



## *Acacia lucasii* Woolly-bear Wattle

### Taxonomy

*Acacia lucasii* Blakely

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Victoria

Criterion B1ab(i,iii,iv,v)

### Species Information

#### Description and Life History

The taxon is a shrub to 4 m high; branchlets woolly, hairs rusty-brown on young new shoots but ageing silvery white. Phyllodes crowded, ascending to erect, elliptic to narrowly elliptic or lanceolate, 1.5-3(-6) cm long, 6-15 mm wide, often slightly asymmetric, somewhat undulate, grey-green, covered in more or less appressed, woolly hairs, acute to obtuse-mucronate; midrib and marginal veins prominent, lateral veins obscure; gland obscure, 0-8 mm above pulvinus; stipules 2-4 mm long. Peduncles 1-4 mm long, 1 per axil or in terminal racemes with rachis c. 4 cm long, stout, woolly; heads obloid, densely 20-40-flowered, bright light-golden; bracteoles exerted in buds. Flowers 5-merous; sepals united. Pods oblong to narrowly oblong, to c. 4 cm long, 8-14 mm wide, thinly coriaceous-crustaceous, densely covered in woolly, rusty-brown hairs; seeds transverse to oblique, more or less oblong, 4-6 mm long, somewhat shiny, black, arillate. Flowers Oct.-Nov. (VicFlora 2018).

#### Generation Length

The generation length of *Acacia lucasii* is estimated to be 10 to 60 years. Acacias are perennial and have varying generation lengths from short-lived to long-lived. The longevity of this taxon is plausibly 10 - 60 years. Its recruitment is likely to be cued by fires that occurred at pre-settlement frequencies of 10 - 60 years, depending on rainfall and landscape context. Some continuous recruitment occurs in response to small-scale localised disturbances.

#### Distribution

The taxon is extremely localised in Victoria, occurring on the Nunniong Plateau in the far northeast where it is restricted to the Brumby Point area. It also occurs in New South Wales.

#### Habitat

In Victoria, *A. lucasii* has been observed and noted in herbarium records to grow in heath and low woodland on exposed rocky slopes and is noted as occurring on scree slopes.

#### Threats

This taxon is potentially threatened by inappropriate fire regimes. Fire suppression may inhibit regeneration, whilst an increase in fire frequency and intensity may reduce the taxon's seed bank and thus its potential for recruitment post fire.

The latter threat is potentially likely to increase with climatic warming and drying due to climate change. This taxon is found in some areas that are under threat from land-clearing, altered soil profiles, weed invasion, and altered nutrient regimes caused by urbanisation, especially in the western part of its range and closer to Melbourne. Extreme weather events may become more severe in the future due to climate change and this may threaten this taxon in the habitat in which it occurs. It is unclear if browsing pressure by native or feral animals is a potential threat to this taxon. Grazing does not significantly impact this taxon.

### 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:

#### Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2. There is insufficient evidence to determine whether will be a future reduction in population size (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 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 16 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas. The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of AoO as an area within EoO.

It is estimated to have one location, as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. The major threat is fire frequency followed by stochastic events like an extreme weather event.

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

#### Eligible under Criterion B2 as Endangered

The AoO across the taxon's range is estimated to be 16 km<sup>2</sup>, based on 2 x 2 km grids based on accepted, post-1970 records from the VBA. As above, it has 1 location has a continuing decline in (i), (iii), (iv) 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:

#### Eligible under Criterion C2 is Vulnerable

There is estimated to be 2000 to 5000 mature individuals. This estimated is based on the number of individuals estimated on Herbarium record labels and a species assessment provided by DELWP staff. It is possible that undiscovered populations exist in inaccessible areas, given the current niche for this taxon on rocky slopes.

There is a single subpopulation, so the number of mature individuals in one population is 100%

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: AaO < 20 km <sup>2</sup> 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:



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[https://www.environment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf](https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia lucasii* Woolly-bear: Wattle Retrieved from <https://vicflora.rbg.vic.gov.au/flora/taxon/40517ccb-b0eb-405a-bf23-17e8c3ec7b21> (accessed 1 June 2019)