Threatened Species Assessment

Westringia lucida
Shining Westringia

Taxonomy

Westringia lucida B. Boivin

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2003).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(iii,v)+2ab(iii,v); C1+2a(ii); D

Species Information

Description and Life History

The taxon is a dense shrub to 0.5 m high. Leaves in whorls of 3, broad, oblong to elliptic or suborbicular, 8–14 mm long, 5–8 mm wide, length-to-width ratio 1.3–1.8, sparsely to moderately covered in somewhat appressed, simple, antrorse hairs, upper surface finally glabrous, shining, margin entire and flat; petiole 1–1.5 mm long. Bracteoles 1–1.8 mm long. Calyx green, outer surface sparsely (rarely moderately) hairy, tube 3.5–4.5 mm long, lobes triangular, 1–2.5 mm long, 1.5–2 mm wide, lobe-to-tube ratio (0.3–)c. 0.6; corolla 8–9 mm long, white with orange-red dots. Flowers early summer (VicFlora 2021). Recruitment is via seed as it is not known to resprout.

Generation Length

The generation length of *Westringia lucida* 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 only known from the Mt Bogong area. It also occurs in New South Wales (VicFlora 2021).

Habitat

The taxon occurs in subalpine *Eucalyptus pauciflora* woodland on dry rocky soils at c. 1650 m altitude (VicFlora 2021).

Threats

Alpine taxa are prone to range contraction due to climate change, of which the impacts are likely to be seen first in marginal, lower-elevation sub-populations. Large fires are becoming more frequent and two fires at a short interval will be particularly detrimental. Feral animals such as deer may damage plants.

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 Vulnerable

The population reduction over the past 90 to 150 years is suspected to be 10 to 30%, based on (b), (c) and (e) above.

This species was (discovered in in Victoria in 1987, in a single population. It is unlikely that it has undergone any reduction over the past 150 years as it would be expected that there would be other records of this species from other sites. However the impacts of feral herbivores are likely to have had effects in the past.

Eligible under Criterion A3 as Endangered

The population reduction over the next 90 to 100 years is projected to be 20 to 50%, based on (c) and (e) above.

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

Eligible under Criterion A4 as Endangered

The population reduction over any 90 to 150 year period, including both past and future (up to 100 years in the future), is projected to be 20 to 50%, based on (b), (c) and (e) above.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location as all plants occur in a single site, so all plants are subject to the same threats.

It has a continuing decline in (iii) and (v) above, based on the current and projected impact of the identified threats.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above it is estimated to have 1 location and has a continuing decline in (iii) 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:

Eligible under Criterion C1 as Critically Endangered

There are an estimated 30 to 100 (midpoint 60) mature individuals in the population and these all occur in a single dense stand at one site.

A continuing decline of 10 to 30% is estimated to occur within 1 generation.

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 30 to 100 (midpoint 60) mature individuals.

The number of mature individuals is estimated to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100%.

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 Critically Endangered

The taxon is estimated to have 30 to 100 (midpoint 60) 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.

SAC (2003). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 688 *Westringia lucida.*

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Westringia lucida.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/3a40e851-32fa-4b56-ba7c-9afba567abb8 accessed 26/2/2019