Threatened Species Assessment

Acacia dawsonii
Poverty Wattle

Taxonomy

Acacia dawsonii R.T. Baker

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A3c+4c; D2

Species Information

Description and Life History

Shrub or tree, 0.4-4 m high; branchlets terete with resinous, sometimes minutely crenate, ridges, densely covered with appressed, minute hairs between ridges. Phyllodes ascending to erect, linear, mostly 5-11 cm long, 3-8 mm wide, straight to slightly curved, thin, glabrous, often with resinous veins, tapering to obtuse, rarely acute, callose-mucronulate; main veins 1 or 2, raised, distant, with few to numerous, sometimes raised, secondary veins occasionally to frequently anastamosing. Racemes 4-6-headed, rachis 5-25 mm long, resin-ridged, with appressed, minute hairs; peduncles 1-3 mm long; heads depressed-globular, 3-4 mm diam., mostly 4-6-flowered, light golden, subtended by 4-6 thick, semicircular bracteoles, those in heads spathulate. Flowers 5-merous; sepals united at base. Pods linear, to 6 cm long, 2-5 mm wide, straight or slightly curved, thinly coriaceous, smooth, glabrous; seeds longitudinal, oblong, black, aril apical. Flowers Sep.-Oct.

Generation Length

The generation length of *Acacia dawsonii* is estimated to be 60 years. This is inferred from likely post-fire episodic recruitment at pre-settlement frequencies of 10 - 80 years, with some continuous recruitment in response to small-scale localised disturbances. *Acacia* taxa are perennial and have varying generation lengths, from long-lived to short-lived. In this taxon, longevity is plausibly 10 - 80 years, recruitment is typically cued by fires at mean pre-settlement frequencies ranging from 30 - 100 years, depending on rainfall and landscape context.

Distribution

In Victoria, the taxon is known from only a few disjunct localities in the east (Mitta Mitta and Snowy River valleys).

Habitat

This taxon is found in a range of habitats growing in dry open-forest, riparian shrubland, river banks, amongst rocks or exposed areas. Most sites are in rocky areas.

Threats

Due to the restricted distribution of this taxon in Victoria it is potentially threatened by inappropriate fire regimes. Lack of recruitment is possible if fires are too infrequent, thereby not allowing fire to promote dormant soil-stored seeds to germinate. Alternatively, a threat is if fires are too frequent, potentially preventing plants from reproducing via seed and building up a seedbank that allows for recruitment after disturbance. The latter threat is potentially

more likely due to climate change and climatic warming and drying, thereby increasing the frequency and severity of fires. Changing climate may also induce drought stress in this taxon. 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.

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 A3 as Vulnerable

The population reduction over the next 100 years is projected to be 30 to 50% (midpoint 40%), based on (c) above.

This is based on the impacts of the identified threats, notably increased fire frequency and intensity.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 180 year period, including both past and future (up to 100 years in the future), is estimated to be 25 to 50% (midpoint 35%), based on (c) above. The causes of reduction may not have ceased, be understood or be reversible.

It is believed that 21% of the taxon's modelled habitat was affected by the 2019/20 fires (DELWP 2020). The impacts are yet to be determined.

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 (EoO) across the taxon's range is estimated to be 4,519 km² and the Area of Occupancy (AoO) is estimated to be 92 km², but other thresholds under this criterion have not been met.

It is estimated to have three locations, because it occurs in three ecologically distinct areas in which a single threatening event can rapidly affect all individuals of the taxon present.

This taxon appears to be naturally restricted in distribution based on its habitat preference. There is no evidence of continuing decline, however, some known sites of occurrence are outside reserves and may be subject to habitat degradation or decline.

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.

At sites of occurrence this taxon is noted as ranging from small isolated patches to locally common. The largest recorded number of individuals for a site is 300 individuals. It is therefore difficult to estimate the numbers of individuals present and there is limited information available on herbarium records. However, this estimate is based on the extent of habitat and number of past collections.

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 three locations, 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 the effects of inappropriate fire regimes.

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

DELWP (2020) *Victoria's bushfire emergency: biodiversity response and recovery. Preliminary report - Version 2*. Department of Environment, Land, Water and Planning. East Melbourne

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia dawsonii.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/79f38ae8-d79f-4dcd-848e-2be540e822ce

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