

Eucalyptus alligatrix subsp. *alligatrix* Silver Stringybark

Taxonomy

Eucalyptus alligatrix subsp. *alligatrix* L.A.S. Johnson & K.D. Hill

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a tree to 15 m high; mature crown composed of intermediate and adult leaves. Adult leaves to 2.8 cm wide. Flowering time unknown. Based on the type, the type subspecies has recently been more narrowly defined with regard to morphology and distribution (VicFlora 2018).

Generation Length

The generation length of *Eucalyptus alligatrix* subsp. *alligatrix* is inferred to be 150 to 300 years. This is based on an estimated longevity of 150-300 years. It should be noted that the taxon is capable of vegetative resprouting, thereby extending the life of the individual beyond intense bushfire events.

Distribution

The taxon is restricted to the valleys of the Taponga, Big, and Goulburn Rivers between Torbreck Station, Jamieson, and Kevington (VicFlora 2018).

Habitat

Quadrat data suggests key associated taxa are *E. dives* and *E. radiata* as well as *Pteridium* spp., *Platylobium* spp., *Poa sieberiana* and *P. labillardieri*. This suggests that the taxon may occupy a wide range of local slopes and elevations within its range.

Threats

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 and 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 unicorn*), which are known to occur at high density throughout the region and may target seedling recruits or vegetative resprouts. The taxon may be further threatened by the projected impact of climate change on its recruitment potential, based on the modelled impact on almost every other Eucalypt taxa in the Central Highlands of Victoria (Nitschke and Hickey 2007).

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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> <p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>			

Evidence:

Eligible under Criterion A4 as Vulnerable

The population reduction over any 450 to 900 year period, including both past and future (up to 100 years in the future), is suspected to be 15 to 40%, based on (b) and (c) above.

There is no evidence from precise site records of significant overlap with freehold estate, all reliable site records occurring within Lake Eildon National Park or State Forest. Therefore, historic decline through habitat loss is inferred to be minor.

Future decline cannot be estimated with any significant confidence, since the current and future threats are likely to occur with stochastic and unpredictable frequency and intensity.

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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:

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 220 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is inferred to have 1 location, and has a continuing decline in (iii) above, based on the combined impact of climatic drying and warming, and the imposed anthropogenic fire regime. 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 habitat may also be threatened by intense and targeted browsing pressure by Sambar Deer which are known to occur at high density throughout the region.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 88 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon has 1 location, and has a continuing decline in (iii) above.

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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 populations		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 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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