

Acacia dallachiana Catkin Wattle

Taxonomy

Acacia dallachiana F. Muell.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A3ce; D2

Species Information

Description and Life History

The taxon is a tree, to 15 m. Phyllodes linear, narrowly lanceolate or narrowly elliptic, commonly falcate, 8-18 cm long, 10-35 mm wide, tapering, blunt, grey or blue-green; primary veins 2-4, secondary veins somewhat obscure, reticulate; gland small, 7-15 mm above axil. Spikes 1-several per axil, sessile or almost so, to 6 cm long, mid to deep yellow, often curved; rachis glabrous. Flowers 4-merous, densely packed; sepals united, ciliate. Pod moniliform, papery, mostly straight, c. 6-15 cm long, 2-5 mm wide, glaucous, waxy; seeds elliptic, c. 4 mm long, dull, funicle folded several times, aril cupular. Flowers September-December (-March) (VicFlora 2018).

Generation Length

The generation length of *Acacia dallachiana* is estimated to be 50 to 90 years. This is based on a plausible pre-settlement fire interval of 50-90 years or more and the assumption that the taxon is a fire-sensitive obligate seed regenerator (OSR) that recruits episodically post-fire with only minor recruitment in response to localised site disturbance events. The longevity is estimated to be in the 15-45 year range.

Distribution

The taxon is restricted in Victoria to the Victorian Alps, where it is largely confined to the Buffalo Range, near Bogong High Plains and at Sassafras Gap. It also occurs in NSW (VicFlora 2018).

The taxon is near-endemic to Victoria with records in NSW tightly circumscribed (once outliers correctly plotted) in the Geehi area, and the earliest dates are from 1957. This raises the possibility that they are all potentially adventive, resulting from the Snowy Mountain Hydroelectric scheme earth-moving and road construction activity that occurred between the late 1940s and early 1970s. If this speculation is correct, then the taxon is a Victorian endemic.

Habitat

The taxon is restricted in Victoria to subalpine and montane forests (VicFlora 2018).

Threats

The taxon is likely to be threatened in the long-term by climatic drying and increased fire risk which, acting in concert, increase the risk of adult mortality, recruitment failure, seedbank depletion and local extinction. Repeat fire

events at intervals approaching the tolerable fire interval for the taxon reduce the capacity of the taxon to replenish seedbanks, potentially resulting in seedbank depletion and local extinction.

The taxon may also be threatened by targeted or casual browsing by Sambar deer (*Rusa unicolor*), wallabies, rabbits, feral horses or cattle which may constitute a significant future threat to recruitment success, particularly following increasingly intense fire events.

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 style="text-align: center;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> (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 A3 as Vulnerable

The population reduction over the next 100 years is suspected to be 30%, based on (c) and (e) above.

The magnitude of future decline cannot be estimated with confidence since the identified threats operate stochastically and with unpredictable intensity.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4,133 km² and the Area of Occupancy (AoO) is estimated to be 140 km², but other thresholds under this criterion have not been met.

It is unclear whether currently operating threats are likely to result in a high risk of local extinction of individual occurrences, noting that soil-stored seedbanks are likely to persist for decades in the absence of observable recruitment.

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 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 km ² 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 a single location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a timeframe of one or two generations, in response to the impact of the identified threats, notably climatic drying and repeat fire events at intervals approaching the tolerable fire interval.

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 (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia dallachiana*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/0ec9129c-7dff-4156-8031-57141ee0593e>