



## *Dillwynia uncinata* Silky Parrot-pea

### Taxonomy

*Dillwynia uncinata* (Turcz.) J.M. Black

### Current conservation status

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

### Proposed conservation status

Vulnerable in Victoria

Criteria A2bc; D2

### Species Information

#### Description and Life History

The taxon is an erect, spreading shrub, to c. 0.5 m tall; upper stems silky-pubescent. Leaves terete, fleshy, mostly 3-7 mm long, c. 0.5 mm wide, sparse, spreading or recurved, uncinata, smooth or minutely tuberculate, with a few appressed white hairs below, apex obtuse; petiole distinct, to 1 mm long, white-pubescent. Flowers usually 2-5 in terminal (sometimes axillary) sessile or subsessile clusters; pedicel 1-2 mm long. Calyx 4-5 mm long, hoary-pubescent; upper 2 lobes almost entirely united; standard 8-10 mm long, notched, yellow with a red centre; wings slightly shorter, oblong, yellow with reddish base; keel shortest, obtuse, reddish. Pod ovoid, c. 5 mm long, c. 3.5 mm wide, sessile, white-pubescent; seeds 2. The taxon flowers from September to November (VicFlora, 2017).

#### Generation Length

The generation length of *Dillwynia uncinata* is estimated to be 50 years. This is based on a pre-settlement fire interval of 35-75 years (nominally 50 years), and an inference that the taxon recruits episodically from a long-persistent soil-stored seedbank following intense bushfire events. Pre-settlement fire frequency was far lower than the current imposed fire regime that includes over-frequent planned burning. The longevity is plausibly to 50 years although maximum seed set occurs in earlier life stages.

#### Distribution

In Victoria, the taxon is confined to the north-west where it is sometimes locally common. It also occurs in Western Australia and South Australia (VicFlora, 2017).

#### Habitat

The taxon is sometimes locally common in sand-heath (VicFlora, 2017).

#### Threats

A substantial proportion of site records, as well as more precise specimen records, are either within fragmented rural landscapes or near the boundaries of public land. Approximately 25 subpopulations in the Victorian Biodiversity Atlas (VBA) plot to freehold or small isolated remnant stands of native vegetation, or near the boundaries of major blocks of public land. Only 6 subpopulations in the VBA plot into the interior of National Parks.

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This suggests that, despite association with relatively infertile sandy soils, a significant proportion of pre-settlement habitat has been either lost to agricultural clearance for cropping or is severely degraded and fragmented.

Although collectors' notes tend to suggest that the taxon is locally common to very common, in only one of 22 quadrats is the taxon recorded with a projective foliage cover of 1-5%. In the remaining 21 quadrats, projective foliage cover is only 1% at the quadrat scale. This suggests the taxon is consistently at low density in all vegetation surveyed, which is largely concentrated around the periphery of major reserves. Such occurrences are therefore at continuing risk of incremental habitat loss and habitat modification in response to edge effects and agricultural intensification.

Although no major current threats can be identified, with extant occurrences well adapted to current fire frequency, future threats include the risk of repeat fire events at intervals below the tolerable fire interval for the taxon, and increasing risk of recruitment failure due to intense drought and possibly also targeted browsing.

### 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"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul>			

### Evidence:

#### Eligible under Criterion A2 as Vulnerable

The population reduction over the past 150 years is estimated to be 30 to 45%, based on (b) and (c) above.

Past decline is based on inferred historic habitat loss and modification in response to agricultural activity in most districts peripheral to the larger national parks within the Victorian range of the taxon.

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 <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:

#### Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 18,545 km<sup>2</sup> and the Area of Occupancy (AoO) is estimated to be 119 km<sup>2</sup>, based on accepted, post 1970 records from the VBA, but other thresholds under this criterion have not been met.

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				

### Evidence:

Ineligible under Criterion C as Data Deficient

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There is no available estimate of current population size for Victoria, although it is plausibly in the thousands or even tens of thousands of mature individuals.

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

## Evidence:

### Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. The taxon has a restricted distribution, occurring in 3 locations, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations, in response to the identified threats, notably the risk of repeat fire events at intervals below the tolerable fire interval for the taxon, and increasing risk of recruitment failure due to intense drought.

**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.

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Dillwynia uncinata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/1b64b0a6-d784-4f76-b672-f4846589d4d1>