

Commersonia prostrata Dwarf Kerrawang

Taxonomy

Commersonia prostrata (Maiden & Betche) C.F. Wilkins & Whitlock

Current conservation status

Listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Rulingia prostrata* (SAC 1992).

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

Proposed conservation status

Endangered in Australia

Criteria B1ab(i,ii,iii,iv,v)c(iv)+2ab(i,ii,iii,iv,v)c(iv)

Species Information

Description and Life History

The taxon is a prostrate shrub with trailing branches to 2 m long. Leaves are alternate, ovate or cordate, 1-3.5 cm long, 0.5-2.5 cm wide, sparsely stellate-hairy above, more densely so below; margins conspicuously serrated or crenate for all or most of their length; leaf stalks are 3-20 mm long. Flowers are white or pinkish, in small, stalked clusters opposite the leaves. Fruiting capsules are 5-9 mm diameter, conspicuously stellate-hairy and bearing bristles, opening into 5 valves. The taxon flowers from October to November. Plants seem to persist for a few (up to about 10) years post-disturbance before senescing. Germination of soil-stored seeds usually follows flood, fire or earthworks (VicFlora 2022).

Generation Length

The generation length of *Commersonia prostrata* is suspected to be 3 to 10 years. The taxon is a short-lived prostrate shrub of wet swales and associated wetland habitats (e.g., sedge wetland). Seed is apparently persistent in the soil, and germination is triggered by disturbance, including flooding. Reports of germination responses to fire are ambiguous. It is suspected that circumstances triggering germination events are likely to occur within the above designated time frame. Past estimates considered that the longevity is likely to be 3-15 years, with generation time under pre-settlement conditions likely to be in 15-30 years range, based on the likely frequency of bushfire, inundation, and drought events. However, considering the habitats occupied, the current estimate suggests that populations may operate on faster cycles than this.

Distribution

The taxon is very rare, confined in Victoria to the Rosedale-Stradbroke-Providence Ponds area in South and Central Gippsland, with an isolated occurrence on the Genoa River near Wangarabell in far East Gippsland following the 2019 wildfires (VicFlora 2022).

Habitat

The taxon occurs on swampy land and lake margins in the Rosedale-Stradbroke-Providence Ponds area and in rocky riparian shrubland at Wangarabell (VicFlora 2022).

Threats

The main potential threats to the taxon include climate change (i.e. decreased rainfall, decreased frequency, amplitude and duration of flooding, drying of springs and soaks), increased frequency and intensity of fire, and failed recruitment/reproduction due to drought conditions. Other threats include eutrophication of wetlands, historic impacts on wetlands associated with plantations, declining groundwater levels, land clearing for urban/agricultural use, grazing or browsing by feral animals and domestic stock (i.e. cattle, deer, pigs, rabbits, sheep) and possibly wallabies, and pugging of wetlands by cattle and other stock. Weed invasion is probably a minor threat unless associated with altered hydrology. Burgan encroachment onto drying wetlands, and general vegetation closure may constitute a threat at some occurrences. Blackberries may threaten the disjunct occurrence on the Genoa River at Wangarabell.

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;"><i>based on any of the following:</i></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 			

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			

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 1,704 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, as it is localised to small areas of suitable habitat at a small number of disjunct sites.

Most sites appear to be subject to similar types of threat. It may be reasonable to consider that the taxon occurs in two locations based on public and private land tenure.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) due to the identified threats that lead to losses of suitable habitat and consequently, potential population size.

It is estimated to have extreme fluctuations in (iv) above, as it is short-lived and the population size can vary substantially across wetting and drying cycles of the relevant wetland habitats, and potentially post-fire.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 152 km², 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, has a continuing decline in (i), (ii), (iii), (iv) and (v) and extreme fluctuations in (iv) above.

Commersonia prostrata Dwarf Kerrawang

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			

Ineligible under Criterion C as Data Deficient

There is insufficient evidence to determine the number of mature individuals. However, using VROTPop data suggests that an upper limit for the total population (although not necessarily mature individuals) for all documented stands could be 5,000.

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

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. 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



Commersonia prostrata Dwarf Kerrawang

DSE (2003) *Flora and Fauna Guarantee Action Statement No. 144 Dwarf Kerrawang Rulingia prostrata*.

Department of Sustainability and Environment, Est Melbourne. Retrieved from

https://www.environment.vic.gov.au/__data/assets/pdf_file/0011/32600/Dwarf_Kerrawang_Rulingia_prostrata.pdf

SAC (1992). *Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 227 Rulingia prostrata*

VicFlora (2015). *Flora of Victoria, Royal Botanic Gardens Victoria: Commersonia prostrata*. Retrieved from:

<https://vicflora.rbg.vic.gov.au/flora/taxon/4d7392dc-c93e-4bfb-a439-abe2dce5345c>