

## *Patersonia sericea* var. *longifolia* Dwarf Purple-flag

### Taxonomy

*Patersonia sericea* var. *longifolia* (R. Br.) C. Moore & Betche

### 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

*Patersonia sericea* var. *longifolia* is restricted to a very small area of East Gippsland. Given its rarity and the known threats in the area (feral herbivores, increased fires, climatic drying) it is arguably CR, but there is not any clear evidence of a decline in numbers and habitat. Assessing the taxon as VU is deemed to be a cautious approach.

### Species Information

#### Description and Life History

The taxon is a densely tufted herb. Leaves linear-ensiform, 15-50 cm long, flat to biconvex, finely striate to deeply grooved, glabrous; margin hairy, glabrescent distally. Inflorescence with scape 3-55 cm long, hairy on upper part, clasped by 1 reduced leaf. Primary bracts ovate to narrowly ovate, 2-6 cm long, prominently veined, white-silky to glabrescent, blackish; involucre 7-14(-20) mm wide; inner (secondary) bracts slightly exerted. Perianth tube 1.5-3 cm long, basal half hairy; outer perianth lobes broadly ovate, obtuse, 2-3 cm long, 1.5-2.5 cm wide; inner perianth lobes ovate. Staminal filaments 4-7 mm long, basal two-thirds united. Ovary hairy. Capsule ovoid-cylindric, 1.5-2.5 cm long; seeds cylindric, c. 2.5 mm long, wrinkled, with large pit; aril absent (VicFlora 2021a).

Variety *longifolia* can be distinguished from the type variety by its leaves which are lax, trailing, 1-2 mm wide, biconvex, smooth, glaucous; margin ciliate with a single row of hairs 1-2 mm long, hairs inflexed across the leaf. Inflorescence with scape less than 15 cm long; primary bracts 2-3.5 cm long. The taxon flowers in October (VicFlora 2021b).

By contrast, variety *sericea* has leaves erect to slightly lax, 1.5-6 mm wide, flat, and slightly striate to terete and prominently grooved; margin hairy or glabrescent, but never ciliate with inflexed hairs. Inflorescence with scape 10-45 cm long; primary bracts 3.5-6 cm long. Flowers June to December (VicFlora 2017).

#### Generation Length

The generation length of *Patersonia sericea* var. *longifolia* is estimated to be 35 to 75 (midpoint 50) years. The taxon is a densely tufted, rhizomatous, perennial herb which is likely to resprout following all but the most intense bushfires at pre-settlement intervals of 35-75 years. Recruitment is likely to be both episodic following fire and opportunistic in response to localised site disturbance events or the most favourable seasonal conditions. Mortality is likely to occur in response to intense fire, extreme and protracted drought, or landslip.

#### Distribution

The taxon is restricted in Victoria to the upper Genoa River and its tributary Yambulla Creek in far East Gippsland, close to the New South Wales border. It has also been collected on the WB Line, 3.6 km east of the Cann Valley

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Highway. All records are protected within the Coopracambra National Park. It also occurs in New South Wales (VicFlora 2021b).

## Habitat

Variety *longifolia* is known in Victoria only from sandstone cliffs of the upper Genoa River and Yambulla Creek, in dry *Eucalyptus sieberi* (Silvertop Ash) forest (VicFlora 2021b). Above the junction of Yambulla Peak Track and Genoa River, north of the river, the taxon is recorded on a sandstone plateau, of south-easterly aspect, 5 degree slope, at an elevation of 360 m, in closed heathland with emergent eucalypts.

## Threats

Current threats are difficult to identify with confidence since the taxon is very poorly known in Victoria. Plausible threats include targeted browsing by native and exotic herbivores including wallabies and Sambar Deer (*Rusa unicolor*), particularly during early stages of recruitment. The taxon may be threatened in the longer term by extreme and protracted drought stress, potentially resulting in adult mortality and recruitment failure. It is unclear whether the taxon is threatened by the current and projected increase in fire intensity and frequency.

## 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"> <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

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.

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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:

### Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 33 km<sup>2</sup> and the Area of Occupancy (AoO) is estimated to be 16 km<sup>2</sup>, 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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals.

Criterion D - Very small or restricted population <sup>Ⓜ</sup>			
	Critically Endangered <sup>Ⓜ</sup>	Endangered <sup>Ⓜ</sup>	Vulnerable <sup>Ⓜ</sup>
Number of mature individuals (observed or estimated) <sup>Ⓜ</sup>	<50 <sup>Ⓜ</sup>	<250 <sup>Ⓜ</sup>	<1,000 <sup>Ⓜ</sup>
D2 - Only applies to the VU category <sup>¶</sup> 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. <sup>Ⓜ</sup>	- <sup>Ⓜ</sup>	- <sup>Ⓜ</sup>	D2 - Typically: <sup>¶</sup> AoO < 20 km <sup>2</sup> or number of locations ≤ 5 <sup>Ⓜ</sup>

## Evidence:

### Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. It has an AOO of 16 km<sup>2</sup> and the number of locations is estimated to be 1. This restriction makes the taxon capable of becoming Critically endangered or Extinct within a timeframe of one to two generations in response to the impact of the identified threats, notably drought stress and herbivory.

**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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