



Cyphanthera albicans subsp. *albicans* Hoary Ray-flower

Taxonomy

Cyphanthera albicans subsp. *albicans* (A. Cunn.) Miers

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria D1+2

The bushfires of 2019/2020 are believed to have impacted around 30% of the taxon's modelled habitat. The overall impacts of the fire are yet to be determined

Species Information

Description and Life History

The taxon is an erect shrub to 3 m high, greyish; branches with an indumentum of whitish stellate hairs and glandular hairs. Leaves sessile, elliptic to ovate or more or less obovate, mostly 6-15 mm long, 1.5-7 mm wide (juvenile leaves often much larger), obtuse, tomentose, margins recurved. Inflorescences panicle-like, dense, leafy; pedicels 1-6 mm long, tomentose; calyx campanulate, 2-5.5 mm long, pubescent; corolla 6.5-13 mm long, glabrous or pubescent, white or creamy-white with purple striations, lobes lanceolate, 3-15 mm long, acute, longer than tube, spreading; stamens 2-5 mm long. Capsule broad-ellipsoid to globose, 2.5-8 mm long; seeds 2.3-3.8 mm long, pitted, brown. The taxon flowers mainly spring to early summer (VicFlora, 2018).

Generation Length

The generation length of *Cyphanthera albicans* subsp. *albicans* is estimated to be 50 years. This is based on an inference that the taxon recruits episodically from a long-persistent soil-stored seedbank following very infrequent bushfire, supplemented by low frequency continuous or opportunist recruitment in response to localised disturbance such as landslip, scarification by heat and cold, death of overstorey, or animal diggings. The taxon is likely to be a fire-sensitive obligate seed recruiter, with a longevity plausibly in the 15-35 year range.

Distribution

The taxon is rare in Victoria, where it is known only from a few localities in the upper Snowy River area, for example, Ballantyne Hills, Little River, Mt Stradbroke, and the Snowy River gorge. It also occurs in Queensland and New South Wales (VicFlora, 2018).

Habitat

The taxon is usually found on dry, rocky slopes (VicFlora, 2018).

Threats

The taxon is likely to have experienced some historic population decline in the Suggan Buggan district and on the Wulgulmerang-Gelantipy tableland in response to habitat loss to agriculture and potentially also forest grazing by

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stock, namely cattle and sheep. The most significant plausible current and future threat is browsing by feral goats, noting that plants are tenuously anchored and easily dislodged, particularly when young, as inferred by analogy with other taller Solanaceous shrubs.

Browsing by Sambar Deer (*Rusa Unicorn*) and macropods, such as the Eastern Grey Kangaroo (*Macropus giganteus*) and Red-necked Wallaby (*Macropus rufogriseus*), is likely to be a limited threat only given that Solanaceous alkaloids are likely to be distasteful to these more discriminating herbivores, whereas goats tend to be less discriminating browsers.

The taxon is likely to be highly drought-tolerant and therefore not likely to be at particular risk of drought-induced 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%

<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>	<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>
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Evidence:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2. There is insufficient evidence to determine whether will be a future reduction in population size (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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 196 km² and the Area of Occupancy (AoO) is estimated to be 36 km², based on accepted, post 1970 records from the Victorian Biodiversity Atlas, but other thresholds under this criterion have not been met.

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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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

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The taxon is estimated to have 250 to 1,000 mature individuals, but other thresholds under this criterion have not been met.

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 km ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Vulnerable

The taxon is estimated to have 250 to 1,000 mature individuals. The number of mature individuals is based on circumstantial field observations suggesting relatively few low-density occurrences.

Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. The taxon has a restricted distribution, occurring in a single location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations, in response to the identified threats, browsing by feral goats.

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.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Cyphanthera albicans* subsp. *albicans*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cee4d2b1-bd1f-472f-b0b6-456076e67529>