

Fimbristylis dichotoma Common Fringe-sedge

Taxonomy

Fimbristylis dichotoma (L.) Vahl

This variable, widespread species includes several forms that may be worthy of recognition (VicFlora 2018).

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2bce+3ce+4bce; B2ab(i,ii,iii,iv,v)c(i,ii,iii,iv)

Species Information

Description and Life History

The taxon is a tufted perennial with very short rhizome. Culms slender to rather stout, compressed, 10-75(-100) cm high, 1-2 mm diam. Leaves from much shorter than to equalling culms, 1.5-5 mm wide; ligule a dense fringe of short hairs or absent. Inflorescence simple to compound, with few to numerous spikelets, solitary or clustered, on branches to 10 cm long; involucre bracts leaf-like, 1-3 much shorter to somewhat longer than inflorescence. Spikelets ovoid, terete, acute, 4-10(-20) mm long, 2.5-3(-5) mm diam; glumes papery, obtuse, often shortly mucronate, glabrous, with faint, 3-nerved keel and nerveless or obscurely few-nerved sides, orange-brown, 2-4.5 mm long; stamens 1-3; anthers 1.3-2 mm long; style 2-fid, ciliate at least above. Nut biconvex, obovoid or broad-obovoid, shortly stipitate, smooth or sparsely and minutely verrucose, conspicuously trabeculate by 5-10 (rarely more) longitudinal ribs on each face and numerous cross-bars, glistening white to pale yellow, rarely yellow-brown, with epidermal cells transversely elliptic to oblong, 0.7-1.3 mm long, 0.6-1 mm diam. Flowers spring-summer (VicFlora 2018).

Generation Length

The generation length of *Fimbristylis dichotoma* is estimated to be 5 to 10 years. It occurs in ephemeral soaks and swamps which is suggestive of short life spans with episodic growth and regeneration. There is little information on the taxon's recruitment mode, periodicity and dispersal. Its apparent linkage to seasonal or intermittent soaks, as well as episodically inundated shallow wetlands (albeit on the margins), suggest the population numbers can swing widely over relatively short time intervals especially if there is intervening drought and/or stock/herbivore grazing.

Distribution

The taxon is rare or sporadic near Benalla, Glenrowan, Warby Ranges and Patho Plains. It also occurs in all mainland states and elsewhere globally in tropical and subtropical regions (VicFlora 2018).

Habitat

The habitat is inferred to be seasonally wet soaks, ephemeral streams, semi swampy grassy woodland, some minor streambanks (inferred to be ephemeral in Killawarra forest), including spring soaks associated with *Goodenia macbarronii*. Associated eucalypts include consistently *Eucalyptus blakelyi* and *E sideroxylon*. These habitats are very restricted naturally and typically occur on severely fragmented agricultural landscapes.

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Threats

Threats to the taxon include habitat destruction and decline from cropping, over-grazing, weed invasion, feral animals and altered hydrology. Hydrological threats include local surface engineering works, groundwater use and a drying climate due to deepening climate change.

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 A2 as Endangered

The population reduction over the past 15 to 30 years is estimated to be 25 to 75% (midpoint 50%), based on (b), (c) and (e) above.

This is based on the habitat loss and degradation in agricultural lands. The wide range of estimated decline reflects uncertainty.

Eligible under Criterion A3 as Endangered

The population reduction over the next 15 to 30 years is suspected to be 25 to 75% (midpoint 50%), based on (c) and (e) above.

This is based on on-going habitat loss and degradation, the extent of which may potentially get worse as climate change deepens. The wide estimated range in potential decline reflects uncertainty.

Eligible under Criterion A4 as Endangered

The population reduction over any 15 to 30-year period, including both past and future is estimated to be 25 to 75% (midpoint 50%), based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 13,504 km², based accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented and is estimated to have a continuing decline in (i), (ii), (iii), (iv) and (v), based on the current and projected impacts of the identified threats.

It has extreme fluctuations in (i), (ii), (iii) and (iv) above. Although this taxon is a perennial, given its ecology and regeneration is apparently linked to seasonal or intermittent soaks, as well as episodically inundated shallow wetlands (albeit on the margins), it is thought that numbers can swing widely over relatively short time intervals especially if there is intervening drought and/or stock/herbivore grazing.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 56 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has a continuing decline in (i), (ii), (iii), (iv) and (v), and has extreme fluctuations in (i), (ii), (iii) and (iv) 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 Endangered

It is inferred that there are 800 to 8,000 mature individuals, but this qualifier is too weak.

The current population is based on Atlas of Living Australia records and some additional Paul Foreman records at Patho and Korong in the last 20 years. The wide abundance range reflects the uncertainty around the extent of site and plant densities.

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:

Eligible under criterion D 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

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

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