

Eriocaulon australasicum Southern Pipewort

Taxonomy

Eriocaulon australasicum (F. Muell.) Koern.

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* (SAC 1995).

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

Proposed conservation status

Endangered in Victoria

Criteria B1ab(iii)c(iv)+2ab(iii)c(iv)

Species Information

Description and Life History

Leaves 20-50 mm long, 1-1.5 mm wide. Inflorescence ovoid to subglobose, 3-4 mm diam., with outer whorls of female flowers and inner whorls of male flowers. Bracts glabrous; outer bracts ± narrowly ovate; inner bracts ± linear. Male flowers pedicellate, with perianth glabrous; outer perianth lobes 3, oblong-spathulate, cohering at base; inner perianth fused into a 3-lobed tube. Female flowers with perianth absent. Ovary sessile, but appearing shortly and distinctly pedicellate because perianth absent. Flowers Dec. and Mar. (VicFlora 2018).

Generation Length

The generation length of *Eriocaulon australasicum* is estimated to be 1 year. It is an annual species and possibly requires a period of inundation to enable germination from soil-stored seed. Plants start to grow in shallow water (up to 20 cm deep) (Scarlett 1999). Flowering and seed-set follow rapidly as the water level drops and depressions dry out.

Distribution

In Victoria, the taxon is currently known with certainty only from 2 disjunct regions, in the Grampians and near Edenhope. An earlier collected exists from the Little Desert National Park adjacent to the South Australian border.

Habitat

At both Meereek Flora Reserve and at Middle Swamp in the Grampians National Park, *Eriocaulon australasicum* grows in shallow seasonally inundated depressions and swamp margins on clay plains in open *Eucalyptus camaldulensis* woodland. Its commonly associated species include *Baumea articulata*, *Chorizandra enodis*, *Villarsia reniformis*, *Gratiola pumilo*, *Centrolepis polygyna*, *Myriophyllum* spp. and *Utricularia dichotoma* (Leach 2017).

The site in the Little Desert is most likely in Plains Sedgy Wetland or also in Plains Sedgy Woodland, probably in *E. leucoxylon* or *E. camaldulensis* woodland.

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At Back Creek Travelling Stock Reserve near Braidwood the taxon grows in riparian vegetation dominated by Cyperaceae and Juncaceae.

Threats

The habitat of *Eriocaulon australasicum* is reliant on winter-spring rainfall and is at risk from climatic drying. Being an annual, the taxon is also reliant on favourable winter-spring rainfall for seed germination and subsequent survival of seedlings.

Possible future weed invasion is another potential threat, particularly if the weed cover reduces the amount of bare ground.

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>	<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>
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Evidence:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2. There is insufficient evidence to determine whether will be a future reduction in population size (criterion A3).

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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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 2,029 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them.

It is estimated to have 3 locations and has a continuing decline in (iii) above, based on the current and projected impact of the identified threats.

It is estimated to have extreme fluctuations in (iv) above, as it is an annual, and is dependent on favourable winter-spring rainfall for germination and survival of seedlings. The size of the populations fluctuates, and during periods of drought the taxon will be absent from certain sites.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 12 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is estimated to be severely fragmented, is estimated to have 3 locations, and has a continuing decline in (iii) and extreme fluctuations in (iv) above.

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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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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 600 to 2,000 mature individuals, but other thresholds under this criterion have not been met.

Criterion D. Very small or restricted population				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 50	< 250	<u>D1</u> < 1,000
<u>D2</u>	<i>Only applies to the VU category</i> 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.	-	-	<u>D2</u> . Typically: <u>AoO</u> < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Vulnerable

It is estimated that there are 600 to 2,000 mature individuals.

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

References

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