Threatened Species Assessment

Lastreopsis decomposita
Trim Shield-fern

Taxonomy

Lastreopsis decomposita (R. Br.) Tindale

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(i,ii,iii,iv,v); C2a(i); D

Species Information

Description and Life History

Rhizome creeping, to 12 mm diam., covered in brown scales. Fronds crowded, erect, somewhat rigid, 50-90 cm tall. Stipe longer than lamina, hairy throughout, densely scaly at base, scattered scales above. Lamina 3-4-pinnate, broadly triangular, dull grey-green, relatively harsh, moderately to densely hairy all over; rachises with abundant hairs and usually a few scattered scales. Pinnules oblong with pointed tips, margins deeply incised into narrow teeth or lobes. Sori c. 0.5 mm diam.; indusium not persistent, brown, with yellow glandular hairs on margin.

Generation Length

The generation length of *Lastreopsis decomposita* is estimated to be 15 to 30 years. The rhizomatous habit of this species suggests that this taxon may take several years to reach full size because the rhizome can be long-creeping and are relatively long-lived and so it is expected that most plants would be at least between 15 and 30 years old.

Distribution

In Victoria the taxon is confined to far east Gippsland east of Genoa.

Habitat

In Victoria the taxon is confined warm-temperate rainforest.

Threats

The bushfires of 2019/2020 are believed to have impacted more than 80% of the taxon's habitat. The taxon is sensitive to fire does not require fire for regeneration and plants are likely to be killed by fire. It is a rainforest plant and as such is reliant on complete absence of fire and constant moisture. As a result the major threats to this species is reduction in moisture availability as a result of decrease in annual rainfall and presence of fire. Presence of fire may be caused by increase in severity and frequency of fire in adjacent sclerophyll vegetation as a result of increase dryness, and extremes of temperature that may be expected to become more common in the future as a result of climate change. Post-fire recruitment may be impacted by grazing animals, notably Sambar Deer.

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 Vulnerable

The population reduction over the past 45 to 90 years is suspected to be 25 to 45%, based on (a), (c) and (e) above.

This is based on past loss of rainforest, notably the impacts of the 2019/20 fires.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 45 to 90 years is projected to be 20 to 50%, based on (c) and (e above.

This is based on the impacts of the identified threats.

Eligible under Criterion A4 as Endangered

The population reduction over any 45 to 90 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 50%, based on (a), (c) and (e) above.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 34 or 49 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas and Australian Virtual Herbarium data. The upper estimate is the area inside a polygon drawn between Black Hole Track crossing of Harrisons Creek, Dowell Creek near the border of New South Wales, Genoa, and opposite Gypsy Point. The lower estimate is if the Black Hole site is extinct.

Considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them, the subpopulations can be considered to be severely fragmented.

It is estimated to have 1 location. It has a continuing decline in (i), (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 C2 as Critically Endangered

It is estimated that there are 45 to 120 mature individuals. In the collecting notes of the Wakefield collections near Gypsy Point and Genoa it mentions that these subpopulations consists of “around a score of plants”.This suggests that subpopulations consist of around 20 plants and so each of the four subpopulations possibly had around 15 to 30 mature plants. A range is given to account for difficulty in estimating population size for plants that creep by rhizome and for fluctuations in population size. The subpopulation found in the Black Hole Jungle was not located by D. Ohlsen (RBG) and is probably extinct. This site appears to have been disturbed by a flood event. As a result the estimate of 0 to 30 plants is given for this subpopulation to account for the possibility that it remains but was overlooked or has gone extinct.

The number of mature individuals is estimated to continue to decline, and the number of mature individuals in each subpopulation is 50 or fewer.

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 45 to 120 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 (no date). Flora of Victoria, Royal Botanic Gardens Victoria: ***Lastreopsis decomposita*** Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/c000ae8f-e1c3-4af9-a3b7-6507add4f225