus ignorabilis* is estimated to be 100 to 150 years. This is based on the lignotuberous habit and an inferred longevity of at least 150 years. The taxon is inferred to recruit episodically post-fire at pre-settlement intervals of 35-70 years or more, with established individuals resprouting successfully following most fire events from basal coppice shoots, or epicormic buds on the stem or in the crown.

Distribution

The taxon is near endemic to Victoria, occurring sporadically east from Erica to the New South Wales border, just extending into the Nadgee area in New South Wales (VicFlora 2019; Nicolle 2006). There is a major disjunction between the Erica-Seaton district to the north of the La Trobe Valley and the Tamboon area south of Cann River in far East Gippsland. West of the Erica district, there is a disjunct occurrence in the Bunyip State Park, and a highly disjunct occurrence in the Lerderderg State Park, which is currently included within the circumscription of the taxon.

Habitat

The taxon occurs mainly on sandy, well-watered soils (VicFlora 2019). It grows in low forest on well-drained hillslopes in undulating terrain in the Erica to Heyfield area, while in more coastal areas to the east it grows in sandy soils in slight depressions in low forest surrounding heathy swamps, often with *E. conspicua* (Silver Swamp Stringybark). The taxon grows naturally in areas of moderately high rainfall but requires well drained soils (Nicolle 2006).

Threats

The taxon may have suffered limited historic decline through habitat loss to agriculture in a few districts such as around Gembrook, Moe, Erica, and Toongabbie, although most confirmed records are from state forest. Few records are for sites within parks or reserves.

The taxon may be palatable to Sambar Deer (*Rusa unicolor*), which are currently increasing in population across the range of the taxon. Sambar are notoriously destructive of riparian habitats with their targeted browsing, antler rubbing and physical damage to dense vegetation. The activity of Sambar and feral pigs targeting adjacent swamps in the lowlands of far East Gippsland may pose a threat to some adjacent stands of the taxon.

The greatest long-term threat to the taxon is climatic warming and drying. This is exacerbated by imposed fire regimes, and the increasing risk of repeat fire events at intervals below the tolerable fire interval, which increase the risk of adult mortality and recruitment failure.

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 A4 as Vulnerable

The population reduction over any 300 to 450 year period, including both past and future (up to 100 years in the future), is estimated to be 10 to 40% (midpoint 25%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

An estimate of past decline is based on limited habitat loss to agriculture in some districts on the margins of more extensive stands in state forest or other public land. An estimate of future decline is based largely on the risk of recruitment failure following severe drought stress in the inferred soil profiles, particularly in western populations in the Erica district.

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:

Ineligible under Criterion B

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas VBA, is estimated to be 112 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 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

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

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 estimated to be very restricted. It has a restricted distribution, occurring in 2 or 3 locations, 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.

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.

Nicolle, D. (2006). *Eucalypts of Victoria and Tasmania.* Melbourne: Bloomings Books.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus ignorabilis*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/8bb37884-222a-43af-bc4d-c8e53d59aef8