

Senecio linearifolius var. *graniticola* Fireweed Groundsel (Euroa variant)

Taxonomy

Senecio linearifolius var. *graniticola* I. Thomps.

Current conservation status

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

Proposed conservation status

Critically Endangered in Australia

Criterion B1ab(ii,iii,v)c(iv)

Species Information

Description and Life History

Senecio linearifolius is a slender to shrubby aromatic perennial to c. 1.5 m high; stems glabrous to white-cobwebbed. Leaves very variable, linear to ovate, 5-20 cm long, 3-50 mm wide, mostly sessile, sometimes shortly pseudopetiolate, often shortly auriculate, entire to regularly toothed; upper surface glabrous; lower surface glabrous, lightly cobwebbed or densely white-cobwebbed. Inflorescence corymbose, c. 4-15 cm across; capitula 20-200 or more, radiate; involucre cylindric, 3.5-5 mm long, glabrous or very sparsely cobwebbed at base; bracts 9-12; bracteoles few. Ray florets 4-8, yellow, ligules 3.5-6 mm long; disc florets 8-14, yellow. Cypselas obloid, 1.5-2 mm long, pale to reddish-brown, shortly papillose-hairy in rows; pappus of slender white hairs 4-5 mm long, deciduous. Flowers mostly November-March (VicFlora 2019a).

S. linearifolius var. *graniticola* is distinguished as follows: Plants are not glaucous. Upper-stem leaves very narrow-elliptic to linear, to 13 cm long, with l:w ratio c. 8-15; base narrow-cuneate; auricles absent; margin entire, revolute, occasionally denticulate; lower surface densely woolly, with the wool overlying spreading, coarse, basal portion of hairs; secondary venation generally indistinct. Involucre 3-4 mm long, c. 2-3 mm diam.; bracts mostly 12-14. Florets 15-24; ray florets 5-8; disc florets 10-16. Cypselas 1.6-2.0 mm long, papillose-hairy in bands. Flowers September-January (VicFlora, 2019b).

Generation Length

The generation length of *Senecio linearifolius* var. *graniticola* is suspected to be 5 to 15 years. The taxon is a perennial semi-shrub, suspected to be quite long-lived, perhaps exceeding ten years in favourable sites. It is presumed to have at least sporadic recruitment from local disturbance (e.g. the activities of animals). While regeneration will be promoted by fire, it does not appear to be dependent on fire to maintain populations. The taxon is presumed to have a relatively persistent seed-bank in the soil.

Distribution

The taxon is endemic to the Strathbogie Ranges.

Habitat

Plants occur in woodlands on soils derived from granite.

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Threats

Threats to the taxon include the impacts of climate change (decreased rainfall and failed recruitment/reproduction due to drought conditions), deliberate 'control' or removal because plants mistaken for weeds by uninformed workers, weed invasion, grazing/browsing and soil disturbance associated with feral animals (notably rabbits and deer) and domestic stock (cattle and sheep) and possibly wallabies, potentially predation by introduced arthropods, and vulnerabilities associated with small population sizes of local populations.

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> <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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 32 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented, as it is restricted to localised occurrences within disjunct patches of remnant habitat.

It is inferred to have 1 location, as the taxon occurs within a very localised range and occurrences are subject to similar threats. It has a continuing decline in (ii), (iii) and (v) due to the identified threats.

It is inferred to extreme fluctuations in (iv) above. The observations of Thomas of decline in a local population and large numbers of plants in a recently burnt area suggest that extreme fluctuations in population size can occur.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 16 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 1 location, has a continuing decline in (ii), (iii) and (v) and has extreme fluctuations in (iv) 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

It is suspected that there are 500 to 2,000 mature individuals, but this qualifier is too weak and other thresholds under this criterion have not been met.

Criterion D. Very small or restricted population ^a		Critically Endangered ^a	Endangered ^a	Vulnerable ^a
Number of mature individuals (observed or estimated) ^a		< 50 ^a	< 250 ^a	< 1,000 ^a
D2. Only applies to the VU category ^f 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. ^a		- ^a	- ^a	D2. Typically: ^f AoO < 20 km ² or number of locations ≤ 5 ^a

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 (2019a) Flora of Victoria, Royal Botanic Gardens Victoria: *Senecio linearifolius*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/b9aa71cc-8714-4af4-9a86-80ca75056dce>



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VicFlora (2019b) Flora of Victoria, Royal Botanic Gardens Victoria: *Senecio linearifolius* var. *graniticola*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/6b51c23c-0370-48d2-83e2-0dec8c7e6675>