

## *Pimelea linifolia* subsp. *caesia* Slender Rice-flower

### Taxonomy

*Pimelea linifolia* subsp. *caesia* Threlfall

One of four subspecies of *P. linifolia*, three of which occur in Victoria

### Current conservation status

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

### Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iii,iv,v)

### Species Information

#### Description and Life History

The taxon is a shrub from prostrate to 0.5 m high. Leaves usually narrow elliptic or narrowly obovate, rarely elliptic, concolorous, glaucous or rarely mid green, 3–18 mm long, 1–6 mm wide; margins incurved. Inflorescence erect, 7–many-flowered; involucre bracts narrowly elliptic to ovate, 7–15 mm long, 3–9 mm wide, green. Flowers usually more than twice as long as bracts, white or pink; floral tube 9–14 mm long. Flowers October–January (VicFlora2018).

The taxon is long-lived with an unknown fire response, but is likely to be a post-fire resprouter. It reproduces only by seed and is likely to have a long-lived soil-stored seedbank. Its breeding system is unknown, whether self-fertile or an obligate outcrosser. Plants are monoecious, but flowers are either bisexual or female only. It is pollinated by insects for a nectar reward, most likely by Lepidoptera (moths). Dispersal is probably passive only, thus to a short-distance, with gene flow hence limited.

#### Generation Length

The generation length of *Pimelea linifolia* subsp. *caesia* is suspected to be 30 to 50 years. This is based on its longevity, its assumed capacity to resprout post-fire, and its continuous recruitment.

#### Distribution

*P. linifolia* subsp. *caesia* occurs in north-east montane Victoria, and a few sites in East Gippsland.

#### Habitat

The taxon occurs in montane and subalpine, often grassy woodland, open forest, and grassland, mostly from c. 1,000-1,600m above sea level, on shallow stony soil derived from sedimentary, metasedimentary, and granitic geology.

#### Threats

Threats to the taxon include the effects of climate change such as decreased rainfall, increased evaporation, extreme temperatures, and reduced snow-fall, increased frequency and intensity of fire, impacts of fire-control

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activities, soil loss on bare post-fire substrates resulting from severe rainfall events, weed invasion, and damage by feral animals, especially Sambar Deer (*Rusa unicolor*).

## 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;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul>			

## Evidence:

### Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 5,756.4 km<sup>2</sup>, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is observed to be severely fragmented considering its limited dispersal ability, the barriers to dispersal, and/or 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, such as climate change, increased fire, soil loss, weed invasion, and damage by feral animals.

### Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

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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: AaO < 20 km <sup>2</sup> 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](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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