Threatened Species Assessment

Coronidium adenophorum
Branched Everlasting

Taxonomy

Coronidium adenophorum (F. Muell.) Paul G. Wilson

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A3c; B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)

Species Information

Description and Life History

Erect annual or biennial to c. 50 cm high; stems usually unbranched below, scabrous with short septate and sessile glandular hairs. Leaves sessile, erect, c. linear, to 6 cm long, 1-6 mm wide, apex acuminate, base stem-clasping; surfaces glandular-hairy, scabrous above; margins 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 the apex; intermediate bracts narrow-elliptic, 14-20 mm long, short-clawed, opaque, white, often tinged pink in bud. Florets all bisexual. Cypselas c. 1.5 mm long, 4-angled, glabrous, pitted, brown; pappus bristles 20-25, slightly connate, 4-6 mm long, white. Flowers October-March (VicFlora, 2019).

Generation Length

The generation length of *Coronidium adenophorum* is projected to be 20 to 80 years. The taxon is a fire ephemeral, reproductive within the first year after germination. By the second year the taxon is much reduced, and by the third year post-fire it is returned to solely a soil seed store. It is speculative as to how long the seed retains viability in the soil seed store, and it could be well over a century. The Big Desert, which is the stronghold of this taxon, cannot support fire unless at least 5 years of regrowth from the last fire has passed.

Distribution

The taxon's distribution is known in Victoria from dune mallee of the Big and Little Deserts south of Murrayville, and in heathy woodland on Mt Abrupt in the Grampians. It is rare, but sometimes locally abundant for a season or two following fire (VicFlora, 2019).

Habitat

The taxon's habitats include scrubland, mallee, and heathy woodland (VicFlora, 2019). It is also found in sandy, siliceous heathlands.

Threats

Threats to the taxon include frequent fires, and planned burns in the wrong season, where the plant cannot establish from seed in the open environment after these fires. However, this is rarely common, even in the least-disturbed habitats. It is also suspected that the taxon is palatable to browsing mammals, notably rabbits.

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 Vulnerable

The population reduction over the past 60 to 240 years is estimated to be 20 to 40%, based on (c) above.

This is based on past planned burning and the impacts of browsing herbivores.

Eligible under Criterion A3 as Endangered

The population reduction over the next 60 to 100 years is projected to be 30 to 50%, based on (c) above.

The future population reduction is based on planned burning and browser control that are poorly managed in its main habitat occurrences.

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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4,601 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the subregional scale, and anthropogenically at the landscape scale at separations that are likely to exceed the dispersal range of the taxon.

It is estimated to have 3 locations, and has a continuing decline in (i), (ii), (iii) and (v) due to planned burning and poor rabbit control.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 12 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 3 locations, has a continuing decline in (i), (ii), (iii) and (v).

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 1000 to 10,000 (midpoint 1000) mature individuals but other thresholds under this criterion have not been met.

Most of this taxon's habitat is relatively infrequently visited or surveyed. Hence records are few and may as much be due to lack of survey as a true indication of rarity. Nevertheless, the taxon is large and highly conspicuous when vegetative and flowering, and not easily overlooked. It is a disturbance ephemeral (mostly fire) and for most of each life cycle persists solely in the soil seed store. Soil seed bank surveys are very difficult to carry out reliably and are largely ignored.

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

Thee 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: *Coronidium adenophorum.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/bd5ba13f-758c-47c9-9416-adde842dc910