Threatened Species Assessment

Eucalyptus neglecta
Omeo Gum

Taxonomy

Eucalyptus neglecta Maiden

This is a distinctive taxon in many ways, including its scraggly-stemmed, densely crowned habit and the coarse crown of large mixed juvenile and adult leaves. It is most closely related to the more coastal *E. kitsoniana* and is readily distinguished from that taxon in the rough bark, the waxy branchlets that are square in cross section, and the larger, duller and waxy leaves (Nicolle 2006).

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 B2ab(iii)

Species Information

Description and Life History

Tree to 7 m tall; bark rough on trunk, fibrous, grey. Crown of reproductively mature trees predominantly of juvenile leaves with some intermediate and adult leaves. Juvenile leaves sessile, opposite for many pairs, orbicular to broadly elliptic, to 11 cm long, 7 cm wide, grey-green, stems glaucous; adult leaves petiolate, alternate, lanceolate, 8-15 cm long, 2.5-3.5 cm wide, concolorous, green; intramarginal vein remote from edge; reticulation dense, with numerous, large, island and intersectional oil glands. Inflorescences axillary, unbranched; peduncles stout, to 0.5 cm long, 7-15-flowered; buds sessile, ovoid, crowded, to 0.4 cm long, 0.3 cm diam., scar present; outer operculum imperfectly dehiscing, brown, contrasting with glaucous hypanthium; stamens irregularly flexed; anthers dorsifixed, cuneate; ovules in 4 vertical rows; flowers white. Fruit sessile, hemispherical to obconical, crowded, to 0.6 cm long, 0.5 cm diam.; disc raised-annular; valves 3 or 4, rim level or slightly exserted; seed grey-brown or brown, more or less flattened elliptic, shallowly reticulate, lacunose, hilum ventral. The taxon flowers from November to May (VicFlora 2019).

The taxon is a multi-stemmed bushy tree or large bushy shrub, which is 4 to 10 metres tall, forming a lignotuber (Nicolle 2006).

Generation Length

The generation length of *Eucalyptus neglecta* is estimated to be 100 to 150 years. This is based on the lignotuberous habit and an inferred longevity of at least 150 years. It is also based on likely episodic recruitment at pre-settlement intervals of 80-150 years or more, and the expectation that the taxon resprouts successfully following most pre-settlement fire events.

Distribution

The taxon is endemic to Victoria and has a very scattered distribution in the mountainous region of the state. It occurs at sites which include on river flats in high country from near Davies Plain south-west to Omeo, Dargo High

Plains and upper reaches of the Jamieson River. It also occurs at lower elevation on the Buckland River (VicFlora 2019; Nicolle 2006).

Habitat

The taxon grows along permanent streams in marshy soils, as an understorey taxon to taller eucalypts (such as *E. camphora* and *E. viminalis*) in open forest. Sites are often shrouded in cloud, fog and mist (Nicolle 2006). Field observations and quadrat data suggest the habitat range includes both marshy sites at higher elevations, and riparian forest habitats within dissected forested landscapes.

Threats

The taxon is a habitat specialist and is therefore susceptible to any disruption to the hydrological and microclimatic stability of its habitat. Nicolle (2006) notes that the taxon is tolerant of frost and periodic snow, and requires a cool, wet climate with ample water, and is very drought tender and salt sensitive. Circumstantial observation of plants propagated in the Corryong district, however, suggest that the taxon has a greater drought tolerance than is suggested by the habitat restriction of natural occurrences.

The taxon has undoubtedly suffered some historic decline through agricultural clearance and stock grazing, particularly in the Omeo district, and potentially also in the Ovens River headwaters upstream of Porepunkah.

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 (TFI), which increase the risk of adult mortality and recruitment failure.

The taxon is likely to be palatable to Sambar Deer (*Rusa unicolor*), which are undergoing a population expansion across the range of the taxon. Sambar are destructive of riparian habitats with their targeted browsing, antler rubbing and physical damage to dense vegetation.

Quadrat data indicate that Blackberry and other exotics are commonly associated with the taxon in some districts. Weed invasion and competition by Blackberry in particular is not considered a significant current threat. However, the dense shade cast by the taxon, which often occurs with a high projective foliage cover, precludes invasion by Blackberry. The high recorded cover of Blackberry at some sites at the quadrat scale is therefore likely to be outside the canopy of the taxon itself.

Spatial analysis of likely habitat for *E. neglecta* indicates that 73% occurs within the CAR reserve system, including parks and reserves and special protection zones. Further areas are excluded from harvesting by prescription under the Victorian Code of Practice for Timber Production 2014 (the Code). Species-specific protections for the taxon are included in the Code. Other more general prescriptions such as protection and buffering of waterways also provide protection from forestry operations. In recent years, modified harvesting and forest regeneration practices have been implemented in native forest that are designed to further mitigate the potential threat from forestry operations to threatened species and their habitats.

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 A3 as Vulnerable

The population reduction over the next 100 years is projected to be 15 to 45% (midpoint 30%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Future decline is based on the projected impacts of the identified threats.

Eligible under Criterion A4 as Endangered

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 20 to 50% (midpoint 35%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Past decline is based on the likelihood that some occurrences have been eliminated through historic habitat loss to agriculture in the Omeo and Porepunkah districts. It is also based on the idea that some decline may have occurred within State forest as a result of forest management operations. Future decline is based on the projected impacts of droughts and altered fire regimes.

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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 10,348 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the subregional and landscape scale, with individual occurrences at separations greatly exceeding the dispersal range of the taxon, which has no specialised mechanism for long-distance dispersal. This precludes the possibility of recolonisation in the event of local extinction

The taxon is considered to occur in one location as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present.

It has a continuing decline in (iii) above, based on the current and projected impact of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 140 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 1 location and has a continuing decline in (iii) 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 total population size is available for the taxon, although limited field observations suggest a plausible estimate of 1000-3000 mature individuals.

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.

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. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

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

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus neglecta*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/7b2b99d8-ae17-493a-bc45-c0528f21a7ed