

Wahlenbergia planiflora subsp. *planiflora* Flat Bluebell

Taxonomy

Wahlenbergia planiflora subsp. *planiflora* P.J. Sm.

The taxon is very close to *W. fluminalis* which it appears to replace in eastern Victoria (VicFlora 2019).

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is a tufted perennial, usually few-stemmed from a thickened taproot, glabrous throughout, or hirsute near base; stems erect or ascending, 12-65 cm long, 2-many-branched, usually with some leaves in upper half; leaves alternate, or the lower ones opposite, narrowly obovate or oblanceolate near base, often c. linear above, 5-50 mm long, 1-10 mm wide; margins entire, or with small callus-teeth, sometimes undulate. Hypanthium c. goblet-shaped or obconical, 2-4 mm long, glabrous; calyx-lobes spreading, narrow-triangular, 2-5 mm long, glabrous; corolla rotate, (usually pale) blue, tube 1-3 mm long, shorter than or subequal to calyx-lobes, lobes c. elliptic, 6-13 mm long, 3.5-7 mm wide, obtuse to acute, widely spreading; style 3-5.5 mm long, strongly constricted in upper third, lobes 3, ovate. Capsule hemispherical to obconical, 3-8 mm long, 2-5 mm wide. The taxon flowers in October and January (VicFlora 2019).

Generation Length

The generation length of *Wahlenbergia planiflora* subsp. *planiflora* is estimated to be 20 to 30 years. This is based on a plausible longevity of 15-30 years or more.

Distribution

The taxon is apparently rare in Victoria, where it is known by a few collections from elevated sites in the east at the Cobberas, Nunniong Plateau, and Cudgewa, and from lower altitude near Rutherglen. Specimens from north-central Victoria, from Echuca to Wangaratta, may be difficult to place with certainty. The taxon also occurs in New South Wales and Australian Capital Territory (VicFlora 2019).

Habitat

The taxon occurs on water-retentive basaltic soils in grasslands and herbfields of the Victorian Alps (VicFlora 2019).

Threats

Past, current, and future threats to the taxon are difficult to identify given its apparent habitat range in Victoria, and the apparent unreliability of almost all site records in the Victorian Biodiversity Atlas. The taxon is likely to have

Wahlenbergia planiflora subsp. planiflora

Flat Bluebell

suffered significant historic decline through habitat loss or modification in at least some districts in response to agricultural activity. It is suspected to be reasonably drought tolerant, given a reliable record for Dry Forest Creek Reference Area and some NSW records in dry habitats. The taxon is also suspected to be reasonably fire and grazing tolerant, as are many other *Wahlenbergia* taxa.

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

There is insufficient evidence to support an estimate of past decline, although it is likely to have been significant in some districts (criterion A2). The future population reduction does not meet the threshold for eligibility under criterion A3.

Wahlenbergia planiflora subsp. planiflora

Flat Bluebell

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 8,000 km², and the Area of Occupancy (AoO) is estimated to be 16 km², 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>	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

There is insufficient evidence to determine the number of mature individuals.

Wahlenbergia planiflora subsp. planiflora

Flat Bluebell

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 D2 as Vulnerable

The taxon is estimated to be very restricted. The taxon has a restricted distribution, occurring 2 to 4 locations, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations. This is in response to the impact of the identified long-term threats, notably habitat loss or modification in response to agricultural activity.

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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Wahlenbergia planiflora* subsp. *planiflora*. Retrieved from: <https://vicflora.rbgb.vic.gov.au/flora/taxon/3250983a-7b9c-4b15-b4fb-14fee19fe30c>