Threatened Species Assessment

Xerochrysum papillosum
Island Everlasting

Taxonomy

Xerochrysum papillosum (Labill.) R.J. Bayer

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(iii)

Species Information

Description and Life History

The taxon is an annual or perennial taprooted herb, 10-80 cm high; stems simple or branched, erect, densely septate-papillose. Leaves linear to narrowly elliptic, 1-10 cm long, 1-5 mm wide, septate-papillose, sometimes also with arachnoid hairs, apex acute. Capitula terminal in panicle-like or corymbose inflorescence, or solitary, 1.5-4.0 cm diam.; outer involucral bracts obtuse, inner bracts elliptic, 0.5-1.8 cm long, white, smooth, apex mucronate; florets yellow, female florets in a single outer series. Cypselas c. 3 mm long; pappus white, 7-9 mm long. Flowers November-February (VicFlora 2019).

Generation Length

The generation length of *Xerochrysum papillosum* is estimated to be 1 to 5 years. The taxon is an annual or short-lived perennial whose recruitment is presumably triggered by favourable rainfall events, or other episodic events of highly variable intensity or frequency. Rainfall in the Wilsons Promontory area is ca. 1076 mm per annum, therefore recruitment is presumably relatively regular. The longevity of soil-stored seed whilst unknown is potentially long.

Distribution

The taxon has been recorded from a few islands around Wilsons Promontory, such as Wattle, Glennie and Citadel Islands, with a 1983 collection from the adjacent mainland. The taxon has been reliably recorded on Norman, Greater Glennie, Citadel and Wattle Islands and is inferred to have been collected on the adjacent mainland of Wilsons Promontory by Beauglehole in 1983. It also occurs in Tasmania including islands of Bass Strait (VicFlora 2019).

Habitat

The collectors' notes on the Victorian collections held at the National Herbarium of Victoria do not provide any habitat information. In Tasmania, the taxon occurs mainly on coastal cliffs and dunes in eastern and northern Tasmania. It is unclear whether the taxon prefers rocky sites to escape any grazing pressure or because there is more moisture availability among rocks, or a combination of both.

Threats

None of the herbarium specimens provide any information about threats. It is likely that those subpopulations growing on dunes, or sand among rocks, are susceptible to erosion from future coastal instability.

Future climatic drying may also result in less favourable rainfall events and thus affect recruitment as well as increasing drought stress.

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:

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 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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 75 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is severely fragmented naturally at the landscape scale. Although seed has a pappus which assists dispersal by wind, most seed is likely to settle within 1-100 m of the parent plant with few dispersed at the kilometre scale. The prevailing winds are westerlies which precludes recolonisation in the event of local extinction since there are no donor subpopulations upwind of each island. There are multiple, small isolated subpopulations that are all at risk from future climatic drying and decreased rainfall events, droughts stress and increased coastal instability, such that there is increased extinction risk and little or no probability of recolonisation should subpopulations on each island become locally extinct.

A single location is identified since the prevailing identified threats operate uniformly across the very restricted geographic and ecological range of the taxon in Victoria. Although the habitat range of Victorian occurrences is largely inferred from Tasmanian records, if there is sufficient representation of Victorian stands across the suspected elevation range on each island, then two locations could be identified since elevated stands would be at reduced risk from storm surges and coastal instability.

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

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 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 1 location, and has a continuing decline in (iii) 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. Collectors' field observations make no statement of population size and there have been no dedicated surveys for this 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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Xerochrysum papillosum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/47c9e596-1b23-44e6-94b1-f5ffaa391e04