

Hookerochloa eriopoda Snow Fescue

Taxonomy

Hookerochloa eriopoda (Vickery) S.W.L. Jacobs

Formerly called *Austrofestuca eriopoda*

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A2ce+3ce+4ce; B2ab(i,ii,iii,iv,v); D2

Species Information

Description and Life History

Hookerochloa eriopoda is a long-lived shortly rhizomatous tussock-forming perennial herb with robust inflorescences to 150 cm high. A post-fire resprouter, reproducing only by seed. Flowering and fruiting markedly stimulated by fire and most recruitment is likely to occur in the few years after fire. Recruitment in the dense grassy understorey of the forest or woodland is probably otherwise constrained or prevented by the density of the vegetation. Flowers are wind pollinated, with the potential for fairly widespread gene-flow via pollen. Seed ripens c. 8 weeks after pollination. The longevity of seeds in the soil is unknown but this seedbank is probably short-lived.

Generation Length

The generation length of *Hookerochloa eriopoda* is suspected to be 30 to 50 years, based on the taxon's longevity and intermittent recruitment probably stimulated by flowering and seed production after fire.

Distribution

Hookerochloa eriopoda is largely confined to montane north-east Victoria with outlying occurrences near Woodend and in far East Gippsland.

Habitat

The taxon occurs in montane to subalpine woodlands and forests with grassy understories on a variety of geological substrates. A study at Pheasant Creek, north-east Victoria found the taxon in 24% of 37 on moist slopes in forests dominated by *Eucalyptus camphora* at all sites, and *E. dalrympleana* and several other eucalypts.

Threats

Threats to the taxon include climate change (decreasing rainfall, increased evaporation, extreme temperatures); increased frequency and intensity of fire; impacts of fire control activities; soil loss on bare post-fire substrates; environmental damage by pigs and deer (particularly Sambar Deer); weed invasion (e.g., *Anthoxanthum odoratum*, *Hypericum perforatum*, *Rubus fruticosus* spp. agg., *Pinus radiata*); and grazing by deer.

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>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
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Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 90 to 150 years is suspected to be 30%, based on (c) above.

Past reduction of the taxon's population is based on historic clearing for agriculture and the suite of threats operating, particularly weed invasion.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 90 to 100 years is suspected to be 30%, based on (c) above.

Future reduction of the taxon's population is based on the projected impacts of the identified threats, particularly climate change, weed invasion, and damage by deer.

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 96 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The main threats to the taxon (i.e. fire, climatic drying and warming, habitat loss and fragmentation, weed invasion, fungal pathogens and extreme drought stress) have a non-reversible impact on the individuals of the taxon and occur in a stochastic manner, and have the potential over time to threaten the majority of individuals in the geographic area. There are ten subpopulations, and arguably each could be a subpopulation, but the Main Range subpopulations could also be regarded as a single location.

It is inferred to have a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the current and projected impact of the identified threats.

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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.

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 ² 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

Carr, G.W. (2018). Pheasant Creek Flora Reserve - Vegetation, flora, significance and management issues. Unpublished report prepared for Koetong Landcare Group. Fairfield, Ecology Australia.

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne. Retrieved from:



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https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

VicFlora (2015). Flora of Victoria, Royal Botanic Gardens: *Hookerchloa eriopoda* retrieved from <https://vicflora.rbg.vic.gov.au/flora/taxon/c244fcc3-cb84-4cba-b963-69b38240de28>