



Poa drummondiana Knotted Poa

Taxonomy

Poa drummondiana Nees

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,v)

Species Information

Description and Life History

The taxon is a shortly rhizomatous perennial, the lower internodes usually swollen and bead-like, culms erect to c. 80 cm high. Leaves rather few, glabrous, smooth or slightly scabrous; sheath closed in the lower half, often purplish; blade flat or somewhat channelled, becoming closely folded toward the acute, often slightly incurved apex, to 30 cm long and 4 mm wide; ligule thinly membranous, often jagged, 2-7 mm long. Inflorescence an ovoid panicle with very fine, finally widely spreading branches, to c. 20 cm long and 15 cm wide. Spikelets 3-8-flowered, plump, broadly ovate at maturity, 6-12 mm long, 5-10 mm wide, often pendent (somewhat resembling *Briza* sp.), pale green or purplish; glumes 3-5-nerved, subequal, narrower than and about three-quarters as long as the lower lemma, smooth or sparsely scabrous on nerves; lemma 5-nerved, c. 4 mm long, very obtuse, thin-textured with broad membranous margins, ciliate along keel, lateral nerves and margins toward base, otherwise glabrous; web absent or rudimentary. Flowers September-November (VicFlora 2019).

Generation Length

The generation length of *Poa drummondiana* is inferred to be 8 to 30 years although this is very speculative. The production of subterranean bulb-like nodules on rhizomes suggests the taxon has capacity for longevity, but infrequency of collection suggests at least in some seasons it may not emerge or may have died in at least some sites, presumably as a consequence of severe drought (average of ca 15 year frequency). In some situations the plant is considered likely to be able to live for up to twice this age.

Distribution

The taxon is restricted in Victoria to the far north-west, between and including Wyperfeld and Hattah-Kulkyne National Parks. Outlying specimens labelled 'Mildura', 'Lake Boga', 'Swan Hill' and 'Lowan' are of uncertain provenance but may reflect a former wider distribution. It also occurs in Western Australia and South Australia.

Habitat

The taxon occurs primarily on deep sands of dunes and flats, very commonly in association with, and in protection of, *Triodia scariosa*. It is rarely noted from heavier soils adjacent to clay flats. A wider historic range, going by old (mostly pre-1900) records from Wimmera etc., suggests its ecological amplitude may be greater than is currently understood.

Threats

The taxon has no known existing threats. In general, the taxon grows on land that is not likely to be developed for agriculture as most available habitat is protected within national parks. The common reference to it growing in protection of *Triodia* tussocks suggests it may be palatable to grazing animals, mostly kangaroos and goats. Culling programs for these animals are carried out from time to time in the National Parks in which its habitat occurs.

Increasing drought because of climate change is likely to, on average, reduce both its longevity and the number of years in which recruitment from seed is likely to be successful.

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 A3 as Vulnerable

The population reduction over the next 24 to 90 years is suspected to be 10 to 35%, based on (c) and (e) above.

Climate change effects (drought, heat) are likely to cause a population reduction within 90 years. Should increases in goat or kangaroo numbers increase in this period, that will intensify the population reduction

Eligible under Criterion A4 as Vulnerable

The population reduction over any 24 to 90 year period, including both past and future, is inferred to be 10 to 35%, based on (c) and (e) above.

Any alienation of most, if not all, of the taxon's former range (assuming Wimmera and Lake Boga etc. localities are correct) occurred prior to 90 years ago. It is likely but not certain, that the population has been relatively stable over

the past 24-90 years. Climate change effects such as drought and heat are likely to cause a population reduction within 90 years.

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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 5,795 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented. It is likely that it rarely produces fruit or viable seed, and the capacity to recolonise following local extinction is negligible with no known vectors for long-distance dispersal.

It is estimated to have 1 location and has a continuing decline in (i), (ii), (iii) and (v) above, based on the projected impact of climate change.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 55 km², 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) 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.

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:

Ineligible under Criterion D

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

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



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VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Poa drummondiana*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/8da7e5d5-bea4-4452-82b4-0bb63d916c76>