Threatened Species Assessment

Eucalyptus alaticaulis
Grampians Grey-gum

Taxonomy

Eucalyptus alaticaulis R.J. Watson & Ladiges

This taxon was previously included in *Eucalyptus cypellocarpa* (VicFlora 2016).

Current conservation status

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

Proposed conservation status

Vulnerable in Australia

Criteria B1ab(iii,v)+2ab(iii,v)

Species Information

Description and Life History

The taxon is a tree or mallee to c. 20 m tall; bark rough on lower part of main stems, fibrous, thin, grey, usually persistent. Juvenile leaves sessile or shortly petioleate, opposite for many pairs, broadly lanceolate to ovate, to 14 cm long, 9 cm wide, discolorous, glossy, green above; adult leaves petiolate, alternate, lanceolate, 12-30 cm long, (1.5-)2-4.5 cm wide, concolorous, dark green, slightly glossy, reticulation dense, with numerous island and intersectional oil glands. Inflorescences axillary, unbranched; peduncles flattened, to 2.4 cm long, 7-flowered; buds subsessile to shortly pedicellate, cylindric with conical operculum, angle often continuing from pedicel along hypanthium, to c. 1 cm long, 0.5 cm diam., scar present; stamens irregularly flexed; anthers oblong; ovules in 4 vertical rows; flowers white. Fruit sessile or pedicellate, cylindric to truncate-ovoid, to 1 cm long, 0.9 cm diam.; disc descending; valves 3, rim level or below; seed dark brownish-black, flattened-ellipsoid, shallowly reticulate, hilum ventral (VicFlora 2016).

Generation Length

The generation length of *Eucalyptus alaticaulis* is inferred to be 100 to 200 years (midpoint 150 years). This is based on a longevity that is likely to be 100-200 years or more. It is also based on the ability of the taxon to resprout post-fire, which extends the life of each individual beyond the pre-settlement fire frequency which is likely to have been in the 35-70 year range.

Distribution

The taxon is apparently restricted to the Grampian Ranges (VicFlora 2016). It also occurs on the coastal region of Anglesea, Victoria (Watson et al. 1987), but this record may be doubtful.

Habitat

The taxon is apparently restricted to dry rocky slopes (VicFlora 2016).

Threats

The taxon is potentially threatened in the long-term by climatic warming and drying. This results in prolonged and intense drought stress and an increased risk of repeat fire events. As a consequence, the taxon is at risk of increased 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:

Ineligible under Criterion A

The population reduction for this taxon is below the threshold for eligibility under criterion A.

Almost all records are now protected within the Grampians National Park and there is little indication that the taxon has suffered from significant historic habitat loss or a decline in population density.

Future decline is based on the potential impact of prolonged and extreme drought stress resulting in adult mortality and recruitment failure.

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 Criteria B1 and B2 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,008 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) across the taxon's range is estimated to be 236 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

It is estimated to have five to eight locations, as all threats identified are generic and are likely to apply consistently across the ecological and geographic range of the taxon, albeit at possibly different timing and intensity. It has a continuing decline in (iii) and (v) above, based on the projected increase in fire-frequency, intensity and landscape scale, as well as intense drought stress.

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

It is suspected that there are 5,000 to 15,000 mature individuals, but this qualifier is too weak.

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:

Ineligible under Criterion D

It is suspected that there are 5,000 to 15,000 mature individuals.

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

VicFlora (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus alaticaulis*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/67304361-0d92-458f-87fb-c9a9de127c74

Watson, R.J., Ladiges, P.Y., and Griffin, A.R. (1987). Variation in *Eucalyptus cypellocarpa* L. Johnson in Victoria, and a new taxon from the Grampian Ranges and Anglesea. *Bruinonia, 10*(2), 159-176.