



Marsdenia flavescens Yellow Milk-vine

Taxonomy

Marsdenia flavescens A. Cunn. ex Hook.

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2bce+3bce+4ce

The taxon is believed to have 55% of its 13 Victorian sites occurring within the footprint of the 2019-20 bushfires, and about 48% of its modelled habitat may have been impacted by high severity fires. It is thought to be fire-sensitive in the context of these fires and may have been significantly impacted. It is also believed to be at some risk of post-fire impacts.

Species Information

Description and Life History

The taxon is a robust climber with stems to 5 m long or more; stems pubescent. Leaves oblong-lanceolate, 3–12 cm long, 1.5–4.5 cm wide, apex abruptly acute or obtuse, base obtuse, margins recurved, upper surface dark green, more or less glabrous, lower surface pale yellowish-green, densely pubescent, venation obscure; glands 1–3 at base of midvein, finger-like; petiole 5–20 mm long. Inflorescences compound cymes of 2–6 umbels; peduncles mostly 10–25 mm long, pubescent. Pedicels 3–6 mm long; sepals ovate, c. 1 mm long, free almost to base, pubescent; corolla c. 2 mm long, glabrous, pale yellow, tube papillose inside, lobes ovate, c. 1 mm long, spreading. Follicles fusiform, 4–6 cm long, 4–8 mm wide, finely ribbed, sparsely pubescent; seeds 5–8 mm long, c. 3 mm wide, coma hairs 2–3 cm long. Flowers mainly summer (VicFlora 2019).

The taxon is a long-lived vine that resprouts after fire. Plants are monoecious, but its breeding system unknown, i.e. whether it is an obligate outcrosser or self-fertile as *M. australis* is. Pollination is by insects, presumably for a nectar reward, but there is no data available on what kind of insects. Seeds are armed with a 'parachute' and are dispersed by wind, potentially to some distance, hence gene-flow could also be of some distance.

Generation Length

The generation length of *Marsdenia flavescens* is suspected to be 40 to 50 years. This is based on the taxon's longevity, resprouting capacity, and continuous recruitment.

Distribution

The taxon occurs between Bairnsdale and Cann River in East Gippsland (VicFlora 2019).

Habitat

The taxon occurs in warm-temperate rainforest gullies at low elevation (VicFlora 2019).

Threats

Threats to the taxon include climate change (decreased rainfall, increased evaporation, and extreme temperatures); increased frequency and intensity of fire, and impacts of fire-control activities; weed invasion; damage to hydrology, soils, and vegetation generally; and structural damage to plants by Sambar Deer (*Rusa unicolor*) browsing and pull down.

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 style="text-align: center;">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>			

Evidence:

Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 120 to 150 years is suspected to be 40 to 85%, based on (b), (c) and (e) above.

Past reduction is based on the suite of threats identified, particularly weed invasion, Sambar Deer browsing, and the impacts of the 2019-20 bushfires.

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

Eligible under Criterion A3 as Critically Endangered

The population reduction over the next 100 years is projected to be 50 to 85%, based on (b), (c) and (e) above.

Future reduction is based on the projected impacts of threats identified, particularly weed invasion, Sambar Deer impacts and the risks of further fires as above.

Eligible under Criterion A4 as Critically Endangered

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The population reduction over any 120 to 150 year period, including both past and future (up to 100 years in the future), is observed to be 60 to 85%, 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 B as Endangered

The Extent of Occurrence (EoO) is estimated to be 2,107 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 56 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is inferred to be severely fragmented considering its limited dispersal ability, the barriers to dispersal, and/or the lack of habitat separating the individuals.

It is inferred to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the impacts of the identified threats.

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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

No reliable estimate of the total population size for the taxon is available.

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 D2 as Vulnerable

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

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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VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Marsdenia flavescens*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/1dd3c607-56af-447e-886a-8a7a2ab932a7>