

Threatened Species Assessment

Trichanthodium baracchianum Dwarf Yellow-heads

Taxonomy

Trichanthodium baracchianum (Ewart & Jean White) P.S. Short

Current conservation status

Listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1991).

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

Proposed conservation status

Endangered in Australia

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is an annual herb 1-10 cm high; branches glabrous to lanate. Leaves linear to narrowly oblong or elliptic, ovate, or lanceolate, 4.5-12 mm long, 0.5-2.2 mm wide, semi-succulent, with a short mucro, usually glabrous but sometimes sparsely lanate. Compound heads depressed-ovoid, 4-7 mm long, 5-11 mm diam., subtended by a general involucre usually c. half as long as head and inconspicuous in mature heads but sometimes outer leafy bracts about as long as head; general receptacle c. convex, glabrous. Capitula 8-50 per compound head; involucral bracts 4-7, outer bracts densely hairy at apex, inner ones sparsely hairy at apex; florets 1 per capitulum. Cypselas 1.3-1.5 mm long; pappus a jagged ring 0.3-0.4 mm long. The taxon flowers from September to November (VicFlora 2017).

The taxon has a lower rate of crosspollination than other *Trichanthodium* taxa (Short 1990), and has a fixed tolerance to salinisation (Carter and Downe 2006; DSE 2008; TSSC 2016).

Generation Length

The generation length of *Trichanthodium baracchianum* is inferred to be 1 to 10 years. This is based on the annual habit of the taxon, and uncertainty as to whether it recruits reliably each season or only in better seasons.

Distribution

The taxon is endemic to north-western Victoria, where it is highly restricted to the Antwerp and Jeparit regions, and near the town of Mitre in the Murray Darling Depression IBRA Bioregion. It is likely the taxon was more widespread and abundant prior to European settlement (Carter and Downe 2006; TSSC 2016; VicFlora 2017).

The taxon has been recorded from the following locations: Mitre Lake Reserve (>1000 individuals in 2004), Oliver's Lake Reserve (or Lake Duchembegarra) (>1000 individuals in 2005). Lake Wich-I-pei (private land) (~2500 individuals in 2002), Banu-Bonyit Channel (private land) (~1000 individuals in 1983), West Road (private land) (Location 1) (~1000 individuals in 1983), West Road (private land) (Location 2) (~5000 individuals in 2002), Tullyvea East Channel (private land) (~1000 individuals in 1983 but only two individuals observed in 2002), and Gypsum Pit Road (private land) (~1000 individuals in 2002).

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Habitat

The taxon is located on the periphery of saline flats, and in depressions on the fringes of salt lakes in samphire vegetation communities. It is often found on disturbed ground in low lying areas in association with *Sarcocornia* taxa. In elevated areas, the taxon is found in association with *Tecticornia*, *Austrostipa* and *Hordeum* spp.. Elevated areas are often anthropogenic in origin, such as on the edges of dams, and it is suspected that the soil in those areas is slightly less saline than in surrounding, lower lying areas (TSSC 2016; Carter and Downe 2006; DSE 2008; Short 1990).

Threats

The taxon is threatened by habitat loss and degradation. This includes from rabbits, and trampling from livestock (particularly sheep on private land), which in turn causes soil disturbance and erosion, and from rural development and agriculture including cropping, dam works and rubbish dumping, as well as gypsum mining and associated activities. Numerous subpopulations have been lost through land clearing, with the current population being highly fragmented.

Other threats include salinisation due to irrigation, lake drainage and clearing of deep-rooted perennial vegetation, which has contributed to the decline of the taxon, and competition with introduced weed taxa, such as introduced barley grass (*Hordeum* taxa) and competition with native grasses. The abundance of the taxon is likely to be limited by competition with Spear-grass (*Austrostipa* spp.). However, this threat has not been unquestionably demonstrated (TSSC 2016; DSE 2008; Carter and Downe 2006).

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> <p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>			

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.

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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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 489 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented, as it is habitat-specific with narrow tolerance of salinity and other site characteristics, which are highly disjunct within the narrow range of the taxon. It is unclear whether the taxon has any special adaptation for dispersal between these isolated patches of suitable habitat in the landscape.

It is estimated to have 1 location and has a continuing decline in (iii) above, based on the threats of habitat loss and degradation, and competition with both native and introduced taxa.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 48 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.

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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 Data Deficient

It is estimated that there are 13,000 mature individuals, which exceeds the thresholds for criterion C.

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 be very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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