

Hibbertia pallidiflora Pale Guinea-flower

Taxonomy

Hibbertia pallidiflora Toelken

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A2bc; B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)

Species Information

Description and Life History

The taxon has dense shrubs; branches pubescent to tomentose, scrambling to 1.5(-4) m high. Vestiture of tubercle-based stellate hairs over smaller stellate hairs. Leaves obovate to elliptic-obolanceolate, 2-10(-13) mm long, 1-6.5(-7.2) mm wide, stellate-pubescent, puberulent to glabrescent, juvenile leaves with simple hairs on lower leaf surface; petiole up to 1 mm long; apex rounded to obtuse, rarely with mucro; margins narrow, ± recurved, distant from the scarcely raised central vein. Flowers on peduncles (1-)2-9.5(-14) mm long, terminal, rarely leaf opposed, on long and short branches, peduncle often connate to the developing axillary branch, subtended by 1 linear bract, 1.2-2.2 mm long, c. half the length of the sepals; sepals 2-4 mm long, unequal, stellate-tomentose; petals oblong-obovate, 1.3-2.5 mm long, cream to pale yellow, turning rusty-orange when dry; stamens (6-)8-13; filaments fused basally; carpels 2, stellate-tomentose. The taxon flowers from August to November (VicFlora, 2018).

Generation Length

The generation length of *Hibbertia pallidiflora* is estimated to be 20 to 40 years. The taxon is potentially very long-lived, requiring disturbance for recruitment events. Germination requirements are currently unknown, but may potentially be fire or strong coastal storm events.

Distribution

The taxon is restricted in Victoria to the Portland-Nelson area. It also occurs in South Australia (VicFlora, 2018).

Habitat

The taxon occurs in coastal heath and mallee vegetation, often on limestone (VicFlora, 2018).

Threats

The floral structure indicates that the plants may be cleistogamous, small, nodding, non-showy flowers with anther filaments much reduced. This coupled with the small population size suggests that a small gene pool and limited outcrossing may be a significant threat for the future of this taxon. This taxon often occurs on dry rocky or sandy sites and may be threatened by climatic drying and warming, leading to reduced reproductive output and failure to germinate. Plants occurring on headlands, particularly around Cape Nelson, may be at risk of erosion. Plants in the

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Long Swamp area appear to occur at the margins of plantations and may be at risk of plantation works. However, soil disturbance by plantation machinery may be assisting in recruitment.

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 Endangered

The population reduction over the past 60 to 120 years is estimated to be 50 to 70%, based on (b) and (c) above.

A significant portion of the potential habitat of this taxon is likely to have been lost due to land clearing between Portland and Nelson. At least some of this is likely to have occurred four or five generations ago.

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

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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:

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 220 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, as plants occur in a highly restricted area which has been largely cleared, fragmenting these stands. There is no capacity for long-distance dispersal and, therefore, no realistic capacity for recolonisation in the event of local extinction.

It is estimated to have 3 locations. It has a continuing decline in (i), (ii), (iii) and (iv) above, based on the ongoing impacts of the identified threats, notably drying and warming.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 24 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 3 locations and has a continuing decline in (i), (ii), (iii) and (iv) above.

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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

It is estimated that there are 3,000 to 5,000 individuals, but other thresholds under this criterion have not been met. The current population estimate is based on general observations, with plants occurring at relatively high density across most known sites.

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.

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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VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Hibbertia pallidiflora*. Retrieved from:
<https://vicflora.rbg.vic.gov.au/flora/taxon/66fa0412-8bec-4ab4-98d6-2db4c67fe322>