

Coronidium waddelliae Snowy Everlasting

Taxonomy

Coronidium waddelliae (J.H. Willis) Paul G. Wilson

The taxon was previously treated as a variety of *adenophorum*, as *Helichrysum adenophorum* var. *waddelliae* J.H. Willis.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria B1ab(iii)+2ab(iii)

The bushfires of 2019/2020 are believed to have impacted more than 12% of the taxon's modelled habitat. The overall impacts of the fire are yet to be determined, and its recovery depends on the effective control of the impacts of feral herbivores and prevention of major soil and vegetation disturbance as a result of fire recovery activities.

Species Information

Description and Life History

The taxon is an erect annual to c. 60 cm high; stems multistemmed, scabrous with short septate and sessile glandular hairs. Leaves sessile, erect, c. linear, to 5 cm long, 1-3(-4) mm wide, apex acuminate, base not stem-clasping; surfaces glandular-hairy, white-woolly below; margins slightly recurved. Capitula solitary, hemispherical, to 4.5 cm diam., closely subtended by several leafy linear bracts; involucre 7-9-seriate; outer bracts white or pink in bud or towards apex; intermediate bracts narrow-elliptic, 10-17 mm long, short-clawed, opaque, white, often tinged pink in bud. Florets all bisexual. Cypselas c. 2 mm long, 4-angled, glabrous, pitted, pale brown; pappus bristles 20-25, slightly connate, 4-6 mm long, white. The taxon flowers from November to March (VicFlora, 2019).

Generation Length

The generation length of *Coronidium waddelliae* is estimated to be 1 to 2 years. The taxon is an annual herb, but it is likely to persist for up to 2 years.

Distribution

The taxon is confined in Victoria to high altitude parts of the eastern ranges (VicFlora, 2019), Mt Speculation, Mt Buffalo, Bogong High Plains, Mt Gibbo, Burrowa-Pine Mountain, Nunninong, and Yalmy. Plants collected from Yalmy road are at much lower altitude (800 metres) in Ash forest. Plants were recorded from a post fire-cleared roadside and have possibly been introduced into this site on machinery. The taxon also occurs in New South Wales.

Habitat

The taxon is locally common in Snow Gum woodland and treeless communities, often in rather dry, rocky sites (VicFlora, 2019).

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Threats

Subpopulations and habitat of this taxon are considered at risk from disturbance, weed invasion, and increasingly dry conditions from declining rainfall. The taxon is likely to be threatened by feral herbivores, notably Sambar Deer (*Rusa unicolor*), and soil and vegetation disturbance as a result of fire recovery activities such as machinery impacts, and removal of hazardous trees. Drought, hot weather, and repeat fires have the potential to damage or destroy recovering plants and/or seedlings. The taxon's recovery depends on the effective control of the impacts of herbivores and by preventing soil disturbance following fire recovery.

The bushfires of 2019/2020 are believed to have impacted around 12% of the taxon's modelled habitat as of early January 2020. The overall impacts of the fire are yet to be determined.

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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 13,376 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 7 locations, as each subpopulation may be variably affected by bush fire or stochastic events, and has a continuing decline in (iii) above, based on ongoing disturbances such as disturbance from feral animals, weed invasion, and climatic drying. However, it is unclear if these will impact recruitment or survival of this taxon.

Eligible under Criterion B2 as Vulnerable

The Area of Occupancy (AoO) across the taxon's range is estimated to be 104 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA

As above, the taxon has 7 locations, and has a continuing decline in (iii) above.

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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 estimated that there are 2,600 to 20,800 (midpoint 8,000) mature individuals, but 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 estimated that there are 2,600 to 20,800 (midpoint 8,000) mature individuals, which exceeds the thresholds for criterion D.

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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Coronidium waddelliae*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/6c933270-ef2a-41b7-a198-04298a7b297d>