

Angianthus brachypappus Spreading Angianthus

Taxonomy

Angianthus brachypappus F. Muell.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ac(iv)

Species Information

Description and Life History

The taxon is decumbent to erect, cobwebbed annual to c. 14 cm high, simple or branched. Leaves oblanceolate, narrowly elliptic or c. linear, 10-32 mm long, 1-5 mm wide. Compound heads ovoid or ellipsoid, often narrowly so, 10-39 mm long, 5-8 mm diam., with 100-300 capitula; bracts subtending compound heads inconspicuous or to c. one-quarter the length of the head. Capitulum-subtending bracts 1(-3), hyaline; capitular bracts 2.1-3.2 mm long, midrib hairy towards apex. Florets 2 per capitulum; corolla 5-lobed, tube 1.3-2.2 mm long. Cypselas obovoid, 0.5-0.8 mm long, c. 0.3 mm diam., papillose; pappus cup-shaped, variably jagged, often with 1 or 2 bristles half to two-thirds the length of the corolla. The taxon flowers from September to December (VicFlora 2018).

Generation Length

The generation length of *Angianthus brachypappus* is estimated to be 5 to 10 years. This is based on the mean interval between La Niña events, which provide reliable rainfall for optimal recruitment from a soil-stored seedbank.

Distribution

The taxon is rare in Victoria and it is confined to the north-west. The taxon also occurs in SA, Qld and NSW (VicFlora 2018).

Habitat

Whilst Wimmera records are more consistently associated with edges of saline depressions, as cited in VicFlora (2018), more numerous and recent records in the far North West are often from drier more open chenopod-dominated sites on medium to heavy soils, with little or no quadrat-based evidence of salinity. The habitat range of the taxon is therefore geographically divergent.

Threats

The taxon is likely to have suffered significant historic decline since European settlement, in response to habitat loss to agriculture, and habitat degradation in response to agricultural activities.

No current or future threats to the taxon can be identified, with most known extant occurrences in parks or other protected sites.

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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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 15 to 30 years is estimated to be 10 to 30%, based on (c) above.

Although the historic decline is estimated at 50-80% in response to habitat loss and degradation, only a small proportion of this decline is likely to have occurred within the last 3 generations.

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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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 48 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 the regional and landscape scales, and potentially also anthropogenically at the landscape scale in some districts. Geographically isolated stands occur at separations typically exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal. This precludes the possibility of recolonisation in the event of local extinction.

It is estimated have 2 locations and has extreme fluctuations in (iv) above. The population size is observed to fluctuate dramatically between successive seasons in response to rainfall events driven by La Niña cycles.

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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 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. Any available estimate would be misleading since the population size and local density are likely to fluctuate significantly in response to seasonal conditions.

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:

Ineligible under Criterion D as Data Deficient

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

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.



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VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Angianthus brachypappus*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/c71460f2-f42c-4f63-ae0e-79d5a502f99f>