



Cassinia scabrida Rough Cassinia

Taxonomy

Cassinia scabrida Orchard

Cassinia scabrida, and the similar Victorian endemic *C. venusta*, were once included within a broader circumscription of *C. ozothamnoides* (as *Haeckeria ozothamnoides*), but are distinguished from *C. ozothamnoides* primarily on leaf and stem indumentum. These indumentum characters show little or no overlap between species (VicFlora 2018).

Current conservation status

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

Proposed conservation status

Vulnerable in Australia

Criteria A2bc+4bc; D2

Species Information

Description and Life History

The taxon is an erect shrub to 2 m high; branchlets with dense gland-tipped acicular hairs, occasionally also with cottony hairs on youngest parts. Leaves suberect or spreading, sessile, slightly auriculate and stem clasping at the base, linear, (30-)55-65(-85) mm long, (1-)4-5(-10) mm wide, upper and lower surfaces green with dense short gland-tipped acicular hairs, apex acute with a reflexed mucro, margin revolute when dehydrated. Inflorescences corymbose, 9.5-11.5 cm diam. Capitula hundreds to thousands, pale greenish white and shiny, cylindrical, (3.5-)4.2-4.5(-5.0) mm long, c. 1-2 mm wide; involucre bracts 10-15, innermost lanceolate with lamina narrow-triangular, c. 1.5-2 mm long, erect, flat, hyaline, margin entire to erose; receptacle bracts 1-3; florets 4-5. Cypsela cylindrical, (0.9-)1.0-1.2 mm long, glabrous. Pappus usually absent or rarely 1-4 bristles, c. 1.5 mm long (VicFlora 2018).

When fresh, the leaves and stems have a faintly turpentine smell, probably from the glandular exudate of the hairs. Buds begin to appear in late September/October, the plants are in flower (November-) January to February, and fruits are produced in March. The skeletons of the old inflorescences remain on the plant for about a year after fruit dispersal (Orchard 2004).

Generation Length

The generation length of *Cassinia scabrida* is inferred to be 50 to 80 years. This is based on a longevity of plausibly 15-40 years and a pre-settlement fire interval plausibly in the 40-80 year range. It is also based on the likelihood that episodic fire-induced mass recruitment that greatly exceeds the proportion of recruitment responding continuously to small scale soil disturbances.

Distribution

The taxon is endemic to Victoria, on several granitic inselbergs east of Albury/Wodonga (Mt Granya, Mt Firebrace, Mt Lawson and Pine Mountain), and to the Killawarra State Forest on the plains just north of the Warby Range. Its range overlaps with *C. venusta* on Pine Mountain. Most populations occur within parks and reserves (Orchard 2004; VicFlora 2018).

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The taxon is in cultivation at Mt Annan Botanic Gardens and at the Australian National Botanic Gardens, Canberra (Orchard 2004).

Habitat

Even in mountainous terrain this taxon is confined to relatively flat areas, on yellow sandy or orange-red or yellow-brown clay soils over granite. It is found in tall dry Eucalyptus forest usually with a dense shrub understorey. It will tolerate (and may even prefer) light disturbance, and it is frequently more common on, for example, the margins of fire trails, but it will not tolerate major clearing and weed invasion. The altitudinal range in the mountains is from approximately 520-912 m and from 180-200m on the plains near the Warby Range. Although the taxon is restricted to a relatively small area, it is often locally abundant and may be the dominant undershrub. In the mountains its range is probably restricted by altitude and the availability of granitic soils. On the plains near Warby Range it seems to be largely (perhaps entirely) confined to Red Ironbark *Eucalyptus sideroxylon* forest, and it is absent from adjacent forest dominated by other Eucalyptus species.

Threats

The taxon has suffered a historic decline as a result of clearance of taller forests for agriculture and timber plantations, including for *Pinus radiata*. Population density has also declined in response to habitat modification such as cool burning, particularly of 50-100 m strips on same or opposite side of tracks, at 3-5 year intervals which is potentially below the minimal tolerable fire interval for the taxon, often intentionally targeting shrubs.

Continuing threats to the taxon include the imposition of unfavourable fire regimes, strategic fuelbreak construction and maintenance. It should be noted that the construction of new fuelbreaks and the maintenance of existing fuelbreaks is subject to detailed planning to identify biodiversity values and to apply appropriate mitigations where possible. However, the direct impacts of these threats on existing subpopulations may be compensated by increased post-fire recruitment success in response to both anthropogenic fire regime and increasing fire risk due to climatic drying and warming.

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 style="text-align: center;">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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 150 to 240 years is estimated to be 30 to 55% (midpoint 40%), based on (b) and (c) above. The causes of the reduction may not have ceased, be understood or be reversible.

Past decline is based on plantation establishment and agriculture. The population density has also declined in response to habitat modification such as cool burning, particularly of 50-100 metre strips on same or opposite sides of tracks, at 3-5 year intervals, which is potentially below the minimum tolerable fire interval for the taxon, that often intentionally targets shrubs.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 150 to 240 year period, including both past and future (up to 100 years in the future), is estimated to be 20 to 30%, based on (b) and (c) above. The causes of reduction may not have ceased, be understood or be reversible.

Future decline is particularly difficult to estimate, since inappropriate fire regimes and increasing fire risk due to climatic drying and warming may increase post-fire recruitment success. This may compensate for the impact of unfavourable imposed fire regimes.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 2,387 km² and the Area of Occupancy (AoO) is estimated to be 103 km², but other thresholds under this criterion have not been met.

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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

There are inadequate field observations to provide a confident estimate of the total number of mature individuals.

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 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



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Orchard, A. E. (2004). A reassessment of the genus *Haeckeria* (Asteraceae: Gnaphalieae), with definition of new species in *Cassinia*. *Australian Systematic Botany*, 17(5), 454-457.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Cassinia scabrida*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/dfb22f70-3d30-4326-b607-1f9c99641dbc>