



Gahnia ancistrophylla Donkey Saw-sedge

Taxonomy

Gahnia ancistrophylla Benth.

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(v)+2ab(v)

The taxon has not been recorded since 1972. If it still persists, it is likely to be highly threatened on the basis of a very small population size.

Species Information

Description and Life History

The taxon is a tufted perennial. Culms slender, 10-20 cm high, c. 1 mm diam. Leaf-blades ± filiform, channelled, erect, with uncinuate apex, smooth, shorter than or equalling inflorescence; ligules long-ciliate; sheaths dark brown to blackish, dull. Inflorescence slender, erect, 16-20 cm long, with 1-5 nodes. Spikelets 2-flowered; glumes 6-7, similar in size, dark grey-brown, glabrous or scaberulous, with apex acute to mucronate; stamens 3-4; anthers c. 1 mm long excluding apical appendage 0.1 mm long. Nut oblong-obovoid, trigonous, granulate, glistening, 1.4-1.8 mm long, 0.7-0.9 mm diam., brown to blackish. The taxon flowers in spring (VicFlora 2018).

Generation Length

The generation length of *Gahnia ancistrophylla* is inferred to be 15 to 50 years. The generation length is based on the perennial rhizomic habit of the plant. It is also based on the likelihood that mature individuals persist beyond the pre-settlement fire frequency in the habitat of the taxon.

Distribution

The taxon is known in Victoria from a single locality near the Asses Ears in the north-western part of the Grampians (VicFlora 2021).

The taxon is represented in the Victorian Biodiversity Atlas (VBA) by a single site, based on three Beaglehole specimen collections at MEL dated 22 May 1969, 8 September 1969 and 15 April 1972. The localities given were "Asses Ears - Wallaby Rocks area, closed fire track above Geranium Springs - Wallaby Rocks Road. Numerous tufts", "north-east of Geranium Springs, Wallaby rocks - Asses Ears area. Only a few flowering stems present in entire colony. New to Victoria" and "Asses Ears - Wallaby Rocks area, north-east of Geranium Springs".

Habitat

The taxon occurs in tall heath or woodland (VicFlora 2021).

Gahnia ancistrophylla

Donkey Saw-sedge

Threats

If the taxon persists in Victoria, the most plausible continuing threat is the increasing risk of adult mortality and recruitment failure in response to extreme drought stress resulting from climatic warming and drying.

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:

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.

Gahnia ancistrophylla

Donkey Saw-sedge

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 Critically Endangered

The Extent of Occurrence across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records in the VBA.

It is estimated to have one location, as it is only recorded from one site and is potentially subject to threats.

It is inferred to be a continuing decline in (v), on the basis that if it still exists in Victoria, it is likely to undergo declines as a result of its small size and likelihood of recruitment failure.

Eligible under Criterion B1 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has one location and has a continuing decline in (v).

Gahnia ancistrophylla

Donkey Saw-sedge

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:

Eligible under Criterion C as Endangered

The population size at the time of collection (1969 - 1972) was estimated to be no more than 250 mature individuals, based on the collector's notes. There is no evidence to indicate whether the population has persisted.

There is inferred to be a continuing decline, and there is only one subpopulation.

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 D as Vulnerable

The taxon is estimated to have 250 mature individuals and 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.



Gahnia ancistrophylla Donkey Saw-sedge

VicFlora (2021). Flora of Victoria, Royal Botanic Gardens: *Gahnia ancistrophylla*. Retrieved from:
<https://vicflora.rbg.vic.gov.au/flora/taxon/69c1ff3c-e9b4-49be-a37d-3f6f5e362287>

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