

Asperula wimmerana Wimmera Woodruff

Taxonomy

Asperula wimmerana Airy Shaw & Turrill

This taxon was only relatively recently recognised and older records have likely been missed or misidentified. It is still largely unrecorded in NSW, but this is probably an artefact and it can be expected to be more common there.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2ce+3ce+4ce; B2ab(iii,v)

Species Information

Description and Life History

The taxon is a tufted erect or decumbent perennial, with slender and creeping rhizomes; stems slender but rigid, to 20 cm long, scabrous to hispid with mostly recurved hairs. Leaves and stipules sessile, c. equal, in whorls of usually 6, linear, mostly 3-10 mm long and 0.5-1 mm wide, acute and often mucronate, upper surface glabrous to scabrous, lower surface scabrous with hairs mostly confined to midrib, margins recurved. Inflorescences terminal, mostly 1-3-flowered, c. as long as leaves. Corolla c. 3.5 mm long on male flowers, c. 2.5 mm long on females, white; corolla-tube longer than lobes in male flowers, more or less equal to lobes in females. Fruit 2-lobed; mericarps subglobose, 1.5-2.0 mm diam., rugose, brown to black. The taxon flowers from August to October (VicFlora 2019).

Generation Length

The generation length of *Asperula wimmerana* is suspected to be 20 to 50 years. This herb, with a somewhat slightly woody stem base, germinates in most seasons and it is suspected that there is a long-term viable soil seed store. The longevity of individual plants depends on local seasonal conditions and browser pressure but they can be long-lived. Plants may bloom and set seed within its first season, but many plants take two seasons to set viable seed.

Distribution

The taxon is scattered in the west of Victoria, from Mildura to the southern Grampians and expected to extend into western NSW and perhaps a short distance into the upper south-east of SA. It does not extend onto the northern plains and apparently not upstream of around Swan Hill. It was recently recorded from a number of sites in the near-west of Melbourne (Werribee Plains).

Habitat

The taxon is largely restricted to heavy loam plains and similar riverine sites on heavy, fertile clay loams, which may be waterlogged in the cooler (wetter) seasons. It occasionally extends onto semi-saline sites. The overall climate is mild damp winters and hot, dry summers. The taxon is flood tolerant and in semi-arid climates is largely

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restricted to riverine sites. Woodland dominants include *Eucalyptus largiflorens*, *E. microcarpa*, *Allocasuarina luehmannii*, and *E. camaldulensis*.

Threats

All confirmed or acceptable records, almost without exception, are for freehold land or close to the boundary of public land, and associated with highly fragmented or depleted communities targeted historically for agriculture. Ongoing threats include rabbit browsing and stock browsing on private and (licensed on) public land. However, the biggest threats are weed invasion and, in the more arid parts of the range, lack of environmental floods from the inland flowing rivers, anthropogenic modification of hydrological regimes including saline discharge, and on climate change-induced drying of habitat.

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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 60 to 150 years is inferred to be 50 to 70%, based on (c) and (e) above. The causes of the reduction may not have ceased, be understood or be reversible.

Past decline is based on historic habitat loss from agriculture, hydrological changes, lack of flooding and weed invasion.

Eligible under Criterion A3 as Endangered

The population reduction over the next 60 to 100 years is projected to be 20 to 60 (midpoint 40)%, based on (c) and (e) above.

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Future decline is based on the continuing gradual attrition of populations due to the lack of environmental floods and continued weed invasion and establishment.

Eligible under Criterion A4 as Endangered

The population reduction over any 60 to 150 year period, including both past and future (up to 100 years in the future), is suspected to be 35 to 60%, based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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

The taxon is suspected to be severely fragmented. On a state-wide basis, all sites (except those around the Little Desert-Wimmera River) could be considered to be severely fragmented anthropogenically at the landscape scale, and possibly also at regional scale if it is reliably recorded near Melbourne.

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

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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

It is suspected that there are 1,000 to 70,000 (midpoint 20,000) mature individuals, but this qualifier is too weak and other thresholds under this criterion have not been met.

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

It is suspected that there are 1,000 to 70,000 (midpoint 20,000) mature individuals.

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

References

ALA (2020). Atlas of Living Australia: *Asperula wimmerana*. Retrieved from: <https://bie.ala.org.au/species/https://id.biodiversity.org.au/node/apni/2910716>

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



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