

Tasmannia vickeriana Baw Baw Pepper

Taxonomy

Tasmannia vickeriana (A.C. Sm.) A.C. Sm.

Current conservation status

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

Proposed conservation status

Endangered in Australia

Criteria A3bce; B1ab(ii,iii,v)+2ab(ii,iii,v)

Species Information

Description and Life History

T. xerophila is a bushy spreading shrub to small tree, 0.6-4 m high, usually clumped due to root suckering, stems finely tuberculate, reddish when young. Leaves oblanceolate to narrowly oblanceolate, (2-)3-14 cm long, 5-30 cm wide, coriaceous to rigid, dark green above, pale green or glaucous below, midrib prominent to obscured and finely tuberculate; apex obtuse to subacute; margins flat to slightly recurved; petiole 2-6 cm long. Flowers 1-16 per inflorescence; 1 flower per bract; pedicels 7-15 mm long. Male flowers with 9-30 stamens, sterile carpels 1(-2). Female flowers with 2(-4) petals, 5-7 mm long; carpels 1-8(-11), with 2-9 ovules per carpel. Fruits 2-6(-11) per pedicel, globose to short-ovoid, 6.5-11 mm long, 5-10 mm wide, glossy-black to glaucous at maturity; pedicels 5.5-14 mm long; seeds 2-7 per berry; aborted ovules pink (VicFlora, 2019a).

T. vickeriana is described as follows: Plants as for *T. xerophila*, but a shrub 0.5-1.2 m high. Leaves compact, 0.8-2(-2.5) cm long, 2-6 mm wide, veins obscure; apex obtuse; petiole 1.5-3.5 mm long. Flowers 1-15 per inflorescence, pedicels 3-10 mm long. Male flowers with 8-26 stamens, sterile carpels 1(-2). Female flowers with 1-6 carpels, ovules 3-6 per carpel. Fruit 1-3(-4) per pedicel, globose to short ovoid, 6-12 mm long, 6-10 mm wide, burgundy at maturity; pedicels 4-11 mm long; seeds 2-5 per berry; aborted ovules white. Flowers December-February (VicFlora 2019b).

Generation Length

The generation length of *Tasmannia vickeriana* is inferred to be 50 to 100 years. VicFlora (2019b) comments that this shrub is restricted to the Baw Baw Plateau at altitudes of 1,000-1,500 m in Snow-gum woodland, but there locally abundant. Cameron and Shannon suggest that the typical habitat is margins of wet heath and suggest that the plant probably has a root suckering habit like *T. xerophila* s.s. but this requires field verification. They assume longevity and generation time will be comfortably more than 50 years. Plants of this genus are suspected to be relatively slow to reach reproductive maturity, but presumably do so within around ten years. Fire is rare in this habitat.

Distribution

The taxon is restricted to the Baw Baw Plateau.

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Habitat

The taxon is recorded at altitudes of 1,000-1,500 m in Snow-gum (*Eucalyptus pauciflora* subsp. *acerina*) woodland, but there is reported as locally abundant in VicFlora (2019b).

Threats

Threats to the taxon include the effects of climate change (decreased rainfall, decreased snowfall) and increased frequency and intensity of fire, leading to structural changes in the vegetation and contraction of suitable habitat. It is presumed to be not palatable to deer.

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>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
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Evidence:

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 30 to 50%, based on (b), (c) and (e) above. Future decline is based on the effects of climate change and increased frequency of fire.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 150 to 300 year period, including both past and future (up to 100 years in the future), is inferred to be 30 to 40%, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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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 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 153 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is inferred to have 1 location due to it being restricted to a narrow range of habitat within a geographically restricted area.

It has a continuing decline in (ii), (iii) and (v) above based on the impacts of the identified threats, such as climate change and increased fire.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 52 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above the taxon has 1 location, and has a continuing decline in (ii), (iii) and (v) above.

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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 is insufficient evidence to determine the number of mature individuals.

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:

Eligible under criterion D2 as Vulnerable

The taxon is inferred to be very restricted.

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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VicFlora (2019a). Flora of Victoria, Royal Botanic Gardens Victoria: *Tasmannia xerophila*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/1535240e-4d89-43d8-90b6-7e02fcf7f6db>

VicFlora (2019b). Flora of Victoria, Royal Botanic Gardens Victoria: *Tasmannia vickeriana*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/22379aad-a065-4bd4-ba22-127dd4c8777f>