Threatened Species Assessment

Templetonia egena
Round Templetonia

Taxonomy

Templetonia egena (F. Muell.) Benth.

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 A2bc+3bc+4bc; B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a many-stemmed, leafless, glabrous shrub to 3 m high; branches green or yellow, ± terete, usually distinctly ridged. Leaves reduced to minute scales to 1 mm long, with a mass of fine dark glandular processes in the axils; stipules absent. Flowers mostly 1 or 2 per axil, in lax terminal racemes; pedicels glabrous, to 1.75 mm long; bracteoles paired, ovate, attached near apex of pedicel; calyx to 4 mm long, glabrous except for hairs on margins of lobes; ovary ± sessile, glabrous. Pod narrowly oblong-elliptic, often obliquely so, 1.3-2.5 cm long, 0.6-1 cm wide, mostly 1-seeded; seeds elliptic, light brown. The taxon flowers from August to September (VicFlora 2019).

Generation Length

The generation length of *Templetonia egena* is estimated to be 50 years. This is based on a plausible longevity of 40-70 years and a likely pre-settlement dependence on rare fire events for episodic recruitment. The taxon is suspected to have poor resprouting ability post-fire. Post-settlement recruitment is more often in response to localised soil disturbance, notably earthworks in road reserves and rabbit activity.

Distribution

In Victoria, the taxon is confined to the north-west. The taxon also occurs in Western Australia, Northern Territory, South Australia, Queensland, and New South Wales (VicFlora 2019).

Habitat

The taxon favours deep sandy soils in mallee and woodland communities (VicFlora 2019).

Threats

The taxon is inferred to have suffered significant historic decline through targeted clearance of fertile sandy loam red soil woodlands for cropping, along with extended periods of fire exclusion leading to recruitment failure for fire-dependant taxa. The taxon is threatened by continuing incremental habitat loss and habitat degradation from agricultural intensification and continuing interruption to ecological processes, such as natural fire regimes and browsing pressures.

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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 150 years is estimated to be 60 to 80% (midpoint 70%), based on (b) and (c) above.

Past decline is based on targeted clearance of fertile sandy loam red soil woodlands for cropping, with extended periods of fire exclusion leading to recruitment failure for fire-dependant taxa.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 30 to 50%, based on (b) and (c) above.

Future decline is based on continuing incremental habitat loss and habitat degradation in response to agricultural intensification and continuing interruption to ecological processes such as natural fire regimes and browsing pressures.

Eligible under Criterion A4 as Endangered

The population reduction over any 150 year period, including both past and future (up to 100 years in the future), is estimated to be 60 to 80% (midpoint 70%), based on (b) and (c) above. The causes of reduction may not have ceased, be understood or be reversible.

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) is estimated to be 179 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 both naturally and anthropogenically at the landscape scale. Geographically discrete occurrences are separated at distances likely to exceed the dispersal range of the taxon, which has no specialised mechanism for long-distance dispersal.

Two locations can be identified based on land tenure, with occurrences within reserves at significantly lower risk compared with unreserved fragmentary occurrences subject to a wide range of identified threats.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the current and projected impacts of the identified threats.

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 is insufficient evidence to determine the number of mature individuals.

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. 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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Templetonia egena.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/0f89b5e3-559f-4e9f-a6ed-1899d4edc51a