

## *Minuria cunninghamii* Bush Minuria

### Taxonomy

*Minuria cunninghamii* (DC.) Benth.

### 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 A2bce+3be+4bce

### Species Information

#### Description and Life History

The taxon is a straggling to erect subshrub to c. 60 cm high; stems glabrous, but often with a tuft of cottony hairs in leaf-axils, usually minutely pubescent below capitula. Leaves linear, 5-30 mm long, 0.5-1(2) mm wide, glabrous, entire, acute. Capitula solitary, terminating branches; involucral bracts narrow-lanceolate, 2-8 mm long, 0.5-0.8 mm wide, the smaller, outer ones sometimes sparsely pubescent, acute, margins narrowly membranous; ray florets white to mauve, ligules 4-7 mm long. Ray cypselas cylindrical or flattened, 2.5-4 mm long, sparsely pubescent, pappus bristles 20-40, 6.5-9.5 mm long, smooth or minutely barbellate; disc cypselas linear, glabrous, pappus bristles dimorphic, the smaller 1-1.5 mm long, partly fused, the c. 10 longer ones 3.5-4.5 mm long. Flowers August-October, February-April (VicFlora 2017).

#### Generation Length

The generation length of *Minuria cunninghamii* is inferred to be 5 to 25 (midpoint 10) years. This is based on it being a perennial herb, and its apparent response to flood events from either a bud or soil-stored seedbank, with new stands found following the 2011 wet season. Under pre-European settlement conditions, floods would have been expected to coincide with La Nina and el Nino events, with about 5 to 7 years between them, and major floods at perhaps 25 year intervals.

#### Distribution

The taxon occurs in all mainland states. It is rare in Victoria, and is mainly found in the north-west at Raak Plain near Benetook, Hattah Lakes, and Lake Tyrell (VicFlora 2017).

#### Habitat

The taxon usually occurs on slightly to strongly saline ground in sand, clay or gypseous soils (VicFlora 2017).

#### Threats

The taxon is likely to have suffered significant historic decline through habitat loss to agriculture and urban development in at least some districts such as Mildura, Benetook and near Lake Iraak south-east of Red Cliffs where the only collections are from degraded roadside drainage lines. Occurrences such as these in highly fragmented landscapes are threatened also by competition from invasive exotics such as *Bromus rubens* (Red Brome), *Carrichtera annua* (Ward's Weed), *Medicago minima* (Little Medic), *Mesembryanthemum nodiflorum*

(Small Ice-plant) and *Vulpia bromoides* (Squirrel-tail Fescue). The taxon is also likely to be palatable to stock, rabbits, goats and native herbivores. Grazing of mature plants during the flowering period has resulted in localised loss of mature plants.

The greatest threat to all occurrences, however, is climatic drying which is projected to reduce the reliability of flooding and winter rainfall events, limiting the opportunity for seedbank replenishment and germination and increasing the risk of seedbank depletion, recruitment failure and local extinction.

### 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;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul>			

### Evidence:

#### Eligible under Criterion A2 as Vulnerable

The population reduction over the past 15 to 75 years is suspected to be 30 to 45%, based on (b), (c) and (e) above.

Some clearing of habitat will have occurred over the past 3 generations as well as a loss of individuals within subpopulations due to stock grazing. These threats have largely ceased through the taxon's range.

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

#### Eligible under Criterion A3

The population reduction over the next 15 to 75 years is suspected to be 10 to 30%, based on (b), (c) and (e) above.

This is based on the impacts of the identified threats.

#### Eligible under Criterion A4 as Vulnerable

The population reduction over any 15 to 75 year period, including both past and future is inferred to be 30 to 45%, based on (b), (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 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 26,989 km<sup>2</sup> which exceeds the threshold for criterion B.

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 257 km<sup>2</sup> 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 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 inferred that there are 1,000 to 5,000 mature individuals, but other thresholds under this criterion have not been met.

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 <sup>2</sup> or number of locations ≤ 5

### Evidence:

#### Ineligible under Criterion D

It is inferred that there are 1,000 to 5,000 mature individuals and the taxon is not 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](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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Lander, N. S., and Barry, R. (1980). A review of the genus *Minuria* DC. (Asteraceae, Astereae), *Nuytsia* 3: 2

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Minuria cunninghamii*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/0fe1bf47-dd49-4c17-bfb9-ed2d4a5753d9>