Threatened Species Assessment

Leionema bilobum subsp. *bilobum*
Truncate Leionema

Taxonomy

Leionema bilobum subsp. *bilobum* (Lindl.) Paul G. Wilson

Current conservation status

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

Proposed conservation status

Vulnerable in Australia

Criterion D2

Species Information

Description and Life History

The taxon is a shrub 0.1-0.6(-2.5) m high; rays of hairs on branchlets 0.5-1 mm long. Leaves narrow-lanceolate, 9-19 mm long, 2-8 mm wide; margins serrate, lamina constricted below apex, apex strongly obcordate or retuse, base usually truncate, sometimes slightly cordate or rounded. Pedicels 2-8 mm long, glabrous or minutely stellate-hairy, Sepals 0.5-0.75 mm long, usually with a tuft of hairs at the tip or sparsely pubescent. Petals white, 3-5 mm long. Carpels glabrous to densely pilose. The taxon flowers from May to November (VicFlora 2016).

Generation Length

The generation length of *Leionema bilobum* subsp. *bilobum* is inferred to be 50 years. This is based on a longevity of 25-45 years and an inference that the taxon is a fire-sensitive, obligate seed regenerator. Additionally, it is founded on the expectation that the taxon recruits episodically post-fire and a plausible 50-70 year pre-settlement fire frequency, noting that fire impacts in elevated rocky habitats are patchy. There is also assumed to be some opportunistic recruitment in response to better seasons and localised site disturbance including animal digging or landslip.

Distribution

The taxon is endemic in the Grampians and mostly in the north and east (e.g., Mt Difficult, Mt William, Wonderland and Serra Ranges), but with isolated occurrences at Mt Zero and Wallaby Rocks (VicFlora 2016).

Habitat

The taxon occurs in heathland and heathy woodland vegetation, usually in rocky, elevated sites (VicFlora 2016).

Threats

Potential threats include localised site disturbance arising from road construction and maintenance, installation of new communication infrastructure and fire suppression activity. Climatic drying and warming is projected to result in an increasing risk of adult mortality and, in particular, recruitment failure and eventual seedbank depletion.

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:

Ineligible under Criterion B

The Extent of Occurrence across the taxon's range is estimated to be 1,000 km² and the Area of Occupancy is estimated to be 132 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

It is estimated that there are 1,000 to 5,000 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 D2 as Vulnerable

The taxon is estimated to be very restricted. It has a restricted distribution, with one location, such that this restriction makes it capable of becoming Critically Endangered or Extinct within a timeframe of one or two generations, because of the effects of climatic drying and warming.

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

VicFlora (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Leionema bilobum* subsp. *bilobum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/74eb64a1-1b4c-4ba4-be8a-eb08049459b6