

Leptorhynchos squamatus subsp. *alpinus* Alpine Buttons

Taxonomy

Leptorhynchos squamatus subsp. *alpinus* Flann

Syn. *Leptorhynchos* sp. 1

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

Leaves elliptic to oblanceolate, 2-5 mm wide, mucronate. Outer involucral bracts lanceolate, pale golden at apex. Inner involucral bract margins with fine, tangled, spreading hairs. Cypsela glabrous to very sparsely papillose. Pappus bristles of bisexual florets (9-) 12-14 (-17), 0.2-0.9 mm wide, those of female florets 6-15, 0.3-0.9 mm wide. The taxon flowers from January to March. (VicFlora 2016).

The taxon is a variable perennial, 6-50 cm high; roots tufted; stems several from base, few-branched or simple above, ascending, glabrous to pilose, often cottony below capitula (Flann 1999).

Members of the Asteraceae are commonly visited by insects (Armstrong 1979), suggesting gene exchange does not occur over a long distance, although the wind dispersal of seeds may occur over a longer distance.

Generation Length

The generation length of *Leptorhynchos squamatus* subsp. *alpinus* is estimated to be 30 to 40 years. Vital attribute data suggest that the species can regenerate from seed, but specific details are unknown. It can resprout after fire, is tolerant of establishment within mature vegetation. It is a medium-lifespan perennial (to ~50 years) but has seeds that can survive in the seedbank for 50+ years. Given the length of soil seed storage, the taxon's lifespan and the historic infrequency of large fires, generation length likely to be 30-40 years.

Distribution

The taxon is found in alpine and subalpine regions north-east of Melbourne.

Habitat

The taxon is locally common in grassland, herbfields and open heath communities.

Threats

In most of the taxon's range, the major on-going threat is shrub encroachment into grassland and herbfield in response to climatic drying and warming. This reduces habitat quality and extent.

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This taxon has been subjected to cattle grazing historically. In a study by van Rees (1984), it made up more than 5% of cattle diet on any one sampling day, but appeared to maintain its cover because of its capacity to colonise gaps (Wahren *et al.* 1994). Cattle grazing has ceased across most of its range now, but grazing by feral horses continues in the eastern alps, where damage is most likely to be through physical disturbance rather than defoliation *per se*.

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 A3 as Vulnerable

The population reduction over the next 90 to 100 years is projected to be 25 to 30%, based on (c) and (e) above. This is based on the defined threats, particularly encroachment of woody vegetation.

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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 across the taxon's range is estimated to be 132 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented naturally at the landscape scale. It has a patchy distribution with many occurrences isolated from other occurrences at distances exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal.

It is estimated to have five locations. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above because of the listed threats, especially encroachment of woody vegetation.

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

It is estimated that there are 100,000 to 200,000 mature individuals, which exceeds the thresholds for Criterion C.

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 estimated that there are 100,000 to 200,000 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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