Threatened Species Assessment

Coprosma pumila
Dwarf Coprosma

Taxonomy

Coprosma pumila Hook. f.

In the apparent absence of male plants, or fruits on the female plants, the identification of this taxon is tentative only. It is possible that the taxon may be referable to *C. atropurpurea* (Cockayne and Allan; L.B. Moore), currently regarded as a New Zealand endemic, and usually distinguished from *C. pumila* by the more persistent hairs on the leaves (as in the Victorian plants), and corolla-lobes with short scattered hairs (usually glabrous on the Victorian plants). Both taxa have c. ovoid to obovoid, claret-coloured to slaty-blue drupes, c. 8-12 mm long. The 2 taxa are regarded as conspecific by some authorities, the earlier-named *C. pumila* then having priority (VicFlora 2019).

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(iii)+2ab(iii); D

Species Information

Description and Life History

Prostrate subshrub forming mats to c. 1 m diam., dioecious; stems weakly woody, leafy parts mostly to c. 10 cm long, much-branched at distal ends, rooting at basal nodes. Leaves ovate or elliptic, mostly 3-4 mm long and 1-1.5 mm wide, slightly concave, acute to obtuse, margins flat, upper surface glossy green, with sparsely scattered, short erect hairs, lower surface paler, glabrous; petiole c. 0.5 mm long and fused to the one opposite; stipules each a minute triangular point midway along petiolar sheath, glabrous. Flowers sessile, unisexual solitary, terminal on short branchlets; calyx 1-1.5 mm long, lobes triangular; corolla narrowly campanulate, 3-5 mm long, lobes c. 1 mm long, glabrous or with very few, very short spreading hairs; style 2-branched. Drupes not seen. Flowers January-February (VicFlora 2019).

Generation Length

The generation length of *Coprosma pumila* is estimated to be 100 to 1,000 years. This is based on a plausible longevity of at least 100 years, inferred from the prostrate mat-forming shrubby habit and the likelihood that recruitment is an exceedingly rare event cued by localised site disturbance such as fire events, which are likely to have occurred at pre-settlement intervals of 50-200 years or more. In the absence of mature fruit and a population of only female plants, all individuals may be genetically identical, either through long-term vegetative reproduction or, if seed are produced parthenogenetically, then still interpretable as a single genet incapable of seed-based recruitment, in which case the Victorian population is interpretable as a single mature individual of indefinite longevity.

Distribution

The taxon is exceedingly rare in Victoria, being confined to a small population of only female plants on the Snowy Plains north of Licola. It was first discovered in 1992 (VicFlora 2019).

Habitat

The taxon occurs in a subalpine wet heathland on a broad flat ridge. Associated taxa include *Epacris petrophila*, *Caltha introloba*, *Carex gaudichaudiana*, *Cotula alpina, Ranunculus millanii* and *Pratia surrepens*.

Threats

Associated taxa suggest that the taxon is a habitat specialist dependant on annual snowmelt. It is therefore at serious current and projected risk from climatic drying and warming, that reduce the depth and seasonal persistence of snow lie, resulting in a reduced reliability of annual snowmelt. The taxon is also at risk of browsing and trampling of its habitat by Sambar Deer (*Rusa unicolor*) which are currently increasing in population across the Victorian Alps, and have been observed in pavement habitats reliant on seasonal snowmelt.

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:

Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the AoO to ensure consistency with the definition of AoO as an area within EoO.

The taxon is estimated to be severely fragmented, since the only Victoria occurrence is highly disjunct from all interstate occurrences and therefore the probability of recolonisation, in the event of local extinction, is remote.

It is estimated to have 1 location. It has a continuing decline in (iii) above, due to climatic drying and warming reducing the depth and seasonal persistence of snow lie, resulting in a reduced reliability of annual snowmelt. The taxon is also at grave risk of browsing and trampling of its habitat by Sambar Deer.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 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 to 10 individuals, but other thresholds under this criterion have not been met.

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 D as Critically Endangered

The taxon is estimated to have 1 to 10 mature individuals. In the absence of mature fruit and a population of only female plants, all individuals may be genetically identical, either through long-term vegetative reproduction or, if seed are produced parthenogenetically, then still interpretable as a single genet incapable of seed-based recruitment, in which case the Victorian population is intepretable as a single mature individual of indefinite longevity.

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: *Coprosma pumila*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/1ba65483-c746-4407-b6c1-7a4673388ad5