Threatened Species Assessment

Coprosma perpusilla subsp. *perpusilla*
Creeping Coprosma

Taxonomy

Coprosma perpusilla subsp. *perpusilla* Colenso

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 A2c; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a prostrate subshrub, loosely mat-forming; stems fine, to 40 cm long, freely rooting at nodes, glabrous. Leaves crowded on upper branchlets, broad ovate-elliptic to suborbicular, mostly 5-7 mm long and 2-5 mm wide, obtuse, glossy and glabrous, margins flat and thickened; petiole to c. 2 mm long; stipules triangular, margins ciliate. Flowers unisexual, solitary, terminal on short branchlets, sessile. Male flowers with cup-like calyx; corolla funnel-shaped, 7-14 mm long, lobes much shorter than tube. Female flowers with deeply toothed calyx; corolla narrow-obconical, 3.5-6.5 mm long, lobes shorter than or equal to tube; style 3- or 4-branched. Drupe ovoid to globose, 4-6 mm wide, orange or reddish. The taxon flowers from December to February (VicFlora, 2018).

Generation Length

The generation length of *Coprosma perpusilla* subsp. *perpusilla* is estimated to be 30 to 50 years. Fire is historically rare in alpine ecosystems, occurring perhaps once or twice a century and, on average, perennial shrubs and herbs are likely to reach the end of their reproductive life prior to another fire. In undisturbed vegetation, the average plant age is likely to be at the older end of the estimated lifespan, reflecting the recruitment pulse after fire and lower-level recruitment thereafter.

Distribution

In Victoria, the taxon is restricted to relatively few sites on the Baw Baw Plateau and Snowy Range. It is possibly overlooked or confused with other prostrate *Coprosma* taxa (e.g., *C. nivialis* and *C. moorei*). It also occurs in New South Wales, Tasmania, and New Zealand (VicFlora, 2018).

Habitat

The taxon often creeps over rock emergent from peaty heaths or *Sphagnum* bogs (VicFlora, 2018).

Threats

Subpopulations and habitat of the taxon are considered at risk from disturbance, weed invasion and increasingly dry conditions from declining rainfall, and a consequent increase in the severity and intensity of bushfires.

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 90 to 150 years is estimated to be 50%, based on (c) above.

Given that around 50% of alpine wetland areas have been lost since settlement (Costin et al., 1959; Wimbush, 1970), it is reasonable to assume there has also been a 50% loss of habitat and, therefore, plants.

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 1,629 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the landscape scale. It has isolated populations at separations exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal. Therefore, it has no realistic capacity for recolonisation in the event of local extinction.

It is estimated to have 2 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above as a result of future drying coupled with shrubland encroachment.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 60 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 2 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) 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 as Data Deficient

No reliable estimate of the total population size for the taxon is available. Obtaining an estimate is complicated by the creeping habit and the taxon's ability to root from branches.

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

Costin, A. B. (1959). Vegetation of high mountains in Australia in relation to land use. *In Biogeography and ecology in Australia* (pp. 427-451). Springer, Dordrecht.

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014.* Department of Environment and Primary Industries, Melbourne.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Coprosma perpusilla* subsp. *perpusilla*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/6eefdff4-9863-4596-9af8-475352e66ec5

Wimbush DJ (1970). *Hydrological studies on Sphagnum bogs in the Snowy Mountains*. MSc thesis, University of New South Wales, Australia.