Threatened Species Assessment

Elacholoma prostrata
Small Monkey-flower

Taxonomy

Elacholoma prostrata (Benth.) W.R. Barker & Beardsley

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2ce+3ce+4ce; B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a prostrate annual or perennial, forming broad mats, rooting at nodes, with white eglandular hairs, largely confined to younger stems, calyces and leaf-margins. Leaves sessile, joined by a ridge at nodes, c. obovate to elliptic, 2-6 mm long, 1.5-3 mm wide, apex more or less acute, base mostly narrow-cuneate, margins entire. Flowers solitary in axils; pedicel 5-25 mm long. Calyx 3-7 mm long, teeth almost equal, c. 1 mm long; corolla more or less rotate, tube 6-15 mm long and gradually dilated above calyx, tube yellow, throat white, lobes spreading, almost equal, 4-5 mm long, blue or pink, rarely white. Capsule obovoid, 4-5 mm long. The taxon flowers from July to September (VicFlora, 2018).

Generation Length

The generation length of *Elacholoma prostrata* is estimated to be 50 to 75 years. The taxon forms extensive perennial mats which, under undisturbed conditions, are likely to persist indefinitely. Cuttings taken for propagation have well-developed rhizomes, suggesting the taxon may survive vegetatively through intervals between flood events. The actual longevity of each clonal patch is likely to be curtailed only by stochastic events such as extreme drought, extended inundation, burial under flood-borne silt and sediment, erosion of substrate, animal digging, or overgrazing by macropods, particularly during drought. Since European settlement, mortality may also result from overgrazing by sheep or other exotic herbivores capable of closely browsing to ground level. Longevity is plausibly in the 10-50 year range or more. At the time of European settlement, sites such as Bells Swamp, Lake Buloke, Wooroonook and Kerang are likely to have been subject to a 10 year rewetting cycle. Bells Swamp and Lake Buloke previously flooded in the early nineties, and vigorous regeneration following recent floods strongly suggests vegetative resprouting as well as possibly some seed germination.

Distribution

In Victoria, the taxon is confined to north-western and north-central areas and is rather uncommon. It also occurs in Western Australia, Northern Territory, South Australia, Queensland, and New South Wales (VicFlora, 2018).

Habitat

The taxon mostly occurs on heavy soils prone to seasonal inundation, such as gilgais and floodplains etc. (VicFlora, 2018).

Threats

The taxon is a habitat specialist dependent on the hydrological stability of its floodplain or wetland habitat. Historically, it is likely to have suffered significant decline in many districts in response to habitat loss to agriculture and habitat modification through agricultural activity and stock grazing.

Current and projected threats include incremental habitat loss, modification and fragmentation in response to agricultural intensification, including cropping and draining of wetlands, climatic warming and drying, drought stress, reduced streamflow and flooding in response to diversion for irrigation, weed invasion, trampling and pugging of wetland habitats by stock, and overgrazing by macropods, rabbits and pigs.

The taxon is threatened by weed invasion, particularly *Phyla canescens*, and potentially also by increasing dominance by native competitors like *Eragrostis australasica*. It is also threatened by summer-growing exotics like *Xanthium spinosum* and *X. occidentale* which are favoured by climate change.

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 150 to 225 years is estimated to be 50 to 80% (midpoint 65%), based on (c) and (e) above.

Past decline is based on the historic depletion of Lignum- Black Box woodlands, especially Lignum Swampy Woodland, Intermittent Swampy Woodland and Lignum Swamp Ecological Vegetation Classes.

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 100 years is projected to be 50 to 80% (midpoint 65%), based on (c) and (e) above.

Future decline is based on the projected impact of the identified threats.

Eligible under Criterion A4 as Endangered

The population reduction over any 150 to 225 year period, including both past and future (up to 100 years in the future), is estimated to be 50 to 80% (midpoint 65%), based on (c) and (e) above. The causes of 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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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 B2 as Endangered

The Area of Occupancy (AoO) is estimated to be 110 km², 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 naturally at both the sub-regional and landscape scales and also anthropogenically at the landscape scale. Geographically isolated occurrences occur at spacings likely to exceed the dispersal range of the taxon which, although potentially dispersed by birds and floods, is observed to spread vegetatively and recolonise habitat from small refugia in gilgai depressions and the lowest points in swamps and lake beds with little or no reliance on recruitment from seed.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the current and projected impact of the identified threats.

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

There is no available estimate of population size for the taxon.

Criterion D. Very small or restricted population			
	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 km2 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. 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

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Elacholoma prostrata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/2199fbd0-8f8f-4ba7-994b-d140cdd7ae2b