Threatened Species Assessment

Argyrotegium poliochlorum
Grey-green Cudweed

Taxonomy

Argyrotegium poliochlorum (N.G. Walsh) J.M. Ward & Breitw.

The taxon is distinguished from *Argyrotegium fordianus* by the fewer, narrower capitula, and the grey-green rather than silvery leaves (VicFlora 2019).

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 A3ce; B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a rhizomatous perennial, sometimes mat-forming. Leaves mostly basal, crowded toward branch-tips, narrow-oblanceolate or spathulate, with petiole-like base subequal to broader 'blade', 1.5-3.5(-5) cm long overall, 1.5-4(-6) mm wide, both surfaces grey-green with moderately dense, appressed cottony hairs. Flowering stems erect, 4-12 cm high (to 20 cm in fruit), with c. 6-12 reduced leaves. Inflorescence a terminal cluster, elongating with maturity. Capitula 3-5(-7), pedunculate, subtended by a reduced leaf, c. cylindric; inner bracts c. oblong, 5-6.5 mm long, obtuse or ruminate at apex, usually with a reddish band just below the straw-coloured tip; bisexual florets 3-7. Cypselas glabrous, c. 1.4-1.6 mm long. The taxon flowers from December to February (VicFlora 2019).

Generation Length

The generation length of *Argyrotegium poliochlorum* is estimated to be 15 to 30 years. This is based on an estimated longevity of 15-30 years. It is also based on an inferred continuous to episodic and opportunistic mode of recruitment in response to localised site disturbance events, and very rare landscape scale fire events. The taxon is assumed to be wind-dispersed at the 1-100 m scale. It should be noted that the low stature of the plant, and the relatively dense nature of the surrounding vegetation, limits the opportunity for wind dispersal at the kilometre scale.

Distribution

The taxon is known in Victoria from the Snowy Range, Mt Buffalo, Bogong High Plains and the Nunniong and Baw Baw plateaus, but it is probably more widespread. The taxon also occurs in NSW and Tasmania (VicFlora 2019).

Habitat

The taxon usually occurs in *Sphagnum* mossbeds, wet heathland, or wettish grassland communities, at altitudes between 1400 and 1850 m (VicFlora 2019).

Threats

Historically, the taxon is likely to have suffered significant decline in response to the impact of stock grazing and feral horse activity. Whilst targeted grazing by stock and feral horses may have caused temporary declines in population density, the greatest long-term impact of these exotic herbivores has been the pugging and degradation of the wetland and moist grassland habitat of the taxon, with *Sphagnum* moss beds being particularly susceptible to trampling and pugging. With the termination of grazing licences across the alpine park system, these threats are now concentrated on the Nunniong Plateau and the Cobberas, where feral horse impacts are greatest.

Sambar Deer (*Rusa unicolor*) have recently become a major and increasing threat to the habitat of the taxon, on account of their targeted wallowing and trampling of wetland habitats. Sambar are currently undergoing a large increase in local density and penetration across the range of the taxon.

The taxon is increasingly threatened across its Victorian range by climatic drying of bog and wetland habitat, as well as the increasing risk of extreme fire events which can potentially destroy peat horizons, resulting in the permanent loss of peatland 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%

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 A3 as Endangered

The population reduction over the next 45 to 90 years is projected to be 30 to 50%, based on (c) and (e) above.

Future decline is based on the projected impact of the identified threats.

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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8,147 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the regional and landscape scales. The taxon is assumed to be wind-dispersed at the 1-100 m scale, noting the low stature of the plant and the relatively dense nature of the surrounding vegetation, which limits the opportunity for wind dispersal at the kilometre scale. This precludes the possibility of recolonisation in the event of local extinction.

It is estimated to have one location, as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the current and projected impact of the identified threats, including stock grazing, feral horse activity, targeted wallowing and trampling by Sambar deer, climatic drying, and extreme fire events.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 56 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, it is severely fragmented, has one location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) 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.

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.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Argyrotegium poliochlorum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/4c94bef7-1ff5-4b4e-8225-538e6248f182