



## *Schizacme montana* Mountain Mitrewort

### Taxonomy

*Schizacme montana* (Hook. f. ex Benth.) Dunlop

### Current conservation status

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

### Proposed conservation status

Endangered in Victoria

Criteria B1ab(iii,v)+2ab(iii,v)

### Species Information

#### Description and Life History

The taxon is a mat-forming herb to c. 20cm high; branches c. nodular with residual leaf-bases. Leaves slightly fleshy, spatulate, narrowly obovate to obovate or elliptic, 5-14mm long, (1.5-)2-5mm wide, glabrous or with a few hairs, margin flat, apex acute. Flowers solitary in upper axils; pedicels 2-20mm long, up to 30mm long in fruit, sparsely and minutely hairy. Calyx 3-4mm long, tube very short; broader pair of lobes elliptic, ovate or spatulate, 1.5-2mm wide, obtuse, narrower pair of lobes narrowly ovate or narrowly obovate, 1.2-1.5mm wide, acute, ciliate at base; corolla 3-5mm long, lobes 2-3mm long. Capsules c. 3mm long, 4-7mm wide. Flowers November-February (VicFlora 2018).

#### Generation Length

The generation length of *Schizacme montana* is estimated to be 4 to 20 years. This is based on other Loganiaceae taxa in Australia reporting to live for between four and 20 years (Grehn 2015; Keith and Tozer 2012).

#### Distribution

The taxon is found in Victoria at high altitude sites on the Baw Baw Plateau, to the Bogong High Plains.

#### Habitat

The taxon occurs in wet heath, or in *Sphagnum* communities on peaty soil in the subalpine zone.

#### Threats

A threat to the taxon, as with many other alpine taxa, is drying conditions, especially prolonged drought and warmer temperatures resulting in higher frequency and severity of fire, which is expected with future climate change.

## 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

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:

### Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,728 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have six locations as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. These threats include increased temperature, dryness, and consequently more frequent and severe fires.

It has a continuing decline in (iii) and (v) above, based on the impacts of the identified threats.

### Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 48 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon has 1 location and has a continuing decline in (iii) 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

There is insufficient evidence to determine the number of mature individuals. Only one record of *S. montana* has estimated the number of individuals at the site, and this was given as hundreds of plants scattered over an area of a hectare. It is not known how many plants occur at other sites, and because there have been no other estimates, it is not possible to get an idea of the average size of subpopulations that could be used as a basis for an estimate of the entire population.

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 <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.



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Gibbons, K.L., Conn, B.J. and Henwood, M.J. (2014). The Australasian genus *Schizacme* (Loganiaceae): new combinations and new species in the New Zealand flora. *Telopea* 17: 363-381.

Grehn, U.S. (2015). *Regrowth and recruitment of the rare shrub Logania saxatilis in response to fire*. Masters Thesis, The University of Adelaide.

Keith, D.A. and Tozer, M.G. (2012). *Vegetation dynamics in coastal heathlands of the Sydney Basin*. Proceedings of the Linnean Society of New South Wales 134: B181-B197.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Schizacme montana*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cca01511-5c0b-4e20-a2fb-ff2d61b72706>