Threatened Species Assessment

Triglochin minutissima
Tiny Arrowgrass

Taxonomy

Triglochin minutissima F. Muell.

Triglochin minutissimum appears to be only a smaller-fruited variant of *T. nana* (VicFlora 2019).

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

The taxon is slender annual herb, 1.5-4.5 cm high. Leaves flat and thread-like, 0.5-2.5 cm long, shorter than to almost as long as the infructescence. Scape at fruiting erect or ascending, (0.8-)1.5-3.5 cm long; infructescence (0.3-)0.5-1.8(-2.4) cm long, with (4-)7-13 fruits. Fruits narrowly pyramidal to suboblong, 1.3-1.8(-2.2) mm long, 0.4-0.5(-0.7) mm wide just above base; pedicel 0.1-0.2 mm long; carpels 6, 3 fertile carpels alternating with 3 undeveloped sterile ones; fertile carpels flat to slightly convex dorsally when dry, at base with 2 minute lateral obtuse points up to c. 0.1 mm long. The taxon fruits from August to November (VicFlora 2019).

Generation Length

The generation length of *Triglochin minutissima* is estimated to be 1 to 5 years. This plant is a small annual of inland and dryer coastal saltmarshes. A generation length of 1-5 years is proposed to allow for reduced performance during drought conditions in inland sites.

Distribution

The taxon is scattered along the Victorian coast and inland further west of the state. The taxon also occurs in Western Australia, South Australia, and Tasmania (VicFlora 2019).

Habitat

The taxon occurs on damp saline soils near salt-lakes, and herbfields associated with coastal saltmarshes (VicFlora 2019).

Threats

Threats to this taxon variously include those related to climate change (decreased rainfall, drying of springs and soaks), sea-level rise (drowning of saltmarsh habitats and coastal erosion), weed invasion and pugging of wetlands by cattle and other stock.

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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 116 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented, based on its 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 inferred to have 2 locations. It has a continuing decline in (ii), (iii), (iv) and (v) above, based on the current and projected impact of the identified threats.

The taxon is inferred to have extreme fluctuations based on the substantial variation of expression of this ephemeral taxon at a given wetland between different seasons, particularly in inland sites.

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 are no population data available for this taxon. Populations of this small ephemeral plant appear to be subject to high seasonal variation, particularly in inland sites.

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 km2 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

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: *Triglochin minutissima*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/27836c8b-b64d-4c26-b99e-8a1052b1e612