

Corymbia gummifera Red Bloodwood

Taxonomy

Corymbia gummifera (Gaertn.) K.D. Hill & L.A.S. Johnson

This is the only rough-barked bloodwood in far south-eastern Australia. The wingless seeds ally it with the two wingless-seeded bloodwood species of south-western Western Australia, viz. *C. calophylla* and *C. haematoxylon*, which occupy similar infertile coastal sandy sites (VicFlora 2014).

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is a tree to 35 m tall, rarely a mallee; bark rough on trunk and branches, tessellated. Juvenile leaves petiolate, opposite for few pairs, then alternate, elliptic to broadly lanceolate, some peltate, to 23 cm long, 7.5 cm wide, early leaves hairy; adult leaves petiolate, alternate, broadly lanceolate to lanceolate, 10-16 cm long, 2-5 cm wide, discolorous, dark green above; with regular, wide-angled, pinnate side veins; reticulation very dense, with small island oil glands. Inflorescences compound, terminal; peduncles to 3 cm long, 7-flowered; buds pedicellate, clavate, to 1.1 cm long, 0.7 cm diam., scar absent; operculum usually pointed; stamens inflexed; anthers versatile, cuneate; ovules in 4 vertical rows; flowers white or creamy-white. Fruit pedicellate, urceolate, to 2 cm long, 1.8 cm diam.; disc vertically descending, lining tube; valves deeply enclosed; seed red-brown, boat-shaped, lacking a terminal wing, flanged along the edges. The taxon flowers from January to May (VicFlora, 2014).

Generation Length

The generation length of *Corymbia gummifera* is estimated to be 100 to 500 (most likely 200) years. This taxon has a well-developed lignotuber (Mullette 1978). Eucalypts with lignotubers can resprout following damage to the canopy and typically have a generation length several times as long as the age of each cohort of epicormic stems, which arise from the lignotuber following intense fire or other disturbance events. Since the pre-settlement fire interval in the Lowland Forest habitat of the taxon in far East Gippsland is likely to have been 35-70 years or more, the longevity of the taxon is likely to be at least 100-200 years or more. On coastal heathlands the taxon is observed to resprout regularly following intense wildfires at pre-settlement intervals likely to be considerably shorter than those observed in adjacent Lowland Forests, presumably influenced by the inherent flammability of dense coastal heathland vegetation and also by Aboriginal ignition sources. Along with several other eucalypt taxa, *C. gummifera* is observed to form dense copses of short-stature resprouts with excavation revealing that each copse comprises as few as one genet connected by a massive lignotuberous network of great antiquity. Such copses demonstrate the ability of the taxon to persist for centuries with no evidence of mortality. Generation time is therefore potentially indefinite, at least in coastal heathlands in the East Gippsland region..

Distribution

In Victoria, the taxon occurs in coastal districts in far East Gippsland between Tamboon Inlet south of Cann River to the NSW border in the Mallacoota and Genoa districts. The greatest concentration of records is from Wingan Inlet east to Mallacoota Inlet, extending inland to Genoa Peak and Gipsy Point. The taxon is widespread throughout coastal and near-coastal New South Wales and southeast Queensland (VicFlora 2014).

Habitat

In Victoria the taxon occurs on flats and low hills near the sea (VicFlora 2014). The habitat range of the taxon includes Lowland Forest and extends to coastal heathlands and woodlands where a distinctive mallee form occurs as isolated copses, each comprising as few as a single genet of great antiquity.).

Threats

The taxon is likely to have suffered negligible historic decline through habitat loss to agriculture or coastal development, with only minor losses around Mallacoota, Genoa and Gipsy Point. Although a proportion of the Victorian range of the taxon has been subjected to forestry operations and coupe regeneration in recent decades, particularly in the headwaters of the Betka River and the eastern headwaters of Hard to Seek Creek, a tributary of the Wingan River, there is no evidence to indicate whether the taxon has suffered a decline in population density as a consequence.

Current threats are difficult to identify with confidence, noting the taxon is well adapted to surviving intense bushfire by resprouting from the lignotuber. The current and projected increase in fire intensity and frequency, along with more frequent, intense and prolonged drought, both associated with climatic warming and drying as well as imposed fire regimes, represent potential long-term threats to the taxon, resulting in an increased risk of adult mortality, recruitment failure and seedbank depletion. However, the time scale over which these risks are likely to eventuate may be considerable, given the inferred longevity of both forest and mallee forms of the taxon. The long-term transition of forests in the far East Gippsland region to more flammable and fire-adapted types is likely to be accompanied by increasing density and competitiveness of the most fire-promoted species such as *Eucalyptus sieberi* (Silvertop Ash) and *E. globoidea* (White Stringybark) at the expense of slower growing and less fire-promoted species such as *C. gummifera*.

Almost the entire Victorian range of the taxon was subjected to high intensity bushfire during the 2019-2020 fire season and this may have resulted in both adult and juvenile mortality. This may have been compensated by post-fire recruitment and most established adults are expected to resprout successfully. The net effect of this significant event will not be known for some time since both resprouts and juvenile recruits are at risk of targeted browsing by native and exotic herbivores such as wallabies and Sambar deer (*Rusa unicolor*) respectively, and may also be at risk of recruitment failure in response to extreme and prolonged drought stress, particularly during El Niño weather cycles.

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> <ul style="list-style-type: none"> (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:

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 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			

Corymbia gummifera

Red Bloodwood

Evidence:

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 904 km² and the Area of Occupancy (AoO) is estimated to be 325 km², 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 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 estimated that there are 4,500 to 20,000 mature individuals, but other thresholds under this criterion have not been met.

This taxon is often the dominant canopy tree where it occurs in Victoria. Subpopulations are often extensive, forming large, interconnected forest stands. As a large dominant species, each subpopulation could be expected to comprise at least 50-100 mature trees. There are at least 90-100 subpopulations, based on site and specimen records, which when multiplied by the nominal average 50-100 mature individuals suggests a population size of 4,500-10,000 mature individuals. Even this estimate is an artefact of survey effort and sampling intensity and an upper bound of 20,000 is suggested.

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



Corymbia gummifera Red Bloodwood

Evidence:

Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted, with a single location, such that the taxon is capable of becoming Critically Endangered or Extinct within a time frame of one or two generations in response to the impact of the identified threats.

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.

Mullette, K. J. (1978). Studies of the lignotubers of *Eucalyptus gummifera* (Gaertn. and Hochr.). I. The nature of the lignotuber. *Australian Journal of Botany*, 26, 9-13.

VicFlora (2014). Flora of Victoria, Royal Botanic Gardens Victoria: *Corymbia gummifera*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/8082708c-ad76-460a-a104-ecb14d3d4e25>