

Centipeda crateriformis subsp. *crateriformis* Lagoon Sneezeweed

Taxonomy

Centipeda crateriformis subsp. *crateriformis* N.G. Walsh

Current conservation status

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

Annual to c. 20 cm high; branches prostrate to ascending, but sometimes erect, glabrescent to conspicuously cottony in axils and stem apices. Leaves more or less narrowly obovate to spatulate, 3-8(-12) mm long, 2-4(-6) mm wide, surfaces resin-dotted. Capitula more or less hemispherical to bowl-shaped at anthesis, 3.5-7 mm diam., solitary, sessile or minutely pedunculate; involucre bracts ovate to obovate, entire or with minutely rinate membranous margins, 1.5-4 mm long; receptacle flat to very slightly concave or convex; female florets c. 100-200, corollas 0.4-0.7 mm long; bisexual florets (7-)12-22, corollas c. 0.8 mm long. Fruiting heads remaining intact until long after stems senesce. Cypselas linear, (1.4-)1.8-2.5 mm long; ribs 4-5, smooth or rarely scabridulous, smooth or rarely scabridulous, with sparse antrorse, appressed, sometimes apically thickened hairs; intervening faces with sparsely scattered vesicular trichomes and sometimes with fine ribs; apex obtuse extending as a thickened, spongy portion a third of the cypselas length. Flowers most of the year (VicFlora 2015).

C. crateriformis subsp. *crateriformis* is potentially perennial like subsp. *compacta* but most often behaves as a facultative annual, requiring major flood or rainfall events for successful seed recruitment.

Generation Length

The generation length of *Centipeda crateriformis* subsp. *crateriformis* is estimated to be 2 to 7 years. The taxon's longevity rarely exceeds one year and relies on flood or major rainfall events for successful recruitment. Prior to water extraction from the Murray-Darling river system for agriculture, the frequency and intensity of flood events were dependent on La Niña events, which historically occurred at 2-7 year intervals.

Distribution

The taxon occurs in regions surrounding the Murray River from Kerang in Victoria, through to South Australia. (VicFlora 2015).

Habitat

In Victoria, the taxon grows in the clay soils of seasonally inundated areas and depressions (VicFlora 2015; Walsh 2001). It has also been recorded in gilgai depressions in Black Box-Chenopod floodplain near the Murray River, as well as fringing small dams and ponds.

Centipeda crateriformis subsp. crateriformis

Lagoon Sneezeweed

Threats

The taxon is threatened by reductions in the frequency and reliability of flooding and major rainfall events in response to climatic drying, and water extraction and diversion.

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> <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 			

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.

Centipeda crateriformis subsp. *crateriformis* Lagoon Sneezeweed

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 4,281 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally and anthropogenically at the landscape scale, with each confirmed record isolated from all others by separations exceeding the likely dispersal range of the taxon, or else associated with artificial waterbodies disconnected from the Murray River floodplain system.

It estimated to have 1 location, has a continuing decline in (iii) above in response to the identified threats.

It has extreme fluctuations in (iv) above, under pre-European settlement conditions in response to flood and rainfall events.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 18 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, has a continuing decline in (iii) and extreme fluctuations in (iv) above.

Centipeda crateriformis subsp. crateriformis

Lagoon Sneezeweed

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

The population size of the taxon cannot be meaningfully estimated since the taxon is subject to extreme fluctuation in population size.

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

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



Centipeda crateriformis subsp. *crateriformis*
Lagoon Sneezeweed

VicFlora (2015). Flora of Victoria, Royal Botanic Gardens Victoria: *Centipeda crateriformis* subsp. *crateriformis*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/76485188-516b-4fda-9737-e21befc03a8a>

Walsh, N.G. (2001). A Revision of *Centipeda* (Asteraceae). *Muelleria*, 15, 58-60