Threatened Species Assessment

Bertya findlayi
Mountain Bertya

Taxonomy

Bertya findlayi F. Muell.

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

Species Information

Description and Life History

Erect or spreading shrub to c. 2 m high; branchlets yellowish-tomentose, becoming glabrous but remaining minutely tuberculate from the persistent hair bases. Leaves narrowly oblong to narrowly obovate, mostly 2-5 cm long, 4-9 mm wide, apex obtuse to truncate, base tapering into petiole, margins recurved, upper surface dark green and glabrous, lower surface white with a velvety covering of stellate hairs; petiole 1.5-3.5 mm long. Flowers solitary, rarely in 2s or 3s on peduncles 3-6 mm long; bracts 4 or 5, 1.8-2.7 mm long, glabrous or tomentose along abaxial midline. Male flowers sessile; perianth segments ovate, 3.5-4.6 mm long, glabrous. Female flowers sessile; perianth segments narrowly ovate to narrowly triangular, 4.2-4.6 mm long, glabrous; styles deeply 3- or 4-lobed. Capsule ovoid, 7.5-9.3 mm long, glabrous to sparsely stellate-hairy. Flowers mostly spring and summer (VicFlora, 2019).

Generation Length

The generation length of *Bertya findlayi* is suspected to be 20 to 30 years. The ecology of this taxon is poorly known, however the germination and suckering of another medium to tall shrub species of *Bertya*, albeit from a very different habitat, is known to be stimulated by fire. It is presumed that young plants are likely to reach reproductive maturity within the first five years, and it is suspected that the longevity of individual plants is likely to be at least 15-25 years, and potentially considerably longer, particularly if the taxon can persist by suckering. The potential role of fire in recruitment is not known. An average generation length in the range of 20-35 years is tentatively suggested.

Distribution

The taxon is rare in Victoria, known only from the Murray River valley upstream of Corryong.

Habitat

The taxon's main habitats are moist forests and stream sides.

Threats

Potential threats to this taxon include reduced rainfall due to climate change, and increased frequency and intensity of fire. Information on its palatability to deer does not appear to be available (Claridge, 2016). The taxon is extremely localised and consequently vulnerable to stochastic events.

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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 605 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, as it is only known from a small number of very localised stands. It is estimated to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the impacts of climate change, fire, and deer.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is severely fragmented, has 1 location, 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

There is insufficient evidence to determine the number of mature individuals. While only very small numbers of plants have been recorded, the Surveyors Creek population is presumed to be somewhat larger (or at least was so in 1982).

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

Claridge, A.W. (2016) *Threatened flora at potential risk from introduced deer in the Australian Alps. A final report to the Australian Alps Liaison Committee.* NSW National Parks and Wildlife Service, Queanbeyan NSW 2620, Australia.

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: *Bertya findlayi*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/6eb783a2-2d68-407c-8178-32add8c4d353