Threatened Species Assessment

Prostanthera incana
Velvet Mint-bush

Taxonomy

Prostanthera incana A. Cunn. ex Benth.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion D

Species Information

Description and Life History

The taxon is an erect, moderately dense shrub, 1-2.5 m high, slightly aromatic; branches densely covered with long spreading hairs. Leaves ovate, 9-18 mm long, 6-13 mm wide, dull 'dusty' green, paler below; moderately to densely hairy; hairs c. spreading, densely glandular on lower surface, base obtuse to rounded, margin crenate, slightly recurved, apex obtuse; petiole 2-4 mm long. Flowers in a terminal racemose or paniculate inflorescence, or a terminal leafy inflorescence with part-inflorescence racemose; bracteoles persistent, 2-3 mm long, c. 0.5 mm wide. Calyx 4-6 mm long, tube 2-2.5 mm long, adaxial lobe 2-3.4 mm long (not enlarged in fruit); corolla lilac, 8-10 mm long; anther appendage absent. Flowers August-December (VicFlora 2018).

Generation Length

The generation length of *Prostanthera incana* is estimated to be 20 to 50 years. This is based on the taxon's small shrub lifeform, its habitat, and the likely average interval between fires pre-European settlement within its habitat.

Distribution

The taxon is very rare in Victoria where it is localised SW of Dargo (VicFlora 2018). This is based on a 1979 Bill Cane collection from McDonald Gap Road about 4 km from Dargo. There is a possible site on scrubby Creek Tk just NE of Trail Track Junction, which has been difficult to reconcile with the 1979 collection, and a historic 1918 collection from Berrima River in NE Victoria.

The taxon is also found in NSW.

Habitat

While the sole Victorian collection does not provide any habitat information, the plants have been observed growing in dry sclerophyll forest on a ridge at ~ 700m.

In NSW the taxon grows in tall sclerophyll forest and woodland in skeletal sandy loamy soils overlying sandstone, near-coastal districts south from Craven.

Threats

The taxon is potentially threatened by imposed anthropogenic fire regimes and climatic warming and drying which, synergistically, increase the risk of recruitment failure in response to repeat fire events and extreme drought stress.

Small and isolated stands may also be threatened by targeted browsing by deer, and possibly stock, during the early stages of post-fire recruitment. The Victorian subpopulation is isolated from the nearest population in NSW by over 300 km, with small population size and narrow genetic variation also being potential threats.

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

The past population reduction does not meet the threshold for eligibility under criterion A2. There is insufficient evidence to determine whether will be a future reduction in population size under criterion A3.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km² and the Area of Occupancy (AoO) is estimated to be 4 km², but other thresholds under this criterion have not been met.

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

The taxon is estimated to have 150 to 250 mature 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 Endangered

The taxon is estimated to have 150 to 250 mature individuals. It is known in Victoria from a single 1979 collection, from which the label data indicates that there were 'hundreds' of plants. The site was visited in 1990 where plants were found growing in an area the size of a house block. There were confidently less than 250 plants, but not confident less than 50 plants.

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 (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Prostanthera incana*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/4c300da0-e8dd-4c43-bb3d-a99d43bb9900