Threatened Species Assessment

Logania ovata
Oval-leaf Logania

Taxonomy

Logania ovata R. Br.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2bc; B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is an erect shrub (0.5-)1-2 m high, dioecious; branches glabrous or minutely papillose. Leaves subsessile with petiole less than 0.8 mm long; lamina somewhat thickened, rather stiff, broadly ovate to ovate, rarely narrowly ovate, 16-27(-36) mm long, (6-)7-20(-26) mm wide, length-to-width ratio 1.2-2.5(-3.5), base rounded to slightly cuneate, margin slightly thickened and slightly recurved, apex obtuse, sometimes minutely mucronate, lower surface glabrous, with minute papillae often restricted to marginal region. Inflorescence a terminal panicle, usually foliose, many-flowered; flowers unisexual. Calyx 1-1.5(-2) mm long; corolla 2.5-3 mm long, lobes 1-1.5 mm long, inner surface glabrous except for a band of crinkled hairs which is restricted to an internally thickened rim in mouth; stamens inserted c. halfway up corolla-tube. The taxon usually flowers from August to November (VicFlora 2017).

Generation Length

The generation length of *Logania ovata* is estimated to be 20 to 40 years. This is based on a longevity of plausibly 40 years, a pre-European settlement fire interval that is plausibly in the 20-40 year range, and the likelihood that episodic fire-induced mass recruitment greatly exceeds the proportion of recruitment responding continuously to small scale soil disturbances.

Distribution

The taxon occurs mainly on the south-western coasts near Portland, Port Fairy and Peterborough in Victoria. The taxon also occurs in South Australia (VicFlora 2017).

Habitat

The taxon occurs in coastal scrubland and woodland, usually on limestone. It is often found along clifftops and steep river banks (VicFlora 2017).

Threats

This taxon is threatened by climatic drying, with increased drought likely to cause mortality and effect the survival of recruits. Increased browsing pressure by wallabies, because of habitat loss and poor growth of other vegetation due to drought, is likely to affect 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 A2 as Endangered

The population reduction over the past 60 to 120 years is estimated to be 30 to 50%, based on (b) and (c) above.

Historic decline in the habitat of this taxon due to land clearing of limestone areas is expected to be considerable, possibly up to 70% since European settlement. However, the percent reduction in the past 120 years is estimated to be between 30-50%.

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 B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 2,520 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have two locations, as each subpopulation may be variably affected by bushfire or stochastic events.

It has a continuing decline in (iii) above due to ongoing prolonged drought conditions, which are regarded as more extreme than historically experienced. This threat is expected to continue and worsen into the future.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 154 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has two locations and has a continuing decline in (iii) 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:

Ineligible under Criterion C as Data Deficient

It is estimated that there are 3,900 to 7,800 mature individuals, bur other thresholds under this criterion have not been met.

The current population size is based on herbarium notes which indicate that plants are often highly localised and in small populations. It is estimated that, on average, each 4 km² grid is likely to contain between 100-200 mature individuals.

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:

Ineligible under Criterion D

It is estimated that there are 3,900 to 7,800 mature individuals.

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.

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Logania ovata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/84d4e242-ddff-447a-8d5c-8035708fd7a6