



Leiocarpa leptolepis Pale Plover-daisy

Taxonomy

Leiocarpa leptolepis (DC.) Paul G. Wilson

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988*. (SAC 2014).

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

Proposed conservation status

Endangered in Victoria

Criterion B2b(iii)c(iv)

Species Information

Description and Life History

The taxon is a bushy perennial, 10-45 cm high; young stems usually white-tomentose to cobwebbed. Leaves oblanceolate to elliptic, mostly 1.5-5 cm long, 2-7 mm wide, acuminate, mucronate, both surfaces glabrous or sparsely glandular-hairy. Capitula hemispherical, 10-20 mm diam.; involucral bracts c. linear, to 6 mm long, subequal, densely glandular-hairy with woolly hair-tufts just below apices; outer bracts lacking scarious apices; inner bracts with ovate-acuminate scarious laciniate apices. Florets bright yellow. Cypselas 1.5-2.5 mm long, glabrous; pappus bristles 8-12, 3-5 mm long. Flowers most of year (VicFlora 2018).

Generation Length

The generation length of *Leiocarpa leptolepis* is estimated to be 1 to 5 years (midpoint 2 years). The uncertainty of the generation length reflects uncertainty about how much time the taxon may spend in the seed bank. The generation length has therefore been conservatively estimated.

Distribution

The taxon is currently known in Victoria by a few collections from near Mildura in *Eucalyptus largiflorens* riverine woodland (VicFlora 2018) from the Murray Mallee and Robinvale Plains. There are a number of more recent records across the Murray Valley Plain including Wyperfeld, Boort, Echuca and east of Numurkah, which indicate that perhaps the taxon has been under sampled across its range, and previous records may have been lumped with the single taxon previously documented for Victoria in Flora of Victoria. It is likely the distribution of the taxon is wider than currently documented and that it may form locally abundant subpopulations under suitable conditions.

It also occurs in South Australia, New South Wales, the Northern Territory and Queensland (VicFlora 2018).

Habitat

The taxon is currently found in *Eucalyptus largiflorens* woodlands. The occurrence of the taxon near Melbourne indicates that it may have been more widespread historically, and may have been associated with seasonally inundated woodlands.

Threats

The taxon is potentially threatened by imposed grazing regimes and climatic warming and drying which, synergistically, increase the risk of recruitment failure due to repeat grazing events and extreme drought stress.

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>based on any of the following:</p> <ul style="list-style-type: none"> (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 10 to 15 years is inferred to be 10 to 30%, based on (b), (c) and (e) above.

Past decline is based on the monitoring of known populations.

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

Eligible under Criterion A3 as Endangered

The population reduction over the next 10 to 15 years is inferred to be 10 to 30%, based on (b), (c) and (e) above.

Future decline is based on a projection of past change, and monitoring data from known populations.

Eligible under Criterion A4 as Endangered

The population reduction over any 10 to 15 year period, including both past and future, is suspected to be 10 to 30%, based on (b), (c) and (e) above.

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

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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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 35 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is inferred to have a continuing decline in (iii) above, given it is largely unsampled in protected areas, so it is likely to still be subject to pressures from inappropriate disturbances such as stock grazing.

It is estimated to have extreme fluctuations in (iv) above, as it has a similar ecology to other *Leiocarpa* spp. in that monitoring data indicates its population fluctuates significantly between years, with the potential for significant recruitment and mortality events.

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			

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Evidence:

Ineligible under Criterion C

It is suspected that there are 1,500 to 10,000 mature individuals, but other thresholds under this criterion have not been met.

This taxon is similar to the other *Leiocarpa* species in that assessment of the generation length and distribution is hampered by a lack of detailed population demography and taxonomic confusion. It is likely that a number of subpopulations of this taxon have been misidentified in the field as *Leiocarpa panaetioides* and or *L. websteri*. The taxon's estimated population size is based on current knowledge of the known populations from documented information.

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 km ² or number of locations ≤ 5 [Ⓜ]

Evidence:

Ineligible under Criterion D

It is suspected that there are 1,500 to 10,000 (midpoint 2,500) mature individuals which exceeds the thresholds for criterion D.

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.

SAC (2014). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 539 *Leiocarpa leptolepis*.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Leiocarpa leptolepis*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cb7a202e-80b4-4d3d-806a-c528d3ad506e>