

Hovea purpurea Tall Hovea

Taxonomy

Hovea purpurea Sweet

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(iii)+2ab(iii); D

Species Information

Description and Life History

Shrub to 3 m high; branchlets villous with curled appressed and/or spreading hairs. Leaves narrowly ovate, elliptic or oblong, 1.2–7 cm long, 0.4–1.0(–1.7) mm wide; apex obtuse or acute, usually shortly mucronate; upper surface dark green, ± flat either side of depressed midrib; lower surface with dense, curled, white or tawny hairs; margins slightly recurved; stipules narrowly ovate or subulate, to 2 mm long. Inflorescence sessile, mostly 2-flowered; pedicels 1.5–2.5 mm long; bract broadly ovate, ovate or obovate, usually inserted immediately below bracteoles; bracteoles obovate to oblong, 2.5–4 mm long, obtuse or subacute; upper lobes of calyx 5.2–8.5 mm long (including tube); corolla mauve or lilac, occasionally white; standard 11.5–17 mm long (including claw), usually longer than wide; keel subequal to or slightly longer than wings; stamen-filaments 8.5–16 mm long, usually persisting. Pods sessile or almost so. The taxon flowers in September (VicFlora 2017).

Generation Length

The generation length of *Hovea purpurea* is estimated to be 10 to 30 years. Pea taxa are generally reasonably short-lived, germinating and dying between fire events. As a result, most peas may be expected to live for around 10 to 20 years. Some *Hovea* taxa can resprout after fire possibly allowing them to be slightly longer-lived.

Distribution

In Victoria, the taxon is known only from the upper Genoa River and with certainty only from one site on the river 500 metres directly south from its confluence with Yambulla Creek. It is also found in New South Wales and South Australia.

A single collection housed at the Hobart Herbarium from Lake Cobbler was identified as *H. aff. purpurea*. This collection is highly disjunct from the Genoa River populations and its identification requires further investigation (VicFlora 2017).

Habitat

In Victoria, *H. purpurea* occurs in riparian forest of *Eucalyptus viminalis* (Manna Gum) and *E. elata* (River Peppermint) with a shrubby understorey of *Sannantha pluriflora* (Tall Baeckia), *Bursaria spinosa* (Sweet Bursaria), *Oxylobium arborescens* (Tall Oxylobium) and *Olearia lirata* (Snowy Daisy-bush) on rocky ledges and coarse sandy alluvium.

Threats

Frequent and more severe fires and extreme weather events may become more severe in the future due to climate change. High rainfall causing flooding of the Genoa River could potentially lead to erosion and dislodge or destroy plants. Conversely, prolonged droughts are also likely to be detrimental given that *H. purpurea* favours moist, mesic, riparian sites in Victoria. Too infrequent fire may limit fire-induced seed germination, whilst too frequent fire potentially kills plants before they are mature enough to reproduce.

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

The past population reduction does not meet the threshold for eligibility under Criterion A2 and the future population reduction does not meet the threshold for eligibility under Criterion A3.

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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to have one location, as it has been collected from, and is certainly known from, only one site in Victoria. As a result, all individuals in the population may be rapidly affected by the same threats.

It has a continuing decline in (iii) above based on the identified threats, notably the effects of climate change.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon has one location, and has a continuing decline in (iii) 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 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 30 to 80 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 ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Critically Endangered

The taxon is estimated to have 30 to 80 mature individuals. A collection made in 2000, at the one certain site of occurrence of *H. purpurea* in Victoria, reported that between 30 and 40 plants existed in the area. This demonstrates that population growth has likely taken place since 1988, when a lower number of individuals was reported. Assuming the same rate of population growth, the number of individuals may currently be as much as 80, however, assuming no population decline or increase since 2000, it may also be as low as 30.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

Berg, R.Y. (1975). Myrmecochorous plants in Australia and their dispersal by ants. *Australian Journal of Botany* 23: 475-508.

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

Thompson, I.R. (2001). Morphometric analysis and revision of Eastern Australian *Hovea* (Brogniartieae-Fabaceae). *Australian Systematic Botany* 14: 1-99.

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Hovea purpurea*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/9771625a-4d06-4905-9cca-b99649b77bc7>