

Acacia infecunda Famine Wattle

Taxonomy

Acacia infecunda Molyneux & Forrester

This taxon was previously regarded to be a dwarf form of *A. boormanii*. Recent morphometric analysis of these two taxa by Tucker et al. (2018) suggests that they cannot be distinguished by phyllode or floral characters. Suckering habit and inability to set seed appear to be the only features that separate *A. infecunda*, and further study may be required to determine if this should be recognised at specific rank (VicFlora 2018).

Current conservation status

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

Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i,ii); D

Species Information

Description and Life History

The taxon is a small erect shrub 30-60 (-120) cm high, 40-60 cm wide, extending asexually by the production of ramets; branchlets glabrous. Phyllodes linear, 12-41 mm long, 0.8-2.2 mm wide, straight, obliquely and excentrically mucronate, thin, grey-green, glabrous; mid nerve evident or obscure, anastomosing nerves absent, adaxial and abaxial width equal; gland small, not prominent, 4.8 (-11.5) mm above pulvinus. Inflorescence racemose; flower heads globular, axillary, one per axil; raceme axis (3-) 10-30 (-40) mm long; racemes of (5-) 8-10 heads. Peduncles 1.5-4 mm long. Flowers five-merous, 3-5 mm diameter, 5-9 flowers per head, golden, infecund. The taxon flowers from late August to early October (VicFlora 2018).

Acacia infecunda is apparently sterile, known only to reproduce asexually via root suckers. It co-occurs with *A. nanopravissima* (previously regarded to be a dwarf variant of *A. pravissima*) and *A. tabula* (previously regarded to be a dwarf variant of *A. buxifolia*). All three species are restricted to the same location and are apparently sterile.

Generation Length

The generation length of *Acacia infecunda* is suspected to be 80 to 100 years. The generation length is indefinite, since the taxon is only known to produce vegetatively. In this taxon, which is represented by a single genetically unique individual or genet, the generation length is indefinite and the life of the genet is assumed to be perpetual.

Distribution

The taxon is apparently endemic to the Wulgulmerang district in East Gippsland in Victoria, where it is currently known by a single small population on the Wombargo Range in the upper catchment of Little River, a tributary of the Snowy River. The population comprises small fragmented stands in close proximity extending along an approximate north-east to south-west line on a rocky slope near Benambra-Limestone Road (Molyneux 2007; Molyneux and Forrester 2008; VicFlora 2018).

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Habitat

The taxon is found in dry woodland and heathland habitat on rocky slopes with soils derived from Devonian acid rhyolites. Associated understorey species include members of the *Ericaceae*, *Dilleniaceae*, *Myrtaceae* and *Poaceae* with an overstorey dominated by *Eucalyptus pauciflora*, *E. rubida* and *E. sp. aff. dives*. *Acacia amoena*, *A. gunnii* and *A. kybeanensis*, all of which are fecund and are also found growing in close proximity (Molyneux 2007).

The taxon is restricted to dry sclerophyll woodland dominated by *Eucalyptus rubida* (Candlebark), *Eucalyptus pauciflora* (Snow Gum or White Sallee) and *Eucalyptus dives* (Broad-leaf Peppermint) with a grassy and heathy understorey (Molyneux and Forrester 2008).

Threats

Threats include browsing by Sambar deer (*Rusa unicolor*) or feral horses, particularly during the vulnerable suckering following intense fire, with the risk exacerbated by extreme drought stress. It should be noted that the threat of extreme drought and repeat fire events are projected to increase as a consequence of climatic drying.

Fire is a constant threat to population levels, and if short term fires (less than ten years) occur, then recovery of the taxon will be greatly impeded. Due to its exceedingly small population size, which may comprise no more than a single genetic individual or genet, the taxon is highly susceptible to fire or other stochastic events. The quality of habitat is in a state of continuing decline due to fire (Molyneux 2007).

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

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 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:

Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of the AoO as an area within EoO.

It is estimated to have 1 location, as it may comprise no more than a single genetic individual or genet (Molyneux & Forrester 2008).

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above. There is a significant risk of extinction of the only known clonal occurrence.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has one location and has a continuing decline in (i), (ii), (iii), (iv) 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:

Eligible under Criterion C2 as Critically Endangered

It is estimated that there is 1 mature individual. This taxon may comprise no more than a single genetic individual or genet (Molyneux and Forrester 2008). This cannot produce seed, but it can be considered mature in the sense that it can flower.

The number of mature individuals is inferred to continue to decline, the number of mature individuals in each subpopulation is 50 or fewer and the percentage of mature individuals in one subpopulation is 90-100 %.

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: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Critically Endangered

The taxon is estimated to have 1 mature individual.

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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