Threatened Species Assessment

Tecticornia nitida
Shining Glasswort

Taxonomy

Tecticornia nitida (Paul G. Wilson) K.A. Sheph. & Paul G. Wilson

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(iii)

Species Information

Description and Life History

The taxon is a low, rounded subshrub, to c. 40 cm high, 70 cm diam. Articles of ultimate branchlets glossy, cylindric to obovoid, 1-5 mm long; lobes shortly acuminate, margins entire to crenulate. Spikes terminal, to c. 4 cm long; opposite bracts united, margins crenulate; flowers free, shortly exposed at apex; perianth dorsiventrally compressed, narrowly winged toward apex. Fruiting spike with rather distant bract pairs; perianth and pericarp papery; seed flattened-ovoid, c. 1 mm long, readily released from perianth at maturity, testa thin, pale brown, granular in several rows on dorsal ridge, otherwise almost smooth. Flowers mainly May-August (VicFlora 2018).

Generation Length

The generation length of *Tecticornia nitida* is inferred to be 8 to 10 years. This is based on its lifeform as a low rounded shrub to 70 cm across, and the period between good rainfall events of 8-10 years. The taxon is potentially quite long lived to a decade or more, and recruitment is presumably from long-persistent soil-stored seed.

Distribution

The taxon is localised, but locally abundant in far north-western Victoria at Raak Plain, Pink Lakes, Chinkapook area, and Lake Tyrell (VicFlora 2018). The Victorian subpopulations are disjunct by at least 440 km from the nearest occurrences in South Australia (SA) at Lake Frome.

It is surprisingly absent from New South Wales, and there is a significant disjunction between the Victorian stronghold and SA records for Lake Frome and Lakes Torrens to Gairdner.

Habitat

In Victoria, the taxon is found on saline and gypseous soil around shallow salt lakes in far north-western Victoria (VicFlora 2018). It occurs in the most saline areas, almost with no other taxa, often forming monospecific stands.

It grows on saline saltpans at salinity levels where usually no other *Tecticornia* penetrates. The taxon does not necessarily require high salinity but is outcompeted by other less saline-adapted taxa.

Threats

The taxon is likely to be vulnerable to increasing soil salinity regions since the taxon is already at its limit of salinity.

It is unclear if climatic drying would result in mortality and decline. Most recruitment is presumably triggered by rainfall events, floods or other episodic events of highly variable intensity or frequency. Any recruitment followed by a drought would likely result in recruitment failure.

Not all sites where it occurs are protected in nature reserves and there is uncertainty about the future management and plausible impact of unexpected changes in land management at some of the sites. For example, a significant portion of the Raak Plain is not included within the Murray-Sunset National Park.

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 B1 as Vulnerable

The Area of Occupancy (AoO) across the taxon's range is estimated to be 7,200 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the landscape scale. It has a patchy distribution with most occurrences isolated from each other at separations exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal, and hence have little demographic or genetic exchange. The taxon's apparent absence from numerous apparently suitable habitats suggests it is poorly dispersed.

It is inferred to have 1 location, and has a continuing decline in (iii) above based on the current and projected impact of the identified threats, such as increasing soil salinity.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 68 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 (iii) above.

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

It is estimated that there are 5,000 to 10,000 (midpoint 8,000) mature individuals but other thresholds under this criterion have not been met.

The current population estimate is based on the collecting notes on National Herbarium of Victoria specimens. The notes indicate that there are "Numerous stands extending to S end of Lake Tyrell" and that it is "common over several hundred metres at one of the occurrences on the Raak Plain, and more than 100 plants at another site on the Raak Plain ca. 10 Km west of Nowingi there are hundreds of plants."

At Lake Wahpool, 2 km W of Chillingollah, about 1,000 plants were observed in 1981.

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:

Ineligible under Criterion D

The number of mature individuals exceeds the threshold for Criterion D and the taxon is not estimated to be 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: https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Tecticornia nitida.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/7a8ad835-d33a-4d0b-ab65-167384763b25