

Leptecophylla oxycedrus Crimson Berry

Taxonomy

Leptecophylla oxycedrus (Labill.) Jarman

Leptecophylla oxycedrus was previously treated as *Leptecophylla juniperina* subsp. *oxycedrus*. Jarman and Kantvilas (2017) re-instated *Leptecophylla oxycedrus* to specific rank. *Leptecophylla juniperina* is now considered as being a New Zealand endemic (VicFlora 2019).

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 A2bce+3bc+4bce

Species Information

Description and Life History

The taxon is a densely branched shrub to 3(-5) m high; branchlets puberulent. Leaves spreading or reflexed, narrowly lanceolate, 6-16 mm long, 1-1.7 mm wide, mucronate, glabrous and glossy above, glaucous beneath, veins unbranched; margins slightly recurved, smooth to serrulate. Flowers unisexual, solitary or in short spikes, axillary and/or terminal; bracts and bracteoles ovate, collectively c. 8-12, obtuse; sepals ovate-elliptic, 1.8-3 mm long, obtuse; corolla white; tube cylindrical-urceolate, 2.2-2.8 mm long in female flowers, 2.6-4.4 mm long in males, sparsely hairy about throat; lobes with acute recurved tips, 1-2 mm long; anthers usually partly exerted from corolla tube; ovary 5-6-locular, style c. 1-1.5 mm long. Fruit spherical, c. 8-9 mm diam., pale to deep pink. The taxon flowers from August to November (VicFlora 2019).

The taxon is fire sensitive, that is, it can survive low intensity fire, but it is eliminated by high intensity fire, with no observable recovery or recolonisation.

Generation Length

The generation length of *Leptecophylla oxycedrus* is inferred to be 75 to 150 years. Past estimates have suggested that the longevity is likely to exceed 100 years and that the plant is very slow growing. Around Corner Inlet, recruitment is difficult to distinguish confidently from root suckers and so there is a lack of confidence about whether any true seedlings are present. This is consistent with the Phillip Island populations, where there is no evidence of regeneration from seed. Therefore, a generation time in the 75-150 year range is assumed.

Distribution

In Victoria, the taxon is restricted to coastal granitic areas of Wilsons Promontory, Corner Inlet and Phillip Island (Cape Woolamai). There is an additional occurrence at Phillip Island, on basalt near Smiths Beach (VicFlora 2019).

Habitat

The taxon occurs in coastal shrubland or open-forest (VicFlora 2019).

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The habitat range extends from coastal granite to wet coastal *Melaleuca ericifolia* (Swamp Paperbark) swamp fringing saltmarsh which is known to extend around Corner Inlet, probably more or less continuously. The taxon is often found in quite deep non-skeletal alluvial soils, typically sandy through to heavy profiles.

Threats

Threats to the taxon variously include climate change (i.e., decreased rainfall, extreme temperatures) and associated increased frequency and intensity of fire, failed recruitment/reproduction due to drought conditions, sea-level rise and coastal erosion, potential non-target damage during weed spraying (notably of Gorse), an apparent lack of recruitment and possibly seed dispersal, potential browsing of any seedlings by feral animals (deer, rabbits) and wallabies, and genetic issues associated with small fragmented populations.

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 225 to 450 years is suspected to be 80 to 90%, based on (b), (c) and (e) above.

Past decline is based on a loss of habitat for agriculture on the shores of Corner Inlet, and sea-walling of the northern shoreline of Corner Inlet, which involved drainage and clearance of all near coastal vegetation near to the sea wall.

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 suspected to be 80 to 95%, based on (b) and (c) above.

This estimate is based on the taxon's fire susceptibility and a projected increase in fire frequency and intensity across entire extant range.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 225 to 450 year period, including both past and future (up to 100 years in the future), is suspected to be 80 to 95%, based on (b), (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 is estimated to be 2,530 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy is estimated to be 100 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is estimated to be severely fragmented. It is known from a number of small occurrences, with much of its former extent anthropogenically fragmented, with no apparent capacity to colonise outside of existing stands.

The populations at Wilsons Promontory, around Corner inlet to the north of the park, and at Phillip Island are subject to different sets of threats and are, therefore, considered to occur in three separate locations.

It has a continuing decline in (ii), (iii), (iv) and (v) above through the effects of fire and, potentially, a lack of recruitment.

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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

While population data are available for the very restricted populations on Phillip Island, relevant data from the more substantial occurrences at and near Wilsons Promontory are not 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 inferred 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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Jarman, S. J., and Kantvilas, G. (2017). *Leptecophylla* in Tasmania: A reassessment of four species. *Swainsona*, 31, 1-16.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Leptecophylla oxycedrus*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/780e47be-4730-44b7-837a-7ad31c3e91eb>