Threatened Species Assessment

Acrotriche cordata
Coast Ground-berry

Taxonomy

Acrotriche cordata (Labill.) R. Br.

Plants from the Lower Glenelg River differ from other Victorian populations in having narrower, longer leaves. These equate to *Acrotriche ovalifolia* var. *oblongifolia,* a name that has apparently been ignored since its publication (VicFlora 2018).

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 A2bc; B1ab(iii,v)+2ab(iii,v)

Species Information

Description and Life History

The taxon is a spreading shrub to c. 50 cm high; branchlets puberulent. Leaves usually spreading, linear-lanceolate, oblong-elliptic to ovate, 4-14 mm long, 1.5-4 mm wide, acute or obtuse with blunt callus tip, glabrous, lower surface slightly paler with few subparallel veins, those furthest from midvein with branches radiating to margin; margins plane, smooth. Flowers in c. 3-8-flowered spikes, 2-7 mm long, on previous season's or older wood; bracteoles 1-1.2 mm long; sepals 1.4-1.9 mm long; corolla pale green; tube 2.6-3.6 mm long; lobes 1.2-1.6 mm long; ovary 4-6-locular, style 0.8-1.2 mm long. Fruit depressed-globose, flat-topped, c. 2-3 mm long. The taxon flowers from Jul.-Oct. (VicFlora 2018).

Generation Length

The generation length of *Acrotriche cordata* is estimated to be 20 to 50 years. This is based on a longevity of plausibly 80 years and presumed continuous recruitment. The recruitment is likely to be due to consumption of fruit by animals and localised disturbances.

Distribution

The taxon is restricted in Victoria to very few sites in the south-west, along the coast and lower Glenelg river west of Portland. It also occurs in WA, SA, and Tas. (VicFlora 2018).

Habitat

The taxon occurs on limestone-derived soils, often near coastal or riparian cliffs in coastal scrub, mallee or woodland (VicFlora 2018).

Threats

This taxon may be threatened by climatic drying and warming, leading to reduced reproductive output and failure to germinate. Plants occurring on headlands, particularly around Cape Nelson may be at risk of erosion.

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 Endangered

The population reduction over the past 60 to 150 years is estimated to be 30 to 50%, based on (b) and (c) above.

This is based on the possibility that up to 50% of the taxon's limestone habitat has been cleared since European settlement.

The causes of the 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 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 396 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented. Each discrete occurrence of the taxon represents small and isolated habitat remnants in a highly fragmented and degraded rural landscape, at separations greatly exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal.

The taxon is considered to occur in 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 (iii) above, due to ongoing prolonged drought conditions which are regarded as more extreme than historically experienced, and are expected to continue and worsen into the future.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 54 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 1 location and has a continuing decline in (iii) 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

It is estimated that there are 1,400 to 4,200 (midpoint 2,800) individuals, based on distribution and density observations at the sites. Many sites are recorded as having <100 plants, while other records indicate hundreds of plants in the general area. It is estimated that on average each 4 km² grid contains between 100-300 individuals, with a mode of 200.

There is inferred to be a continuing decline, but this qualifier is too weak.

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. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Acrotriche cordata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/7a271721-5c2d-465e-b36c-0146fe0be45f