

Tecticornia lylei Wiry Glasswort

Taxonomy

Tecticornia lylei (Ewart & Jean White) 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

Criteria A3bc; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)

Species Information

Description and Life History

The taxon is an erect shrub to c. 1 m high. Ultimate branchlets very slender (to c. 2 mm diam.), articles cylindrical, dull, mostly c. 3 mm long; lobes obtuse to broadly acute, often with a short tuberculate keel near apex, margins entire to denticulate. Spikes terminal, to c. 3 cm long, c. twice as wide as branchlets; opposite bracts united, margins entire; flowers free, protruding beyond bracts; perianth truncate at apex. Fruiting perianth brown, strongly protruding from bracts, hard but spongy internally, pericarp of similar texture, shortly protruding from perianth at apex; seed obliquely ovoid, 1-1.5 mm long, falling enclosed in perianth, testa thinly crustaceous, reddish-brown, granular in several rows on dorsal angle, elsewhere minutely elongate-reticulate. The taxon flowers mostly from August to October (VicFlora 2017).

Limited quadrat data indicates typically dominant with projective cover of 5-25% and occasionally 25-50%, sometimes codominant at the quadrat scale with *Melaleuca halmaturorum*.

Generation Length

The generation length of *Tecticornia lylei* is inferred to be 35 years. This is based on a longevity plausibly in 20-50 year range.

Distribution

The taxon is very localised in north-western Victoria (e.g. Raak Plain, Lendrook Plain near Hattah, Lake Tyrell) (VicFlora (2017)). Victorian records are highly disjunct from a single New South Wales occurrence at Nanya Station and South Australia, where the closest records are on Eyre Peninsula extending across Nullarbor Plain with another major disjunction to the Kalgoorlie region in south-west Western Australia.

Habitat

The taxon is locally abundant on salt lake margins and seepage lines (VicFlora 2017).

Threats

The key threat to the taxon is rising ground water, resulting in upslope contraction of habitat with tolerable salinity within range for the taxon. This is clearly limited by historic salinity levels since they are very clearly zoned, despite salinity tolerance of all samphire taxa. Some sites may also be threatened by current or future mineral sands

mining. Weed invasion is considered a low level risk, as is browsing pressure by herbivores such as sheep, rabbits and goats because of the high salt content of *Tecticornia* taxa.

Google Earth imagery indicates the Kulwin mineral sands mine eliminated at least 30-40% of Edwards Road Salt Lake habitat. This is also true for the southern sector of Kulwin Bushland Reserve, which is predominantly the Loamy Sands Mallee EVC with some Red Swale Mallee EVC of high quality. This has now been lost to mining indicating some documented past decline.

It should be noted that Kulwin records outside Kulwin Bushland Reserve on freehold, owned by the Willis family, in an area subject to mineral sands mining by Iluka Resources Ltd. The Kulwin mine was proposed to extend across the south-west corner of Kulwin Bushland Reserve in a north-west band crossing Boinka complex salt pan and crossing Edwards Road.

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 style="text-align: center;"><i>based on any of the following:</i></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 A3 as Endangered

The population reduction over the next 100 years is projected to be 50 to 75%, based on (b) and (c) above.

Future decline is based primarily on rising ground water, resulting in an upslope contraction of the habitat with tolerable salinity within the range for the taxon. This is clearly limited by historic salinity levels, since they are very clearly zoned despite salinity tolerance of all samphire taxa.

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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,861 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at both the landscape and subregional scale, with very limited dispersal capacity at the metre scale and with very limited dispersal by water within internal drainage basins.

It is estimated to have 1 location. It has a continuing decline in (ii), (iii), (iv) and (v) above.

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, it is severely fragmented, has one location and has a continuing decline in (ii), (iii), (iv) and (v) 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 as Data Deficient

There are no reliable estimates available for total Victorian population size or individual subpopulation size.

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 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 (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Tecticornia lylei*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/a0faa6c8-447f-47f9-856f-2775ef3c5473>

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