



## *Dillwynia sieberi* Sieber's Parrot-pea

### Taxonomy

*Dillwynia sieberi* Steud.

*Dillwynia sieberi* has long been included in *D. juniperina*, at least in Victoria, but distinguished by the short yet distinctly petiolate leaves, and the normally appressed pubescence of new growth (VicFlora, 2018).

### Current conservation status

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

### Proposed conservation status

Vulnerable in Victoria

Criterion D2

### Species Information

#### Description and Life History

The taxon is an erect, spreading shrub, 1-2 m tall; stems appressed-pubescent, rarely with longer diverging hairs. Leaves linear, 7-20 mm long, c. 0.4-0.8 mm wide, moderately crowded, spreading, rarely some reflexed, trigonous, usually glabrous, apex acuminate and pungent; petiole yellowish, 0.4-1.2 mm long. Flowers in terminal and upper-axillary, 2-10-flowered racemes; pedicel c. 3 mm long. Calyx 3-5 mm long, hairy, lower lobes sometimes minutely pungent, much shorter than tube; petals persistent after anthesis; standard 5.5-9 mm long, notched, yellow; wings slightly shorter, obovate, yellow; keel shortest, obtuse, red. Pod ovoid, c. 5-6 mm long, c. 4 mm wide, almost glabrous or sparsely covered with long hairs; seeds 1 or 2. The taxon flowers from September to November (VicFlora, 2018).

#### Generation Length

The generation length of *Dillwynia sieberi* is estimated to be 35 to 50 years. This is based on a plausible pre-settlement fire interval of 35-50 years, and the likelihood that the taxon is a fire-sensitive obligate seed regenerator which recruits episodically following intense fire events, with only minor opportunist recruitment in response to localised site disturbance events. Longevity of the taxon is plausibly also 35-50 years, with soil-stored seedbanks likely to persist for many decades beyond the life of the last cohort of adult plants.

#### Distribution

The taxon is rare in Victoria, where it is known only from the Macalister and Avon River watersheds. The taxon also occurs in Queensland and New South Wales (VicFlora, 2018).

#### Habitat

The taxon grows on dry ridges and slopes in poor skeletal soils (VicFlora, 2018).

#### Threats

Key threats to the taxon include targeted browsing by Sambar Deer (*Rusa unicolor*) during the early stages of recruitment, and the increasing risk of repeat fire events at intervals close to or below the tolerable fire interval for

the taxon. Fire frequency is projected to increase in response to climatic drying and warming, exacerbated by planned burning at increasing frequencies.

The taxon may also be threatened by extreme drought events resulting in adult mortality and recruitment failure. Such events are projected to increase in frequency, intensity, and duration, in response to climatic warming and drying.

### IUCN Criteria

| Criterion A. Population size reduction.<br>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 style="text-align: center;"><i>based on any of the following:</i></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:

#### 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.

| Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)   |  |                          |                          |
|---|--|--------------------------|--------------------------|
|   | Critically Endangered<br>Very restricted | Endangered<br>Restricted | Vulnerable<br>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 240 km<sup>2</sup> and the Area of Occupancy (AoO) is estimated to be 28 km<sup>2</sup>, based on accepted, post 1970 records from the Victorian Biodiversity Atlas, 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.

| 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<br>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:<br>AoO < 20 km <sup>2</sup> or<br>number of locations < 5 |

## Evidence:

### Eligible under Criterion D2 as Vulnerable

The taxon is estimated to be very restricted. The taxon has a restricted distribution, with an AoO of 28 km<sup>2</sup> and one location, 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 taxon include targeted browsing by Sambar and the increasing risk of repeat fire events at intervals close to or below the tolerable fire interval.

**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 (2018). Flora of Victoria, Royal Botanic Gardens: *Dillwynia sieberi*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/d0a87e83-9a4c-4a5c-8adc-d2b7b806bc87>