

Eucalyptus baueriana subsp. *deddickensis* Deddick Blue-box

Taxonomy

Eucalyptus baueriana subsp. *deddickensis* Rule

The taxon resembles glaucous forms of *Eucalyptus polyanthemos* subsp. *vestita*, but it is distinguished from that taxon by its riparian habitat, thin-textured adult leaves, clavate buds and thin-walled, conical fruits (VicFlora 2018).

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

Criterion B1ab(iii,v); C1

Species Information

Description and Life History

The taxon is a small, depauperate, mallee-like trees 4-8 m tall. Bark whitish or light grey, thin, box-like, scaly, persisting to major branches; bark on branches smooth, white, shed in short ribbons. Seedling leaves ovate to orbicular, shortly petiolate, green, opposite for a few pairs. Juvenile leaves obcordate to orbicular, 3-5 cm long and wide. Adult leaves broadly ovate or suborbicular, relatively sparse, sub-glaucous to glaucous, thin-textured, 5-7 cm long, 3-5 cm wide, dull, blue-green to subglaucous. Buds 4-5 mm long, 2.5-3.5 mm diam., sessile or on pedicles to 3 mm long. Fruits obconical or slightly cupular, sessile or shortly pedicellate, thin-walled, 0.3-0.5 cm long, 0.3-0.4 cm diam. Fertile seeds brown, irregular ovoid, finely reticulate; hilum ventral. Flowers from November to December (late Spring to early Summer) (VicFlora 2018; Rule 2011).

Generation Length

The generation length of *Eucalyptus baueriana* subsp. *deddickensis* is inferred to be 150 to 250 years. This is based on pre-settlement fire frequencies that are plausibly in the range of 50-150 years. It is also based on the ability of established adults to resprout from the lignotuber or from epicormic buds.

Distribution

The taxon is endemic to Victoria, found on the bank of the Deddick River, 10 km by road upstream from Ambyne Settlement Road, in the upper Snowy region of far East Gippsland.

The taxon is known from only two small populations occurring along the Deddick River on public land where the total number of plants is estimated to be close to 200. However, it is highly likely that other similarly small populations exist in the Deddick River catchment (Rule 2011; VicFlora 2018).

Habitat

The taxon prefers soil of granite origins. It grows in pure stands but abuts *Eucalyptus albens* at its boundaries. Other species occurring in the area include *E. bridgesiana*, *E. melliodora*, *E. microcarpa* and *E. macrorhyncha*.

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Threats

Threats to the taxon include elevated fire frequency and extreme drought stress, which compromises both vegetative and seed-based recruitment of the taxon throughout its known range. In addition, the increasing prevalence of Sambar throughout the region, and particularly in the catchment of the Deddick River, may pose a new threat of herbivory. The taxon is subject to current browsing pressures from rabbits, macropods and stock.

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 A2 as Endangered

The population reduction over the past 450 to 750 years is inferred to be 30 to 80% (midpoint 50%), based on (c) and (e) above.

Past decline is based on an inferred habitat loss of 30-80%, based on the only two confirmed records which occur at the centre of a large area of freehold land. Parts of this land have been cleared for agriculture or pine plantation establishment. While a significant proportion has remained vegetated, it has been subject to extensive grazing by cattle which may have compromised the ability of the population to recruit from seed or by resprouting post-fire.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 30 to 80% (midpoint 50%), based on (c) and (e) above.

Future decline is based on an increasing risk of repeat fire events and extreme drought stress, which compromises both the vegetative and seed-based recruitment of the taxon throughout its known range. In addition, the increasing prevalence of Sambar throughout the region, and particularly in the catchment of the Deddick River, may pose a new threat of herbivory. The taxon is subject to current browsing pressure from rabbits, macropods and stock.

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Eligible under Criterion A4 as Endangered

The population reduction over any 450 to 750 year period, including both past and future (up to 100 years in the future), is inferred to be 50 to 90% (midpoint 65%), based on (c) and (e) above.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 12 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas. The EoO has been made equal to the ApO to ensure consistency with the definition of AoO as an area within EoO.

The taxon is inferred to be severely fragmented, based on the short-range dispersal of Eucalypt seed for which the only consistent dispersal mechanism is myrmecochory or seed dispersal by ants, which operates at the metre scale only.

It is estimated to have 1 location and has a continuing decline in (iii) and (v) above, based on an increasing risk of repeat fire events and extreme drought stress.

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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:

Eligible under Criterion C1 as Critically Endangered

It is estimated that there are 200 mature individuals, and there is estimated to be a decline of 30 to 80% (midpoint 50%) within one generation.

The taxon is known from only two small populations occurring along the Deddick River on public land, where the total number of plants is estimated to be close to 200 (Rule 2011).

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 D as Endangered

It is estimated that there are 200 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:



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Rule, K. (2011). Six new infraspecific taxa in *Eucalyptus* (Myrtaceae) for Victoria. *Muelleria*, 29(1), 3-15

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus baueriana* subsp. *deddickensis*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e606f3d0-de28-466f-a75f-3c849c3bebfc>