

## *Hakea decurrens* subsp. *platytaenia* Coast Needlewood

### Taxonomy

*Hakea decurrens* subsp. *platytaenia* W.R. Barker

There are three *Hakea decurrens* subspecies, separated predominantly on fruit size and branchlet and pedicel indumentum; two in Victoria (VicFlora, 2019).

### 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 B1ab(iii)+2ab(iii)

### Species Information

#### Description and Life History

*Hakea decurrens* plants are shrubs or small trees, c. 0.3-4 m high, sometimes lignotuberous; young branchlets appressed-sericeous, usually glabrescent to  $\pm$  persistently tomentose. Leaves terete, usually widely spreading, 1.5-8 cm long, 0.7-1.6 mm wide, grooved below, glabrous; apex straight. Inflorescence 3-6-flowered; rachis 0.7-2.8 mm long, densely tomentose; pedicel 1.2-4.8 mm long, sericeous to tomentose; perianth 4.2-7.2 mm long, white or pink, glabrous; pistil 9.0-12.2 mm long; pollen presenter an oblique disc. Fruit obliquely to broadly ovoid, 1.8-3.5 cm long, 1-3 cm wide, finely or coarsely tuberculate; beak sparsely pustulate or smooth; horns 1-5 mm long, often eroded; seed not occupying whole valve face, 17-23 mm long, 6.5-10.5 mm wide; seed-body 6-10 mm long, rugose; wing down one side only, dark blackish-brown (VicFlora, 2019).

*Hakea decurrens* subsp. *platytaenia* is a stunted to erect shrub 0.3-2 m high; branchlets moderately to densely tomentose, some hairs sometimes appressed and persistent until flowering, sometimes for several seasons; leaves sparsely tomentose (with some hairs appressed), or glabrous; fruit 2.9-3.5 cm long, 2.5-3.0 cm wide; red-brown wood zone of inner valve face 3-5 mm wide. The taxon flowers from May to September (VicFlora, 2018).

#### Generation Length

The generation length of *Hakea decurrens* subsp. *platytaenia* is inferred to be 15 to 20 years. The species (*H. decurrens*) is regarded as a relatively short-lived shrub. Victorian Native Seed (2012) suggests 20 years, though field observations suggest some plants will persist beyond this time since fire. Germination may be stimulated by fire, but the presence of this subspecies on Bass Strait Islands suggests that it is not totally dependent on fire across its range. The plant is serotinous, with seeds retained in persistent follicles. Information on the longevity of seed in the soil after release from the plant was not located.

#### Distribution

In Victoria, the taxon is currently recorded only from Wilsons Promontory and in the Mallacoota area, but is possibly more widespread in similar sites (VicFlora, 2018).

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### Habitat

The taxon occurs on windswept coastal heaths (VicFlora, 2018).

### Threats

Potential threats to the taxon include the impacts of climate change (i.e., decreased rainfall), adult and juvenile mortality in response to intense drought stress and the increasing risk of repeat fire events at intervals approaching or below the tolerable fire interval for the taxon. As a member of the Proteaceae, the taxon may also be susceptible to infection by *Phytophthora cinnamomi* (Cinnamon Root-rot Fungus).

### 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:

#### Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

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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 and B2 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of AoO as an area within EoO.

The AoO across the taxon's range is estimated to be 8 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is estimated to have two locations. The Wilsons Promontory and Mallacoota populations may be subject to different land management and consequently different levels of threat. It is unclear the level of protection available for the Mallacoota plants or the size of the population, whereas the Wilsons Promontory plants would appear to be relatively secure as relatively large populations within a higher profile National Park.

It is inferred to have a continuing decline in (iii), based on the impacts of the identified threats, notably climate-change induced increases in droughts and fires.

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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 as Data Deficient

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

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:

#### Eligible under criterion D2 as Vulnerable

The taxon is suspected 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](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: *Hakea decurrens* subsp. *platytaenia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/c648c7f8-5333-4a93-950a-41be820e2fc3>

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Hakea decurrens*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/9e041a12-c521-4e23-8d3a-8318be8c7bf8>

Victorian Native Seed (2012). *Hakea decurrens* Bushy Needlewood. Retrieved from: <https://www.victoriannativeseed.com.au/?product=bushy-needlewood>