

Threatened Species Assessment

Commersonia dasyphylla Kerrawang

Taxonomy

Commersonia dasyphylla Andrews

The taxon was previously known as *Rulingia pannosa*, then later as *Rulingia dasyphylla*. Smaller-leaved plants from near Genoa Peak are now regarded as a separate species, *C. breviseta* (VicFlora 2015).

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Rulingia pannosa* (SAC 1991).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ac(iv)+2ac(iv)

Species Information

Description and Life History

Shrub to c. 3 m high. Leaves ovate, 1-5 cm long, 0.5-1.5 cm wide, irregularly toothed, upper surface green, sparsely stellate-hairy, under-surface grey or greenish-white, stellate-tomentose, all hairs the same length; petioles 2-5 mm long. Inflorescence usually with 10 or more flowers. Calyx segments 3-5.5 mm long, 1.5-3.5 mm wide, stellate-hairy on both surfaces; petals c. half as long as calyx segments, often somewhat stellate-hairy; staminodes 5, stellate-hairy. Capsule 5-7 mm diam. Flowers September-January (VicFlora 2015).

Generation Length

The generation length of *Commersonia dasyphylla* is estimated to be 25 to 80 years (midpoint 50 years). This is based on an estimated pre-European settlement fire frequency of 25 to 50 years or more, and the assumption that the taxon recruits episodically following intense wildfire events from a long persisting soil-stored seedbank. The seedbank is likely to survive for decades if not centuries. Generation time is likely to greatly exceed the longevity of the taxon which may only be 15-25 years.

Distribution

The taxon occurs near Murrindal in the east of the state, with an apparent disjunct occurrence on Mt Buffalo, however it has not been reported from there since its collection in 1853 (VicFlora 2015).

Habitat

The taxon is a rare species in dry open forest (VicFlora 2015).

Threats

The only identifiable threat to this taxon is the relatively low risk of repeat fire events at intervals below its likely tolerable fire interval of 5-15 years. The risk of fire recurring at such short intervals is low given the time required for fuel to accumulate in the dry sclerophyll forest habitat, in which the only recent occurrence of the taxon is known to occur. The only exception to this is the application of planned burning at intervals well below the natural fire

frequency in such forests, which is estimated to have been in the range of 25-50 years prior to European settlement.

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			

Evidence:

Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the AoO to ensure consistency with the definition of AoO as an area within EoO.

The taxon is estimated to be severely fragmented naturally at the regional scale, and is estimated to have extreme fluctuations in (iv) above, in response to the intensity and habitat penetration of each fire event.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 8 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. The AoO is based on the unknown persistence of the taxon in the absence of adult subpopulations at each of the two known occurrences.

As above, the taxon is severely fragmented, and has extreme fluctuations in (iv) 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 determine the number of mature individuals.

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 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

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

SAC (1991). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 113 *Rulingia pannosa*



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VicFlora (2015). Flora of Victoria, Royal Botanic Gardens Victoria. *Commersonia dasyphylla*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/6aebad93-fecd-4c75-8f9d-6083036ee611>