Threatened Species Assessment

Baeckea latifolia
Subalpine Baeckea

Taxonomy

Baeckea latifolia (Benth.) A.R. Bean

The taxon was previously treated as a variety of *Baeckea utilis* and it is often difficult to distinguish from that species. It is principally distinguished from *B. utilis* by the relatively wider and flatter leaves.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

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

Species Information

Description and Life History

The taxon is an erect or arching shrub, 1-3 m high. Leaves moderately crowded, elliptic or obovate, spreading widely, 6-9 mm long, 2-6 mm wide, more or less flat, not distinctly keeled below; apex acute or obtuse; base cuneate. Flowers solitary in axils, white, to 6 mm across; pedicel c. 3 mm long; bracteoles absent; hypanthium obconical; calyx-lobes obtuse, triangular; petals orbicular, c. 3 mm long; stamens 6-8, usually 8, filaments geniculate; ovary 2-celled, almost flat-topped. Fruit cup-like, c. 2.5 mm diam.; seeds angular. The taxon flowers from December to March (VicFlora 2017).

Generation Length

The generation length of *Baeckea latifolia* is estimated to be 20 to 60 years. The taxon resprouts after fire, therefore the average plant age in undisturbed vegetation is likely to be on the mature end of the scale, perhaps 40 years. This is consistent with other *Baeckea* species which are estimated to have a 50+ year lifespan. The taxon is similar to *B. utilis* which employs vegetative regeneration strategy after fire (seedlings have not been observed) and is tolerant of competition during reestablishment. The time to reproductive maturity estimated at 2 years, that is, it takes more than 2 years for resprouts to produce flowers (Tosma 2011). *B. utilis* is estimated to have a reproductive lifespan of up to 100 years.

Distribution

The taxon is apparently confined to the southern mountain ranges (e.g. Lake Mountain, Mount Baw Baw, Mount Buller) (VicFlora 2017).

Habitat

The taxon grows at the edges of snow gum woodlands and grasslands, often near streams and bogs at altitudes above 1300 m (VicFlora 2017).

Threats

Alpine species are prone to range contraction due to climate change. Increasingly dry conditions from declining rainfall are likely to be seen first in marginal, lower-elevation subpopulations. Warming may cause the snow gum woodland to displace *B. latifolia* on the drier edge, but it may in turn displace bog species at the other edge, but the overall the bog vegetation is likely to decrease because the bogs will shrink in size (i.e. only a partial offset). Whist the taxon resprouts after fire, thus conferring some stability to population, an increase in severity and intensity of bushfires will be particularly detrimental particularly where occurrences are impacted by consecutive fires over a short interval. The taxon's habitat may be at risk from weed invasion and the increasing impacts of feral horses and 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%

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

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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 2,357 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented. The small isolated subpopulations are at risk from such that there is increased extinction risk and there is little or no probability of recolonisation should they become extinct.

It is estimated to have three locations. Alpine taxa tend to exist in 'islands' of habitat within a matrix of lower-altitude forest. This tends to isolate sub-populations reproductively, but not in terms of threats, particularly fire which can affect large areas. Mt Bullfight considered close enough to Lake Mountain that fire (as in 2009) would impact both, i.e. the two subpopulations are considered as one location.

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

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 76 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above it is severely fragmented, has 3 locations and has a continuing decline in (ii), (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:

Ineligible under Criterion C

It is estimated that there are 10,000 to 15,000 mature individuals, which exceeds the thresholds for criterion C.

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 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

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 (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Baeckea latifolia.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/74601cb4-dc6e-461d-b6e2-adb893f48a43