

## *Eucalyptus mitchelliana* Buffalo Sallee

### Taxonomy

*Eucalyptus mitchelliana* Cambage

### Current conservation status

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

### Proposed conservation status

Vulnerable in Australia

Criterion D2

### Species Information

#### Description and Life History

The taxon is a tree to 15 m tall, branching low; bark smooth. Juvenile leaves sessile, opposite for few pairs then petiolate, alternate, lanceolate, to 10 cm long, 2 cm wide, glossy, green; adult leaves petiolate, alternate, narrowly lanceolate, 9-14 cm long, 1-1.5 cm wide, concolorous, glossy, green; reticulation sparse, main veins almost parallel and acute at base, with numerous island oil glands. Inflorescences axillary, unbranched; peduncles obscure or to 0.5 cm long, 7-many-flowered; buds in stellate clusters, sessile, fusiform, to 0.8 cm long, 0.2 cm diam., no scar (single operculum); operculum acutely conical; stamens irregularly flexed; anthers dorsifixed, reniform; ovules in 2 vertical rows; flowers white. Fruit sessile, truncate-globose, to 0.7 cm long, 0.7 cm diam.; disc level; valves 3, rim level; seed dark brown, glossy, smooth, pyramidal but distorted by one curved face, hilum terminal. The taxon flowers from November to January (VicFlora 2019).

The taxon is inferred to persist indefinitely through post-fire resprouting, with very few seedling recruits surviving to adulthood and replacing mature individuals through adult mortality.

#### Generation Length

The generation length of *Eucalyptus mitchelliana* is estimated to be 250 to 500 years. This is based on a plausible longevity of 250-500 years or more, and a plausible pre-settlement fire frequency of 50-150 years, but with patchy impact since the taxon is restricted to particularly rocky microhabitats. Post-fire population monitoring confirms the taxon resprouts successfully post-fire, and also recruits from seed episodically post-fire.

#### Distribution

The taxon is endemic to Victoria and is restricted to the northern and north-eastern rim of the Mt Buffalo Plateau (VicFlora 2019).

Three populations have been identified, the largest of which is at Mt McLeod on the northern rim of the plateau, the second is around the Gorge and Chalet on the north-eastern rim of the plateau, and the third is at the Back Wall on the south-west rim of the plateau.

### Habitat

The taxon is locally common among massive granite rocks (VicFlora 2019). It grows in dry shallow soils in exposed situations, often with a northerly aspect, and on bare granitic exposures between 1000 and 1600m elevation. The annual average rainfall is 1990 mm.

### Threats

The taxon is potentially threatened in the long-term by repeat fire events at intervals below the tolerable fire interval (TFI) of the taxon, resulting in recruitment failure, which is exacerbated by the projected increasing risk of extreme drought events. Since the proportion of seedling recruits to post-fire vegetative resprouts is observed to be exceedingly low, the TFI is largely based on resprouting success rather than seed-based recruits.

### 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>based on any of the following:</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>
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### Evidence:

#### Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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:**

**Ineligible under Criterion B**

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 28 km<sup>2</sup> and the Area of Occupancy (AoO) is estimated to be 20 km<sup>2</sup>, but other thresholds under this criterion have not been met.

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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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**

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It is estimated that there are 2,500 to 6,000 (midpoint 4,000) mature individuals, but other thresholds under this criterion have not been met.

Criterion D - Very small or restricted population <sup>Ⓜ</sup>			
<sup>Ⓜ</sup>	Critically Endangered <sup>Ⓜ</sup>	Endangered <sup>Ⓜ</sup>	Vulnerable <sup>Ⓜ</sup>
Number of mature individuals (observed or estimated) <sup>Ⓜ</sup>	<50 <sup>Ⓜ</sup>	<250 <sup>Ⓜ</sup>	<1,000 <sup>Ⓜ</sup>
D2 - Only applies to the VU category <sup>¶</sup> 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. <sup>Ⓜ</sup>	- <sup>Ⓜ</sup>	- <sup>Ⓜ</sup>	D2 - Typically: <sup>¶</sup> AoO < 20 km <sup>2</sup> or number of locations ≤ 5 <sup>Ⓜ</sup>

## Evidence:

### Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. It has a restricted distribution, with an AoO of 20 km<sup>2</sup> and one location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations, in response to the identified threats, notably repeat fire events at intervals below the TFI.

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

SAC (2000). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 466 *Eucalyptus mitchelliana*.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus mitchelliana*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/07fdd48f-64ec-42d5-9572-39d7b7df7eb7>