



Indigofera adesmiifolia Tick Indigo

Taxonomy

Indigofera adesmiifolia A. Gray

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2ce+3ce+4ce; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v); C1

Species Information

Description and Life History

The taxon is a shrub to c. 1.5 m tall. Leaves to c. 6.5 cm long; rachis flattened, 0.5-2.5 mm wide; leaflets usually 11-19, obovate to obcordate, 1-5 mm long, 1-3 mm wide, obtuse to emarginate; stipules triangular, to c. 1 mm long. Inflorescences 2.5-5.5 cm long; peduncle to c. 1 cm long. Flowers 5-20; pedicels c. 2 mm long; bract triangular, c. 0.5 mm long, brown; calyx 2-2.5 mm long, appressed-hairy, teeth shorter than tube, unequal; corolla rose pink, standard suborbicular, c. 6 mm across, more or less sessile; wings falcate; keel c. as long as wings. Pod linear-terete, 15-35 mm long, sparsely hairy; seeds more or less cubic, c. 2 mm long, black or brownish. The taxon flowers from September to November (VicFlora 2019).

Generation Length

The generation length of *Indigofera adesmiifolia* is estimated to be 30 to 50 years. This is based on the frequency of fire and drought, which are likely to be major triggers of both recruitment and mortality. Evidence suggests that the taxon has a longevity of 25-35 years or more.

Distribution

The taxon is rare and occurs in the north-east of Victoria. It also occurs in Queensland and New South Wales (VicFlora 2019).

Habitat

The taxon is confined to dry hill country (VicFlora 2019). Quadrat data and data held in the Victorian Rare or Threatened Plant Population Monitoring (VROTPop) database confirms that the taxon is frequently associated with grassy woodlands dominated by *Eucalyptus albens* (White Box), *E. blakelyi* (Blakely's Red-gum), *E. microcarpa* (Grey Box), *E. melliodora* (Yellow Box), *E. polyanthemos* (Red Box), and, at greatest frequency, *E. macrorhyncha* (Red Stringybark).

There is little or no evidence that the taxon has been misidentified as *I. australis* in the Flora Information System (Viridans no date), with one possible exception (F52313 1994 GRS, PTT pre-Flora Vic record). One plant has been recorded in *Themeda* grassland near Huon, east of Bonegilla. This record may indicate that the taxon was once abundant in grassy woodlands.

Threats

Threats include herbivore browsing, earthworks, and drought. The taxon's habitat is targeted for conversion to agriculture. Licensed grazing of a disused rail reserve has eliminated the taxon at one site.

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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 90 to 150 years is estimated to be 50 to 80% (midpoint 65%), based on (c) and (e) above.

It is likely that there has been at least a 50% decline in the available habitat in the last 100 years as a result of the identified threats.

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 suspected to be 30 to 75% (midpoint 50%), based on (c) and (e) above.

Future decline is based on the ongoing loss of habitat, quality of habitat and the effects of grazing.

Eligible under Criterion A4 as Endangered

The population reduction over the next 90 to 100 years is suspected to be 50 to 75%, based on (c) and (e) above.

The causes of 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 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 1,340 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, considering its limited dispersal ability, the barriers to dispersal, and the lack of habitat separating subpopulations.

It is suspected to have two locations, and has a continuing decline in (ii), (iii), (iv) and (v) above, based on the quality of the habitat and specific grazing impacts.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 76 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is severely fragmented, has two locations, and has a continuing decline in (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 C as Endangered

It is estimated that there are 250 to 1,000 (midpoint 500) mature individuals. VROTPop data (DELWP 2008) suggests that the total population was less than 250 at that time. This included immature and senescent plants. The statewide population is probably less than 1000 mature plants.

There is estimated to be a continuing decline of 20 to 50% (midpoint 33%) within a time frame of two generations, based on the ongoing loss of habitat, quality of habitat, and specific grazing impacts.

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 250 to 1,000 (midpoint 500) mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

DELWP (2008). Victorian Rare or Threatened Plant Population Monitoring (VROTPop) database.



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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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Indigofera adesmiifolia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/25a9cf41-5d5c-45bc-88bf-c260dd796410>

Viridans (no date) Flora information System. <http://www.viridans.com/vicfisvfd/>