

## *Eucalyptus silvestris* Woodland Box

### Taxonomy

#### *Eucalyptus silvestris* Rule

AD and EUCLID (2019) consider individuals determined as *E. silvestris* to be of hybrid origin involving either *E. odorata* or *E. macrocarpa*, however MEL considers *E. silvestris* its own taxon.

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Victoria

Criteria A2cd+4c

### Species Information

#### Description and Life History

Spreading tree or tall mallee to 12 m tall; bark rough over whole trunk and to base of larger branches, grey, box-type; smooth, grey-brown above. Juvenile leaves petiolate, alternate, narrowly lanceolate, to 8 cm long, 3 cm wide, dull, blue-green or green; adult leaves petiolate, alternate, lanceolate, 6–10 cm long, 1.2–2.2 cm wide, glossy, green or olive-green; reticulation moderate to dense, with numerous, mostly island oil glands. Inflorescences axillary, simple; peduncles to 1 cm long, (5–)7(–9)-flowered; buds pedicellate, fusiform or clavate, to 0.5 cm long, 0.4 cm diam., no scar; operculum conical; stamens irregularly flexed; anthers adnate, globoid; ovules in 4 vertical rows; flowers white. Fruit pedicellate, obconical, subcylindrical or cupular, to 0.5 cm long, 0.4 cm diam.; disc descending; valves 4 (rarely 3 or 5), below rim; seed dark brown, ovoid and slightly flattened, surface finely reticulate, helium ventral. Flowers autumn (VicFlora 2018).

This is a long-lived, non-suckering tree. Reproduction is obligately sexual and seed is set and released in most years. Successful establishment of germinants depends on reduced competition from the field layer and is thus largely restricted to immediately after fires (which are low severity in this landscape) or in the occasional benign seasons when rainfall extends well into summer, and most likely when both pre-conditions are met. The germinants flower and set seed within 15 years of germination and persist well into old age, which may be up to 300 years. The taxon coppices freely, once mature, after low severity fires. *E. silvestris* is likely entomophilous in pollination, and thus isolated individuals may be genetically disconnected from the main populations.

#### Generation Length

The generation length of *Eucalyptus silvestris* is inferred to be 20 to 200 years (midpoint 150 years). Regeneration opportunities depend on benign seasons with rainfall extending into summer. Regeneration is assisted by occasional fires, which removes field layer competition for the germinants, and is possible in many years if rainfall is adequate.

### Distribution

In Victoria, the taxon is restricted to scattered individuals in the western Wimmera, extending north to about Yanac and the edge of the Big Desert (but not extending onto the siliceous sands that characterise the Big Desert). It is absent from large reserves.

### Habitat

*E. silvestris* is largely restricted to relatively fertile loams and sandy loams, but not heavy self-mulching loams to clay loams, in the winter-dominant rainfall zone. The overall vegetation is woodland to open woodland, with *E. silvestris* higher in the catena than the regionally dominant *Allocasuarina luehmannii* and *E. microcarpa*. These woodlands are barely shrubby but with a field layer dominated by grasses and other herbs. These woodlands are not commonly burnt, and the occasional fires are low intensity.

### Threats

Most of the range of this taxon is cleared for cropping and pasture, and has been cleared for at least a century. As a result, most occurrences consist of veteran trees with few to no seedlings associated. Its principal contemporary occurrences are roadside trees, but again with scant regeneration. Ongoing threats include lack of regeneration, roadside clearing to protect adjoining crops, and roadside fires, which now may be of higher intensity due to prolific annual grass growth.

### 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:

#### Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 60 to 600 years is suspected to be 85%, based on (c) and (e) above.

The taxon has only recently recognized as a distinct taxon. This assessment is based on the extent and intensity of land clearance.

The causes of the reduction may not have ceased, be understood or be reversible.

### Eligible under Criterion A3 as Endangered

The population reduction over the next 60 to 100 years is suspected to be 60%, based on (c) above.

This taxon has a scant local profile and is largely still unrecognized, including by the local roadside management authorities. Future loss recognises the lack of regeneration in most of its current range and localities.

### Eligible under Criterion A4 as Critically Endangered

The population reduction over any 60 to 600-year period, including both past and future (up to 100 years in the future), is suspected to be 85%, based on (c) above. The causes of the 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 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:

#### Eligible under Criterion B as Endangered

The Extent of Occurrence (EoO) is estimated to be 1,506 km<sup>2</sup>, and the Area of Occupancy (AoO) is estimated to be 60 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented, and has a continuing decline in (i), (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:

#### Ineligible under Criterion C

It is suspected that there are 200 to 1,500 (midpoint 1,000) mature individuals, but the qualifier is too weak, and other thresholds under this criterion have not been met.

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 <sup>2</sup> or number of locations ≤ 5

### Evidence:

#### Eligible under criterion D2 as Vulnerable

The taxon is estimated 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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