

Schoenus nanus Tiny Bog-sedge

Taxonomy

Schoenus nanus (Nees ex Lehm.) Benth.

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(ii,iii,iv,v)c(iv)

Species Information

Description and Life History

Small tufted annual. Culms erect, terete, grooved, nodeless, 0.5-4 cm high, 0.2-0.4 mm diam. Leaves with blade to 2 cm long; sheath red-brown, smooth, shining; mouth glabrous; ligule absent. Inflorescence with 1 or 2 clusters of 1-5 spikelets, erect, 0.4-1 cm long; lowest involucral bract to 2 cm long. Spikelets narrow-ovate, acute, 2-4-flowered, 2.5-6.5 mm long; glumes 4-7, lowest 2 empty, acute, straw-coloured to dark red-brown, shining, with glabrous margins, midvein occasionally scabrous; fertile glumes 2.3-4.5 mm long; hypogynous bristles 6, plumose or not, slightly shorter to slightly longer than nut. Nut trigonous, obpyriform, 3-ribbed, coarsely and strongly reticulate, glabrous, shining, whitish to straw-coloured, 0.8-1.0 mm long, 0.4-0.6 mm diam. Flowers winter-spring (VicFlora 2019).

Generation Length

The generation length of *Schoenus nanus* is estimated to be 5 to 15 years, based on a longevity of 1 (-3) years and likely recruitment in favourable seasons determined by La Nina cycles.

Distribution

The taxon is restricted in Victoria to the Western Wimmera and Northern Grampians, extending into the adjacent Goldfields region.

Habitat

The taxon occurs in seasonally wet habitats (VicFlora 2019).

Threats

The taxon is significantly threatened by weed invasion given its patchy and low-density occurrence, coupled with its very poor competitive ability. The taxon is likely to be easily outcompeted by exotic summer-adapted species e.g., C4 grasses, when forced to germinate in summer if winter rainfall fails.

The taxon is also threatened by grazing, including macropods and rabbits which target waterlogged drainage line habitats in mid-winter.

Climate change is likely to produce more capricious less reliable winter rainfall, which in turn, is likely to reduce reliable seed set during winter growing season.

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:

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.

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 18402 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented. Individual occurrences are considered severely fragmented based on the taxon's limited dispersal ability, the barriers to dispersal and/or the lack of habitat separating them. Such fragmentation precludes the possibility of recolonisation in the event of local extinction.

It is estimated to have 2 locations. It has a continuing decline in (ii), (iii), (iv) and (v), based on the current and projected impact of the identified threats.

It is estimated to have extreme fluctuations in (iv). The taxon is almost absent in some seasons to bumper densities in other seasons.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 244 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the V BA. As above, it is severely fragmented, has 2 locations, has a continuing decline in (ii), (iii), (iv) and (v), and extreme fluctuations in (iv).

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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 as Data Deficient

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.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Schoenus nanus*:
<https://vicflora.rbg.vic.gov.au/flora/taxon/9ce662d6-d5ad-4440-9c7c-25c7d4ee8681>



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Wilson, K.L. (1994). Cyperaceae. In: Walsh, N.G.; Entwisle, T.J. (eds), *Flora of Victoria Vol. 2, Ferns and Allied Plants, Conifers and Monocotyledons*. Inkata Press, Melbourne.