Threatened Species Assessment

Acacia pendula
Weeping Myall

Taxonomy

Acacia pendula A. Cunn. ex G. Don

The taxon is related to *A. omalophylla,* which has narrower, unwinged pods, glabrous phyllodes and oval seeds (VicFlora 2019).

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2015).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2abcde+4abcde; D

Species Information

Description and Life History

The taxon is a tree, to 12 m high, with pendulous branches; branchlets slender, angular, with appressed minute hairs. Phyllodes narrowly elliptic, 5-14 cm long, 3-10 mm wide, coriaceous, straight to curved, densely covered in appressed minute hairs, sparser in older leaves, tip curved-acuminate, innocuous; veins numerous, closely parallel, with 1-3 usually more prominent. Racemes 2-7-headed, rachis 2-9 mm long, with appressed minute hairs; peduncles 3-8 mm long, with appressed minute hairs; heads globular, 3.5-4.5 mm diam. (occasionally larger), 12-25-flowered, light golden; bracteoles spathulate. Flowers 5-merous; sepals free to half united. Pods oblong, to 13 cm long, 9-12 mm wide, flat, slightly raised over and irregularly slightly constricted between seeds, chartaceous to thinly coriaceous, straight, curved or twisted, coarsely reticulate, with appressed, minute hairs, margins with wing 2-3 mm wide; seeds transverse, soft, broadly elliptic to almost discoid, 5-9 mm long, funicle-aril fleshy. The flowering period is irregular (VicFlora 2019).

Generation Length

The generation length of *Acacia pendula* is estimated to be 80 to 150 (midpoint 100) years. This is based on field observation suggesting that the taxon persists indefinitely since it is capable of root suckering. Victorian occurrences apparently represent long-established clones that are capable of persisting in the absence of seed recruitment.

Distribution

The taxon is rare in Victoria with isolated occurrences near Warracknabeal and Echuca. The taxon also occurs in Queensland and New South Wales (NSW). Due to the pale, silvery foliage and form of the crown of the tree, it has been cultivated extensively in this country and abroad, for example in Iran and Kuwait (VicFlora 2019).

The reliable pre-settlement distribution of the taxon is difficult to establish with some observers suggesting the taxon is strictly indigenous only in the Echuca district, possibly extending to the Kerang district. All other occurrences are likely to be naturalisations from intentional introductions from the Riverina in NSW.

Habitat

Throughout its range, the taxon grows mainly on floodplains in fertile alluvial clay and red earth soils (VicFlora 2019).

Threats

The taxon is likely to have suffered significant historic decline in all districts where it is likely to have been strictly indigenous at the time of European settlement. The extent of the decline of indigenous occurrences is particularly difficult to estimate given the great uncertainty regarding the pre-settlement Victorian distribution of the taxon. Occurrences in the Wimmera, all of which are inferred to be planted or locally naturalised, are either locally stable or potentially enlarging through propagation of non-indigenous provenances.

The taxon has been traditionally exploited for firewood, fence posts, turnery, and as a stock fodder source, particularly during drought. The wood was also used for boomerangs and spears (Jones & Elliott 1982).

Current and future threats to strictly indigenous occurrences include a wide range of potential stochastic site-specific threats, such as agricultural intensification, browsing by stock, roadside management activity, fire management activity and, potentially, the risk of adult mortality and recruitment failure in response to extreme drought 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%

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 A2 as Critically Endangered

The population reduction over the past 240 to 450 years is estimated to be 80 to 95%, based on (a), (b), (c), (d) and (e) above.

The taxon is likely to have suffered significant historic decline in all districts where it is likely to have been strictly indigenous at the time of European settlement. The extent of the decline of indigenous occurrences is particularly difficult to estimate given the great uncertainty regarding the pre-settlement Victorian distribution of the taxon. Occurrences in the Wimmera, all of which are inferred to be planted or locally naturalised, are either locally stable or potentially enlarging through propagation of non-indigenous provenances.

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

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:

Eligible under Criterion B as Endangered

The Extent of Occurrence (EoO) is estimated to be 4,640 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 41 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is severely fragmented naturally and anthropogenically at the landscape scale. Geographically isolated occurrences are interpreted as distinct subpopulations since they occur at separations likely to exceed the dispersal range of the taxon, which has no specialised mechanism for long-distance dispersal. The only plausible dispersal mechanism is myrmecochory (dispersal by ants), which operates at the metre scale only.

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

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 25 to 50 mature individuals, but other thresholds under this criterion have not been met.

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 D as Critically Endangered

The taxon is estimated to have 25 to 50 mature individuals, based on field observations and collectors' notes.

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 and threatened plants in Victoria - 2014.* Department of Environment and Primary Industries, Melbourne.

Jones and Elliott (1982). *Encyclopaedia of Australian Plants Suitable For Cultivation*. Lothian.

SAC (2015). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 851 *Acacia oswaldii*

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia pendula*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/0bb0c432-ba44-44e9-ae3d-098f9202fc