

## *Phyllota remota* Slender Phyllota

### Taxonomy

*Phyllota remota* J.H. Willis

### 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(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

### Species Information

#### Description and Life History

The taxon is a low heath-like shrub to 50 cm tall; stems terete, non-suckering; branches tomentose at least on upper parts, rugose. Leaves linear, 5-10 mm long, 0.8-1.2 mm wide, distant on stems, scabrous-tuberculate, apex subobtusate, minutely mucronate; petiole 1-2 mm long. Flowers 6-9 mm long, solitary or paired, terminating branchlets; pedicels less than 0.5 mm long; bracteoles ovate, acute, c. 4 mm long, almost enveloping the calyx, keeled, mucronate, coriaceous, pubescent; calyx 3-4 mm long, glabrous to white-villous, lower teeth as long as tube; petals yellow or reddish; standard rhombic. Pod 3-5 mm long, white-pubescent; seed usually 1, ovate, c. 2.5 mm long. The taxon flowers mostly in summer and autumn (VicFlora 2019).

#### Generation Length

The generation length of *Phyllota remota* is estimated to be 25 to 50 years. The taxon is a fire-sensitive obligate seed regenerator which typically recruits episodically from a long-persistent soil-stored seedbank following intense fire events at pre-settlement intervals of 25-50 years or more. Although easily killed by intense fire, the taxon may senesce and persist in the seedbank in the prolonged absence of fire.

Time to its reproductive maturity is estimated at 3-5 years, and longevity is up to 50 years. Hard-seeded *Phyllota* taxa require fire for germination and recruitment, and periodic fire at intervals of at least ten years are needed to allow for maturity.

#### Distribution

The taxon is rare in Victoria where it is apparently confined to the Big Desert (VicFlora 2019). Victorian occurrences represent the eastern limit of range for the taxon and extend from the Murrayville district in the north to the Lillimur district in the Western Wimmera in the south and as far east as the Perenna district west of Lake Hindmarsh. Unconfirmed site records in the Jilpanger Nature Conservation Reserve south of Mount Arapiles suggest the taxon may extend south of the Little Desert.

The taxon is also found in South Australia (VicFlora 2019).

#### Habitat

The taxon is found mainly in sand-heath between dunes (VicFlora 2019). It was recorded in Mallee heath on deep white sand, and aquadrat data indicates that it is frequently associated with *Allocasuarina muelleriana* (Slaty

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## Slender Phyllota

Sheoak), *A. pusilla* (Dwarf Sheoak), *Banksia ornata* (Desert Banksia), *Callitris verrucosa* (Scrub Cypress-pine), *Hysterobaeckea behrii* (Broom Baeckea), *Lepidosperma viscidum* (Sticky Sword-sedge), *Leptospermum coriaceum* (Mallee Tea-tree) or *L. myrsinoides* (Heath Tea-tree). Although mallee eucalypts rarely dominate quadrat sites, the taxon has been recorded in association with *Eucalyptus arenacea* (Desert Stringybark), *E. costata* (Yellow Mallee), *E. dumosa* (Dumosa Mallee) and *E. leptophylla* (Slender-leaf Mallee). At several sites the taxon is recorded in association with the much more widespread congener *Phyllota pleurandroides* (Heathy Phyllota). Exotic weeds are consistently absent in vegetation sampled for quadrat-based surveys.

### Threats

The taxon is likely to have suffered some historic decline through habitat loss to agriculture in some districts in the Western Wimmera such as Telopea Downs, Lillimur, and between Yanac and Broken Bucket.

It is potentially at risk of seedbank depletion through repeat fire events at intervals approaching the tolerable fire interval for the taxon, which is likely to be 10-15 years. This risk may be exacerbated for stands on more fertile sites at lower elevations in the dune-swale toposequence, by the increasing risk of extreme drought stress which can lead to recruitment failure. Some occurrences in closer proximity to areas of cropping or grazing may also be threatened by exotic herbivores such as rabbits or goats, or even unnaturally high local densities of macropods such as Western Grey Kangaroos (*Macropus fuliginosus*). Incremental habitat loss through agricultural intensification is likely to threaten some stands in marginal sites, or those within fragmented agricultural landscapes such as those in the Western Wimmera.

### 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 A3 as Vulnerable

The population reduction over the next 75 to 100 years is projected to be 15 to 35% (midpoint 25%), based on (c) and (e) above.

**Eligible under Criterion A4 as Vulnerable**

The population reduction over any 75 to 150 year period, including both past and future (up to 100 years in the future), is estimated to be 25 to 55% (midpoint 35%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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 Endangered**

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,562 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the landscape scale, and anthropogenically at the landscape scale in some districts in the Western Wimmera. The taxon is likely to be dispersed by ants (myrmecochory) at the metre scale only.

It is estimated to have 2 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the current and projected impact of the identified threats, such as repeat fire events, increased risk of extreme drought stress, grazing by herbivores, and habitat loss.

**Eligible under Criterion B2 as Endangered**

The Area of Occupancy (AoO) across the taxon's range is estimated to be 56 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 2 locations, 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 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 no available estimate of population size for the taxon in Victoria. Quadrat data suggests population density is typically low with projective foliage cover consistently below 5% at the quadrat scale.

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 estimated to be very restricted.

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

### References

DELWP (2015). *Victorian Flora Vital Attributes dataset*. Department of Environment, Land, Water and Planning, Victoria.



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