Threatened Species Assessment

Senecio garlandii
Woolly Ragwort

Taxonomy

Senecio garlandii F. Muell. ex Belcher

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2002).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i,ii); D

Species Information

Description and Life History

The taxon is an erect perennial to c. 1 m high; stems densely white-cottony. Leaves ovate or elliptic, 8-15 cm long, 3-9 cm wide, those of main axes sessile, cordate at base and stem-clasping, those of lateral branches often tapered at base and petiolate; margins dentate; upper surface glabrous or retaining some cottony hairs; lower surface densely white-cottony. Inflorescence corymbose, c. 5-15 cm across; capitula 20-80 or more, radiate; involucre broadly campanulate, c. 4 mm long, glabrous; bracts c. 13; bracteoles 5-7. Ray florets 7-10, yellow, ligules c. 4 mm long; disc florets c. 20-25, yellow. Cypselas obloid, c. 2 mm long, light brown, appressed-papillose, grooved; pappus of slender white hairs 4-5 mm long, deciduous. Flowers August-November (VicFlora 2018).

Generation Length

The generation length of *Senecio garlandii* is estimated to be 15 to 35 years. This is based on the taxon's capability of regenerating in the absence and presence of fire (Burrows 2001), however fire facilitates germination and some resprouting occurs after fire (Burrows 1995).

Distribution

The taxon is known in Victoria only from small populations near Beechworth (first collected 1996), near Walwa (2012), and West Wodonga (2012), all in the far north-east of the state (VicFlora 2018).

Habitat

The taxon occurs in dry sclerophyll forest and open woodland, on stony soil. It is found on the upper parts of the south to east-facing slopes of rocky outcrops (Burrows 2001; VicFlora 2018).

Threats

The taxon may be threatened by the browsing of native and exotic herbivores, weed invasion, and the clearing of understorey plants on private property (NSW OEH 2005a, 2005b). Populations on private property near Albury may be threatened by rural subdivisions (NSW SC, 2004). It is also threatened by inappropriate fire regimes, as the frequency and intensity of bushfires are likely to increase in a warming and drying climate. Too frequent fires may exhaust the soil seed bank and lead to recruitment failure.

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.

Although the taxon has almost certainly experienced significant historic decline, the proportion of this decline which has occurred in the last three generations is difficult to estimate in the absence of longitudinal observations or monitoring data.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 12 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented considering its limited dispersal ability, the barriers to dispersal, and the lack of habitat separating the individuals.

It is estimated to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above as a result of inappropriate fire regimes. The frequency and intensity of bushfires are likely to increase in a warming and drying climate.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 12 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 (i), (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:

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 2 to 40 mature individuals. The current population estimate is based on field observations, however the status of private land sites is uncertain.

The number of mature individuals is estimated to continue to decline, and the number of mature individuals in each subpopulation is 50 or fewer.

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 Critically Endangered

The taxon is estimated to have 2 to 40 mature individuals.

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

References

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