

## *Platylobium infecundum* Famine Flat-pea

### Taxonomy

*Platylobium infecundum* I. Thomps.

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Australia

Criteria A2abce+4abce; B1ab(i,ii,iii,iv,v); C1+2a(i); D

### Species Information

#### Description and Life History

Prostrate shrub, rooting at nodes; stems glabrous to sparsely pubescent. Leaves alternate and opposite, unifoliolate; petiole (2-)5-25 mm long; lamina broadly ovate, triangular-ovate or orbicular, (1.5-)2-4 cm long, (1.2-)1.5-3 cm wide, base slightly cordate to truncate, apex rounded to subacute, apiculate. Flowers 1-3 per axil; pedicels distinct, exerted from basal bracts and scales; bracteoles ± flat, 2-5 mm long, overlapping base of calyx, orange-brown, striate, glabrous or with scattered midline hairs; calyx with scattered appressed or spreading hair, upper lobes 5.5-9 mm long (including tube), lower lobes 3-4 mm long; ovary pubescent. Pods rarely produced, with thin wing c. 1.2 mm wide beyond the upper sutural nerve, sparsely pubescent. The taxon flowers from August to December (Spring to mid-summer). To date there have been no records of mature seed produced by this taxon (VicFlora 2016).

There had been no records of pod development in this taxon until recently when a single plant bearing a semi-mature pod was discovered in South Belgrave. *Platylobium infecundum* is perhaps most closely related to *P. reflexum* based on similarities in indumentum and bracteole morphology.

#### Generation Length

The generation length of *Platylobium infecundum* is inferred to be 100 to 300 years, based on fruits being very rarely produced and mature seeds having never been observed (Thompson 2011).

#### Distribution

The taxon is endemic to Victoria. It occurs in the outer eastern suburbs of Melbourne, at H.E. Parker Reserve, Heathmont, and near Healesville in south-central Victoria (VicFlora 2016).

#### Habitat

The habitat consists of open heathy forest and woodland (VicFlora 2016).

#### Threats

The identified threats to the taxon are urbanisation, weed invasion, inappropriate fire regimes, misadventure through services (i.e. power lines, trunking of utilities, fire break construction etc.) and apparent inability of the taxon to recolonise or maintain existing stands.

### 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:

#### Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 300 to 900 years is inferred to be 80 to 95%, based on (a), (b), (c) and (e) above.

Past decline is based on historical numbers and the fact that the taxon's habitat is highly depleted.

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

#### Eligible under Criterion A4 as Critically Endangered

The population reduction over any 300 to 900 year period, including both past and future (up to 100 years in the future), is inferred to be 90 to 98%, based on (a), (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

Future decline is based on continuing incremental local extinction in response to the identified threats.

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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 <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:

#### Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 91 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented naturally and anthropogenically at the landscape scale. The taxon is unable to recruit from seed, therefore, the taxon has negligible capacity for recolonisation following local extinction of individual subpopulations.

It is estimated to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

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				

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### Evidence:

#### Eligible under Criterion C1 as Critically Endangered

It is estimated that there are 20 to 70 mature individuals. The current number of mature individuals is based on 29 specimen records in the Australian Virtual Herbarium plotting to no more than 15 discrete localities. Many subpopulations comprise one or only several discrete patches, each interpretable as a single genet or clone, and very few larger subpopulations, such as Hotchkins Ridge Reserve in North Croydon, where the population size is estimated at 4-5 discrete patches or genets.

A continuing decline of 50 to 75% is estimated to occur within 1 generation.

#### Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 20 to 70 mature individuals.

The number of mature individuals is estimated to continue to decline, and the number of mature individuals in each subpopulation is 50 or fewer.

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

### Evidence:

#### Eligible under Criterion D as Critically Endangered

The taxon is estimated to have 20 to 70 mature individuals.

**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)

Thompson, I.R. (2011), A revision of *Platylobium* (Fabaceae: Bossiaeeae). *Muelleria* 29(2): 171-172.

VicFlora (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Platylobium infecundum*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/ee55489d-5b65-4282-9016-873237b806ca>