Threatened Species Assessment

Ozothamnus stirlingii
Ovens Everlasting

Taxonomy

Ozothamnus stirlingii (F. Muell.) Anderb.

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,v)

Species Information

Description and Life History

The taxon is a spreading shrub to 2(-3) m high; branchlets sparsely cottony, viscid. Leaves spreading, lanceolate to narrow-elliptic, mostly 5-12 cm long and 8-30 mm wide, glabrescent and viscid above, densely cottony and glandular beneath (midrib glabrescent, 2 intramarginal veins usually apparent), apex narrow-acute, margin flat; petioles 5-10 mm long. Inflorescences corymbose, (2-)3-7 cm diam. Capitula (3-)6-25, pale green, subglobose, 5.5-8 mm long, 5-8 mm wide; involucral bracts 40-56, innermost spathulate, with lamina elliptic, suberect, flat, white, margin entire; receptacle bracts absent; female florets 8-16; hermaphrodite florets c. 50-90. Cypsela narrow-ovoid, c. 1.5 mm long, sparsely papillose; pappus bristles c. 4 mm long, apex narrow clavate. The taxon flowers from November to February (VicFlora 2017).

Generation Length

The generation length of *Ozothamnus stirlingii* is estimated to be 45 to 90 years. This is based on the taxon being assumed to be a fire-sensitive obligate seed regenerator which recruits episodically following intense fire at pre-settlement intervals of 45-90 years or more. This is supplemented by sporadic, opportunistic recruitment in response to localised disturbance events, such as animal digging.

Distribution

The taxon is locally common in montane forests at c. 1000 m altitude from Mt Buller area eastward. The taxon also occurs in the Australian Capital Territory and New South Wales (VicFlora 2017).

Habitat

The taxon occurs in montane forest above c. 1000 m altitude with taxa including Mountain Ash, Mountain Gum, Candlebark, Peppermint Gums, and Snow Gum (VicFlora 2017).

Threats

The taxon is potentially threatened by climatic warming and drying which, synergistically, increase the risk of recruitment failure in response to extreme drought stress. Small and isolated stands may also be threatened by targeted browsing by deer during the early stages of recruitment. Repeat fires leading to depletion of the soil seed bank, recruitment failure, and browsing of recruits by exotic herbivores such as cattle, horses and deer also constitute threats.

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 Vulnerable

The population reduction over the past 135 to 270 years is estimated to be 10 to 30%, based on (c) and (e) above.

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

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 100 years is projected to be 25 to 45% (midpoint 35%), based on (c) and (e) above.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 135 to 270 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 50% (midpoint 40%), based on (c) and (e) 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 B1 as Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 7,598 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the subregional scale. However, the taxon is wind-dispersed at the kilometre scale, therefore it is not considered to be severely fragmented at the landscape scale within each subpopulation.

It is estimated to have 1 location, and has a continuing decline in (ii), (iii) and (v) above based on the current and projected impact of the identified threats, such as climatic warming and drying, targeted browsing by exotic herbivores, and repeat fires.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 220 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 (ii), (iii) 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

It is estimated that there are 11,000 to 22,000 mature individuals, which exceeds the thresholds for criterion C.

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 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

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 (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Ozothamnus stirlingii.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/68236220-501f-4490-9525-9b092e2cc539