Threatened Species Assessment

Xerochrysum palustre
Swamp Everlasting

Taxonomy

Xerochrysum palustre (Flann) R.J. Bayer

Current conservation status

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

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Bracteantha* sp. aff. *subundulata* (SAC 1996).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2bce+4bce

Species Information

Description and Life History

The taxon is a perennial rhizomatous herb, 30-100 cm high; stems simple (rarely 1-few-branched), erect, with arachnoid hairs confined to upper 5-15 cm, otherwise glabrescent. Leaves lanceolate-elliptic, 3-10 cm long, 3-8 mm wide, glabrescent but margins with arachnoid hairs; apex acute. Capitula solitary, terminal, 2.5-5.0 cm diam.; involucral bracts elliptic, 1-2.5 cm long, golden-yellow, smooth, apex acute; florets yellow, female florets few in a discontinuous outer series, sometimes apparently absent. Cypselas c. 3 mm long; pappus yellow, 5-8 mm long. The taxon flowers from November to March (VicFlora 2018). The fruit is a narrow dry seed to 3 mm long with a crown of yellow bristles about twice as long as the seed. Plants are rhizomatous in habit (Carter & Walsh 2011).

Generation Length

The generation length of *Xerochrysum palustre* is estimated to be 50 to 100 years. The plant is a long-lived rhizomatous perennial herb of shallow wetlands, often on heavy black soils. It is a resprouter, with reports of germination from seed (e.g. post-fire) not located. Consequently, a long effective generation length is suspected, and it is likely the supplied figure is quite conservative.

Distribution

The taxon is scattered across southern parts of Victoria, from near the South Australian border north-west of Portland to the Bairnsdale district, but is rare due to habitat depletion. The taxon also occurs in Tasmania (VicFlora 2018).

Habitat

The taxon occurs in lowland swamps, usually on black cracking clay soils (VicFlora 2018).

Threats

Amongst threats relevant to Victorian populations, Carter and Walsh (2011) noted drainage or other modifications of wetlands for agriculture, and other hydrological modifications such as the lowering of water tables by blue gum

plantations near wetlands. Other threats include weed invasion, damage caused by road or rail works, grazing by kangaroos, feral animals, and domestic stock (especially during dry years when plants are more accessible to herbivores), ploughing and other soil disturbance, mining for brown coal, and climate change, due to the impact of reduced rainfall and increased temperatures on shallow wetlands. Non-target damage from weed spraying, including on reserved land, is an additional risk to some populations.

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 Critically Endangered

The population reduction over the past 150 to 300 years is inferred to be 95%, based on (b), (c) and (e) above.

The taxon is presumed to have previously been far more widespread in seasonal herbaceous wetlands on fertile soils of the plains, the majority of which have been modified by agricultural practices. The taxon is absent from sites subject to sustained grazing which would otherwise appear to represent suitable habitat. Given the generation length, most of this depletion would have occurred within three generations.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 150 to 300 year period, including both past and future (up to 100 years in the future), is suspected to be 95%, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

This is based primarily on past decline. While it is highly likely that some remnant stands will be lost over the next 100 years, there is no basis from which to predict future population sizes. The future outcomes for the taxon are dependent on sustained conservation of the key remnant populations.

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 248 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is severely fragmented, has 3 locations, and has a continuing decline in (ii), (iii), (iv) and (v) above, based on 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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals.

While Carter and Walsh (2011) estimated the population as between 5,000 and 10,000 plants in Victoria, they did not have population counts for several sites, including the largest two occurrences at Gisborne Racecourse Reserve and Doling Doling Swamp Lake Reserve, which would considerably increase this number. The counts also refer to emergent shoots from the rhizomes, and the number of actual genets would be much lower.

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 inferred to be very restricted.

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

References

Carter, O., and Walsh, N. (2011*). National Recovery Plan for the Swamp Everlasting Xerochrysum palustre*. Department of Sustainability and Environment, Melbourne. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-swamp-everlasting-xerochrysum-palustre

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

SAC (1996). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 376 *Bracteantha* sp. aff. *subundulata.*

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Xerochrysum palustre*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/2b897163-174b-42a0-94d5-f25fc324977b