Threatened Species Assessment

Eucalyptus splendens
Apple Jack

Taxonomy

Eucalyptus splendens Rule

Current conservation status

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

Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v); C1

Species Information

Description and Life History

The taxon is a tree to 10 m tall; bark rough to c. 4 cm diam. branches, firm to corky, hardly furrowed, grey over red-brown. Crown green, stems on coppice growth and branchlets of canopy conspicuously yellow. Juvenile leaves opposite at first, sessile, green, glossy, to 6.5 cm long, 1.2 cm wide, tapering at base, by 1-1.5 m tall becoming alternate, petiolate, broadly lanceolate to falcate; adult leaves lanceolate or falcate, to 20 cm long, 2 cm wide, glossy, green. Inflorescences axillary, unbranched; peduncles to 0.5 cm long, 7-flowered; buds shortly pedicellate, fusiform or ovoid, scar present; operculum conical. Fruit shortly pedicellate, cupular to hemispherical, to 0.6 cm long, 0.7 cm diam.; disc ascending; valves 3 or 4, exserted; seed brown to blackish, flattened-ellipsoid, reticulate, lacunose, hilum ventral. The taxon flowers in October (VicFlora 2018).

Generation Length

The generation length of *Eucalyptus splendens* is inferred to be 50 to 150 years. This is based on the inferred capacity of the taxon to resprout at intervals in response to severe fire or other crown damage, extending its life to potentially 150 years or more.

Distribution

The taxon is endemic to Victoria. Its bioregions include Glenelg Plain, Victorian Volcanic Plain, and Highlands-Southern Fall.

It is known only from a single locality to the north west of Portland in Western Victoria between Mt Richmond settlement and Mt Richmond. The distribution covers a linear distance of approximately 8 km, and contains severe large remnants occurring along a narrow sub-coastal, seasonally water-logged belt within a few kilometres of the ocean. It is a taxon of restricted distribution, and occurs within protected reserves, at the roadside along the Nelson-Portland Road, and in remnants of adjacent farms where substantial numbers have been lost (Rule 1996).

Habitat

The taxon grows on heavy soils of volcanic origin, within a narrow sub-coastal, seasonally water-logged belt (Rule 1996).

Threats

Key identifiable threats to the taxon include continuing habitat loss on freehold land, and the increasing risk of recruitment failure both vegetatively and from seed in response to climatic warming and drying. It is a habitat specialist which occurs on heavy soils of volcanic origin which are seasonally waterlogged, and is therefore vulnerable to hydrological modification in response to the changing seasonality of rainfall from reliable winter rain to heavy summer rainfall events, and increasing risk from extreme drought stress.

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 150 to 450 years is inferred to be 50 to 75%, based on (c) above. The causes of reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 30 to 75%, based on (c) above.

Eligible under Criterion A4 as Endangered

The population reduction over any 150 to 450 year period, including both past and future (up to 100 years in the future), is projected to be 50 to 75%, based on (c) 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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of AoO as an area within EoO.

The taxon is estimated to be severely fragmented anthropogenically at the landscape scale, with no capacity for long-distance dispersal and therefore no realistic capacity for recolonisation in the event of local extinction.

It is estimated to have 1 location, and has a continuing decline in (ii), (iii), (iv) and (v) above, based on vulnerability to hydrological modification in response to the changing seasonality of rainfall, and increasing risk from extreme drought stress.

Eligible under Criterion B2 as Critically Endangered

The AoO across the taxon's range is estimated to be 8 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 1 location, and has a continuing decline in (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:

Eligible under Criterion C1 as Critically Endangered

It is estimated that there are 100 to 300 mature individuals, based on field observation of the two confirmed subpopulations. There is estimated to be a continuing decline of 15 to 30% within one generation, based on the key identified threats.

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 D as Endangered

It is estimated that there are 100 to 300 mature individuals.

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

References

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