Threatened Species Assessment

Leptomeria drupacea
Pale Currant-bush

Taxonomy

Leptomeria drupacea (Labill.) Druce

This species is often confused with *Leptomeria acida* (VicFlora 2019).

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is an erect, sometimes broom-like or occasionally rather spreading shrub 0.7-2.5 m high. Stems flexible to rigid, subterete to prominently angular, longitudinally ridged, not pungent. Inflorescence a raceme, rachis 5-15 mm long. Flowers 6-15, tepals 0.6-0.9 mm long, apex incurved, prominently hooded and thickened adaxially, with a small tuft of minute hairs on the adaxial surface above the point of filament insertion, white (frequently flushed reddish-pink upon ageing); disc markedly lobed, 0.6-0.8 mm diam. Drupe subglobose to ellipsoid, c. 6 mm long, epicarp fleshy, green, ripening reddish. The taxon flowers from November to December (VicFlora 2019).

Generation Length

The generation length of *Leptomeria drupacea* is estimated to be 45 to 90 (midpoint 60) years. The taxon is a long-lived perennial with an inferred extended 10-year juvenile period, adapted to fire every few decades, with longevity to 70 years or more, senescing at 75-100 years. The taxon is likely to recruit sporadically or continuously in response to favourable seasonal conditions, supplemented by an additional post-fire recruitment pulse at an estimated pre-settlement interval of 40-80 years, depending on its proximity to coast and local habitat conditions. Sites closer to the coast are likely to have been burnt more frequently through Aboriginal fire practices, and dry, rocky habitats are likely to have been burnt less frequently than Lowland Forest habitats with higher fuel accumulation rates. The taxon is potentially capable of resprouting following low to moderate fire intensity, but can be killed by intense fire, relying on a long-persistent soil-stored seedbank supplemented by biotic dispersal from unburnt stands.

Distribution

The taxon is restricted in Victoria to the Genoa district in far East Gippsland. It was reliably recorded from the Upper Genoa River near the Yambulla Creek confluence, downstream in the Wangarabell area and the Howe Range. It also occurs in Queensland, NSW and Tasmania (VicFlora 2019).

Habitat

The taxon is restricted in Victoria to open-forest communities, often on rocky substrates (VicFlora 2019).

Threats

Despite the proximity of this taxon to Victorian occurrences of the very similar *Leptomeria acida*, threats to this taxon are more difficult to identify with confidence since the habitat range of this taxon is less well understood.

In the longer term, the greatest threat to the taxon is likely to be climatic drying coupled with increasing fire range, frequency, and intensity. Most Victorian stands are located between Genoa and Wangarabell where they occur in proximity to extensive stands of Lowland Forest in which fuel accumulation can support repeat fires at intervals approaching the tolerable fire interval (TFI) for the taxon. Such events have the potential to exhaust the soil-stored seedbank. Bushfires in such forests also have the potential to burn with sufficient intensity to kill all adult plants and to occur over sufficiently large areas as to preclude the ability of bird-dispersed seed from unburnt stands to recolonise burnt forest habitats. Most Victorian occurrences are likely to have been consumed by intense bushfire in January 2020. The full impact of this event has yet to be assessed. Much of the forest surrounding the habitat of the taxon has a history of forestry operations in recent decades and exposure to planned burning.

The taxon may also be threatened by Sambar Deer (*Rusa unicolor*), particularly during recruitment, although adult plants are unlikely to be targeted. Prolonged juvenility, however, may reduce targeting by Sambar and other herbivores. The taxon may also be threatened in the longer term by extreme, prolonged and recurrent drought stress, resulting in adult mortality and recruitment failure.

Spatial analysis of likely habitat for the taxon indicates that 59% occurs within the CAR reserve system, including parks, reserves and special protection zones in State forest. Further areas are excluded from harvesting by prescription under the Victorian Code of Practice for Timber Production 2014. In recent years, modified harvesting and forest regeneration practices have been implemented in native forest that are designed to further mitigate the potential threat from forestry operations to threatened species and their habitats.

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:

Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 172 km² and the Area of Occupancy (AoO) is estimated to be 16 km², but other thresholds under this criterion have not been met.

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

There is no available estimate of population size for the taxon in Victoria.

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 D2 as Vulnerable

The taxon is estimated to be very restricted, with a single location, such that it is capable of becoming Critically Endangered or Extinct within a time period of one to two generations in response to the impact of the identified threats, notably climatic drying coupled with increasing fire frequency, and intensity.

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)

VicFlora (2019) Flora of Victoria, Royal Botanic Gardens Victoria: *Leptomeria drupacea*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/c57cb27a-b398-46a5-8500-e0687c74a216