

## *Eucalyptus sabulosa* Wimmera Scentbark

### Taxonomy

#### *Eucalyptus sabulosa* Rule

The taxon was treated by Brooker and Slee (1996) as an informal subspecies of *E. aromaphloia*. Although their respective seedling morphologies and ontogenies differ, *E. sabulosa* and *E. aromaphloia* are considered to be closely related. Their adjacent geographical positions and similarities in the adult features of bark, fruits, and buds support this proposition (Rule 1996).

### 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 A4bce; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v); D2

### Species Information

#### Description and Life History

The taxon is a tree to 15 m tall; bark rough to small branches, thick, furrowed longitudinally, dark grey; branchlets salmon-coloured. Juvenile leaves very shortly pedicellate, opposite for several nodes, linear or narrow-oblong, to 6.5 cm long, 0.6 cm wide, dull green; adult leaves petiolate, alternate, lanceolate, 7.5-15 cm long, 1-2 cm wide, concolorous, dull to glossy, green to slightly bluish-green; reticulation moderate, with sparse island oil glands. Inflorescences axillary, unbranched; peduncles to 1 cm long, 7-flowered; buds pedicellate, ovoid or fusiform, to 0.5 cm long, 0.3 cm diam., scar present; operculum conical; stamens inflexed; anthers dorsifixed, cuneate; ovules in 4 vertical rows; flowers white. Fruit pedicellate, ovoid to subglobular, to 0.6 cm long, 0.6 cm diam.; disc slightly ascending; valves 3 or 4, slightly exserted; seed black, flattened-ellipsoid, shallowly reticulate, lacunose, hilum ventral. The taxon flowers from March to April (VicFlora 2018).

#### Generation Length

The generation length of *Eucalyptus sabulosa* is suspected to be 120 to 200 years. This is based on a longevity that is likely to exceed 150 years. It is also based on the ability of the taxon to resprout from the lignotuber and larger stems, thereby extending the life of the individual beyond the pre-settlement fire interval estimated at 45-90 years.

#### Distribution

The taxon occurs throughout the Grampian Ranges, except along the Mt William Range, and extends westwards into the centre of the Little Desert (Rule 1996).

#### Habitat

Populations of the taxon are small and sporadic, and are always on sandy soils (Rule 1996). *E. sabulosa* and *E. aromaphloia* overlap on the eastern edge of the Grampians in the Hall's Gap-Pomonal area. Associated taxa include *E. alaticaulis*, *E. baxteri*, *E. melliodora*, two forms of *E. goniocalyx*, and *E. obliqua*. In other areas such as

the Little Desert, *E. arenacea* is a common associate, whilst *E. leucoxyton* subsp. *stephaniae* and various mallee taxa may occur nearby (Rule 1996).

### Threats

A major threat to the taxon is the continuing and incremental habitat loss to agricultural intensification and infrastructure, including roadside management in rural landscapes. Another possible threat is the potential impact of increasing fire risk, repeat fire events, and recruitment failure in response to climatic drying and warming and imposed anthropogenic fire regimes. Recruiting stands may also be threatened by targeted browsing by native and exotic herbivores including wallabies, goats, rabbits, deer, 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;">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>			

### Evidence:

#### Eligible under Criterion A4 as Vulnerable

The population reduction over any 360 to 600 year period, including both past and future (up to 100 years in the future), is inferred to be 20 to 35% (midpoint 30%), based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Past decline is based on historic habitat loss to agriculture, particularly on the Dundas Tableland west of the Grampians and in the western Wimmera surrounding the Little Desert.

Future decline is based on continuing and incremental habitat loss to agricultural intensification and infrastructure, including roadside management in rural landscapes. It is also based on the potential impact of climatic drying and warming and imposed anthropogenic fire regimes, as well as targeted browsing by native and exotic herbivores.

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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8,614 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, as it occurs in small, sporadic populations (Rule 1996) with separations typically exceeding the very localised dispersal range of the taxon.

It is estimated to have 2 locations, and has a continuing decline in (ii), (iii), (iv) and (v) above, based on the impacts of the identified threats.

#### Eligible under Criterion B2 as Vulnerable

The Area of Occupancy (AoO) across the taxon's range is estimated to be 556 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is severely fragmented, has 2 locations, 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:

#### Ineligible under Criterion C as Data Deficient

There is insufficient evidence to support an estimate of total population size.

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. The taxon has a restricted distribution, occurring in 2 locations, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations. This is in response to the impact of the identified long-term threats, notably climatic drying and warming, imposed anthropogenic fire regimes, targeted browsing by native and exotic herbivores, and incremental habitat loss to agricultural intensification and infrastructure.

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

### References

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