



Acacia enterocarpa Jumping-jack Wattle

Taxonomy

Acacia enterocarpa R.V. Sm.

Acacia enterocarpa differs from *A. nyssophylla* and *A. colletioides* in having minutely asperate ribs on branchlets and phyllodes, as well as strongly zigzag legumes.

Current conservation status

Listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1995).

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

Proposed conservation status

Endangered in Victoria

Criteria A2ace+3ce+4ace; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a dense, rounded, sprawling shrub to 1.5 m high; branchlets slightly angled to terete with prominent, minutely asperate ribs, glabrous. Phyllodes spreading, subsessile, subterete to compressed, 2-4.5 cm long, 1-1.3 mm wide, rigid, straight to slightly curved, minutely asperate, glabrous, sometimes viscid, pungent; main veins 10-12, distant, raised. Peduncles 3-5 mm long, 1-4 per node, with appressed, minute hairs; heads globular, 3.5-4.5 mm diam., c. 20-flowered, golden. Flowers 5-merous; sepals free. Pods intestine-like, zigzag, bent c. 5 times, slightly raised over and constricted between seeds, to c. 2 cm long and 2 mm wide, coriaceous, with sparse appressed, minute hairs, brown with thickened, yellow margins; seeds longitudinal, oblong to elliptic, c. 3 mm long, dull, dark brown to black; aril apical. Flowers Jul.-Sep. (VicFlora 2019).

Generation Length

The generation length of *Acacia enterocarpa* is estimated to be 30 to 50 years. This is based on a plausible longevity of 40-70 years, a lack of evidence that the taxon is capable of root suckering, an inference that the taxon is a fire-sensitive obligate seed regenerator (OSR) recruiting episodically post-fire at an estimated pre-settlement fire interval of 40-70 years and the likelihood that the taxon also recruits opportunistically in response to localised site disturbance events (i.e. trickle recruitment).

Distribution

In Victoria, the taxon is restricted to an area west of Nhill (VicFlora 2019), specifically, the Diapur-Kaniva area of the Wimmera, mainly on the Lawloit Range. One site is in the Sandsmere Flora Reserve, one is in the Diapur Flora Reserve, two sites in the Diapur Rail Reserve and one site on private land. The remaining populations are on roadsides (Overman and Venn 2004).

Habitat

Throughout its Victorian range, the taxon grows on a variety of soils in open forest and woodland (VicFlora 2019). Although the species has a limited geographic range, it grows in a range of habitats, from Mallee Broombush (*Melaleuca uncinata*) on the highest parts of the northern Lawloit Range, on gravelly duplex ironstone soils, to Mallee scrub and grassy woodlands of Yellow Gum (*Eucalyptus leucoxylon*), Grey Box (*Eucalyptus macrocarpa*) and Buloke (*Allocasuarina luehmannii*) and on more fertile, brown loamy soils in adjacent areas (Overman and Venn 2004). Quadrat data and expert knowledge, however, suggest the taxon is largely restricted in Victoria to grassy woodland.

Threats

Since most of the sites are on narrow road reserves, the lack of effective reservation appears to be the most serious threat to the taxon. A number of agricultural weeds have been noted as posing a threat, most significantly Bridal Creeper (*Asparagus asparagoides*) and Horehound (*Marrubium vulgare*) in Diapur and Sandsmere Flora Reserves, respectively. Some occurrences are also threatened by overabundant indigenous species including the hemiparasitic climber Slender Dodder-laurel (*Cassytha glabella*) and the climbing Small-leaved Clematis (*Clematis microphylla*). The threats to the taxon have been summarised as being: disturbance by road and rail maintenance and fire protection works, aerial application of herbicides to adjacent croplands, grazing by travelling stock and the Rabbit (*Oryctolagus cuniculus*) and gravel extraction and/or dumping. Particular attention has been drawn to the threat posed by gall infestation, likely to be due to the Gall Fungus (*Uromycladium tepperianum*), which is present in debilitating levels in most of the Victorian populations. The galls reduce plant vigour and, as they may occur within flowering as well as vegetative parts, potentially reduce seed set. Despite mycological confirmation that the gall is caused by a fungus, land managers assume the cause is insect related (DEE 2012). The taxon is also threatened by the imposition of unfavourable fire regimes including the perpetual exclusion of fire at some sites and the over-frequent application of fuel reduction burns at intervals below the tolerable fire interval (TFI) for the taxon at other sites. Both practices risk eventual seedbank depletion and exhaustion. The taxon is also threatened in the long-term by climatic drying and warming, which increase the risk of recruitment failure in response to extreme drought stress.

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> <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 A2 as Endangered

The population reduction over the past 90 to 150 years is estimated to be 65%, based on (a), (c) and (e) above.

This is based on an estimated historic decline of 80-95% in response to habit loss and fragmentation through clearance for agriculture and an estimated decline of 65% within the last three generations.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Endangered

The population reduction over the next 90 to 100 years is projected to be 50 to 80 (midpoint 65)%, based on (c) and (e) above.

This is based on an increasing risk of adult mortality and recruitment failure in response to a projected increase in extreme drought stress, fire intensity, frequency and landscape scale, as well as the stochastic and incremental impacts of other identified threats.

Eligible under Criterion A4 as Endangered

The population reduction over any 90 to 150 year period, including both past and future (up to 100 years in the future), is estimated to be 50 to 80 (midpoint 75)%, based on (a), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Past decline is based on habit loss and fragmentation through clearance for agriculture. Future decline is based on an increasing risk of adult mortality and recruitment failure in response to a projected increase in fire intensity,

Acacia enterocarpa Jumping-jack Wattle

frequency and landscape scale and extreme drought stress as well as the stochastic and incremental impacts of other identified threats.

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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 597 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is severely fragmented anthropogenically at the landscape scale with all extant occurrences at geographic separations greatly exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal.

It is estimated to have 1 location. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

Continuing decline is 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 104 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is estimated to be severely fragmented, and is estimated to have 1 location. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

Acacia enterocarpa Jumping-jack Wattle

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 1,800 to 3,000 mature individuals, but other thresholds under this criterion have not been met.

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 Vulnerable

It is estimated that there are 1,800 to 3,000 individuals, and 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

DEE (2012). Species Profile. *Acacia enterocarpa* Jumping-jack Wattle. Species Profile and Threat Database. Department of Environment and Energy. Retrieved from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=17615



Acacia enterocarpa Jumping-jack Wattle

DEPI (2014) *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

Overman, T. and Venn, D. (2004) Action Statement No. 85 Jumping-jack Wattle *Acacia enterocarpa*. Victorian Department of Sustainability and Environment.

SAC (1995). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 353 *Acacia enterocarpa*

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia enterocarpa*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/8fc9083d-6d06-432a-9f5a-d62138fef2d1>