

Wittsteinia vacciniacea Baw Baw Berry

Taxonomy

Wittsteinia vacciniacea F. Muell.

Current conservation status

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

Proposed conservation status

Vulnerable in Australia

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a trailing or sprawling shrub to c. 40 cm high, branchlets puberulous, rooting near base. Leaves spreading, elliptic to obovate, 4-52 mm long, 2.5-30 mm wide, obtuse to acute, sparsely puberulous on margins and towards base, dark green with impressed venation above, pale whitish-green and obscurely veined below; margins serrate; axils with a tuft of long brown hairs. Flowers bisexual (?some cleistogamous), pendent, fragrant, 1-3 in axils; bracts 3-6, 1.5-3 mm long; calyx lobes 2-3.5 mm long; corolla pale green; tube 4.5-7 mm long; lobes triangular, slightly recurved, 2-3 mm long, margins undulate ± crenate; anthers slightly exerted. Fruit globose c. 5-10 mm long, greenish-white, calyx lobes persistent; seeds c. 6-12, ellipsoid, c. 2 mm long, shallowly pitted. The taxon flowers from November to January (VicFlora, 2019).

Generation Length

The generation length of *Wittsteinia vacciniacea* is suspected to be 20 to 50 years. According to the online Flora of Victoria (2019), this low shrub is locally plentiful in rainforest margins, sheltered subalpine woodland and shrubland, particularly against tree trunks and large boulders. It roots from branches and is presumably long-lived where it receives some protection from lyrebird activities. Recruitment is presumed to be continuous, with plants reaching reproductive maturity within five years. In the absence of better information, a generation length of 20-50 years is proposed, although this time-frame may be quite conservative.

Distribution

The taxon is endemic in Victoria, occurring mainly between Lake Mountain, Mt Donna Buang and the Baw Baw Plateau, where it is locally plentiful, but with isolated occurrences near Mt Cobbler, north of Warburton and on Wilsons Promontory (VicFlora, 2019).

Habitat

The taxon is locally plentiful in rainforest margins, sheltered subalpine woodland and shrubland, particularly against tree trunks and large boulders (VicFlora, 2019).

Threats

The major threats to the taxon are those relating to climate change (decreased rainfall and increased frequency and intensity of fire). Grazing of post-fire resprouts of this taxon by Sambar deer (*Rusa unicolor*) has been

observed (Tolsma et al., 2012). Forestry operations have the potential to impact on the taxon in marginal sites and where roading, edge effects and regeneration burns impact the habitat. It has been noted that there is the potential for impacts due to invasion of relevant habitat by *Salix cinerea* following fire.

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%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p>			
<p>based on any of the following:</p> <ul style="list-style-type: none"> (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.

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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 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
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 and B2 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 9,374 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) across the taxon's range is estimated to be 276 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

It is inferred to have six locations. Similar threats apply to the Central Highlands populations, but these are widely separated, and the disjunct occurrences are regarded as separate locations due to the apparently much smaller isolated populations, particularly at Wilsons Promontory, near Warburton and the different habitat in the Mt Cobbler/Speculation area.

It has a continuing decline in (iii) above due to the identified threats.

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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 are no relevant population data. This taxon can be locally abundant in suitable habitat.

Criterion D. Very small or restricted populations				
		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 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D as Data Deficient

There is insufficient evidence to determine the number of mature individuals.

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



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Tolsma, A., Sutter, G., and Coates, F. (2012). Recovery of Victorian rare or threatened plant species after the 2009 bushfires - Natural values fire recovery program. Department of Sustainability and Environment, Heidelberg, Victoria.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Wittsteinia vacciniacea*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e06f882b-6f5a-4c7b-8815-c1861a88c29b>