Threatened Species Assessment

Coronidium gunnianum
Pale Swamp Everlasting

Taxonomy

Coronidium gunnianum (Hook.) N.G. Walsh

Some *C. gunnianum*, including some plants from the Gippsland Plain, belong to a form with shorter leaves and smaller capitula. However, plants with intermediate sized leaves and capitula also exist, often in sympatry with the form with small leaves and capitula. It is possible that variability in leaf and capitulum size in this taxon may in part be seasonal (VicFlora, 2017).

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2bce+4bce

Species Information

Description and Life History

The taxon is an erect rhizomatous perennial to c. 50 cm high; vegetative stems freely branched, appressed-cottony. Leaves sessile, linear to oblanceolate, (15-)20-65 mm long, 1-4(-9) mm wide; apex acuminate, slightly thickened but not mucronate; base attenuate; upper surface smooth, glabrous or with sparse, appressed cottony hairs, sometimes with scattered glands; lower surface ±obscured by appressed cottony indumentum, with abundant sessile glands; margins recurved to revolute. Capitula solitary, subglobular to depressed-turbinate, (10-)13-20(-25) mm diam. at anthesis; involucre 5-8-seriate; bracts wrinkled; outer bracts cottony-ciliate at base, straw-coloured or yellow, often golden brown towards apex; intermediate bracts spathulate, 6-10.5 mm long, clawed, opaque, pale yellow to brownish-yellow. Florets numerous, some outer ones female. Cypselas 1.3-1.9 mm long, somewhat 4-angled, glabrous, brown with pale longitudinal ridges; pappus bristles 15-30, c. free, 3-4.5 mm long, white, those of female florets reduced or absent. The taxon flowers from (November-) February to April (-June) (VicFlora, 2017).

Generation Length

The generation length of *Coronidium gunnianum* is suspected to be 50 to 100 years. The plant is a long-lived rhizomatous perennial of seasonally wet sites on relatively fertile soils. It is a resprouter, with reports of germination from seed (e.g. post-fire) not located. Consequently, a long effective generation length is suspected and it is likely that the supplied figure is quite conservative.

Distribution

The taxon is widespread throughout the state except for the north-west and the alpine and adjacent mountainous areas, and usually at relatively low elevations (VicFlora, 2017).

Habitat

The taxon mostly occurs in riverine *Eucalyptus camaldulensis* woodlands, and grasslands of fertile plains on soils that are prone to inundation such as gilgai depressions and seasonal herbaceous wetlands. The taxon extends into damp relatively fertile soils, fringing low gradient minor streamlines with plants such as *E. ovata* (VicFlora, 2017).

Threats

Threats to the taxon variously include effects of climate change such as decreased rainfall, decreased frequency, amplitude and duration of flooding, and drying of springs and soaks, eutrophication of wetlands, cropping of seasonal swamps, land clearing for urban/agricultural use, weed invasion, exotic arthropods, grazing/browsing or pugging/soil disturbance by feral animals and domestic stock such as cattle, deer, European Hare, horses, pigs, rabbits, and sheep, and potentially genetic issues arising from small population sizes.

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 A2 as Critically Endangered

The population reduction over the past 150 to 300 years is inferred to be 70 to 95%, based on (b), (c) and (e) above.

Habitat loss since settlement has been inferred to confidently exceed 80%, but additional comments considered that the decline confidently exceeded 50% and plausibly, but not confidently, 80%. With such a long generation time, past decline may apply over the entire period since settlement. The taxon is now uncommon and usually restricted to very small patches across its entire range, presumably due to the past effects of the identified threats and other historical disturbances including gold mining.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 150 to 300 year period, including both past and future (up to 100 years in the future), is suspected to be 70 to 95%, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

While future declines are inevitable due to the identified threats, it is not realistic to estimate future declines over the relevant time frame. The taxon is highly conservation dependant and currently with poor levels of protection in conservation reserves.

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 B as Vulnerable

The Area of Occupancy (AoO) is estimated to be 652 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, as it is restricted to small and dispersed areas of habitat which is both naturally and anthropogenically fragmented.

It is inferred to have four locations. There appear to be four main habitat types, these being seasonal herbaceous wetlands of the plains within agricultural landscapes, swale wetlands within remnant forest/woodland patches (e.g., far south-west Victoria and Providence Ponds area), gullies in foothill forests (e.g., Panton Hill, Wombat Forest) and riverine forests (notably Barmah). Each of these habitats is associated with particular sets of threats and considered to be a distinct location.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, due to the identified threats.

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. While occurrences can consist of sizeable rhizomatous patches, the number of actual genets at each location may often be very low.

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 have a restricted distribution, occurring in 4 locations, such that this restriction makes the taxon capable of becoming CR or EX within a time frame of one or two generations in response to the identified threats.

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 (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Coronidium gunnianum.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/a0c78fff-3328-4c1b-931a-fc4a62be41b0