



Dillwynia oreodoxa Grampians Parrot-pea

Taxonomy

Dillwynia oreodoxa Blakely

Current conservation status

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

Proposed conservation status

Vulnerable in Australia

Criterion D2

Species Information

Description and Life History

The taxon is an erect shrub, to 4 m tall; stems glabrous. Leaves linear, 10-30 mm long, c. 0.7-1 mm wide, slightly twisted, often curved, moderately crowded, spreading to inclined, trigonous, glabrous, apex acuminate and pungent; petiole c. 1 mm long. Flowers in terminal, 1-6-flowered racemes; pedicel to 5 mm long. Calyx 5-6 mm long, glabrous, lower lobes shorter than tube; petals deciduous immediately after anthesis; standard c. 11 mm long, notched, yellow with radiating red veins; wings similar in length to standard, obovate, yellow; keel shorter, cucullate, red. Pod ovoid, c. 5-7 mm long, c. 4 mm wide, virtually glabrous or sparsely covered with short appressed hairs; seeds 1 or 2. The taxon flowers from October to January (VicFlora 2017).

Generation Length

The generation length of *Dillwynia oreodoxa* is inferred to be 45 to 80 years. This is based on a longevity plausibly in the 25-50 year range, and a likely pre-settlement fire interval of 45-80 years. It is also based on an assumption that the taxon is predominantly an episodic post-fire obligate seed recruiter.

Distribution

The taxon is confined to the Grampians (VicFlora 2017). The confirmed range of the taxon extends from Woolhpooper in the west to Mt William in the east, and from north of Zumsteins on the Mackenzie River south-east of Wartook, along the entire length of the Victoria Range to Victoria Point, and from north of Halls Gap south to the south end of the Major Mitchell Plateau.

Habitat

The taxon is found on rocky hillsides in heathy woodlands and open forests (VicFlora 2017).

Most sites are in open forest rather than heathy woodland and not all sites are rocky hillsides with some associated species such as *Correa aemula* and *Marianthus bignoniaceus*. This suggests that the habitat range extends to damper sheltered sites while other associates such as *Hypolaena fastigiata*, *Lepidosperma viscidum* or *Caustis flexuosa*, suggesting sandier profiles.

Threats

The habitat range of the taxon implied by quadrat data suggests that the impact of current and projected future imposed anthropogenic fire regimes, resulting from both planned burning and climatic drying and warming, are unlikely to have a consistent impact across the range of the taxon. However, some sites may be subject to repeat fire events, and the risk of drought-induced recruitment failure is exacerbated by targeted browsing by deer, rabbits, and even macropods, resulting in local depletion of soil-stored seed banks, population decline, or even local extinction.

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 style="text-align: center;"><i>based on any of the following:</i></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

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 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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 855 km² and the Area of Occupancy (AoO) is estimated to be 144 km², 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

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It is estimated that there are 1,000 to 10,000 mature individuals, but other thresholds under this criterion have not been met. Population size is based on quadrat data and specimen records.

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 [Ⓜ] 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 D2 as Vulnerable

The taxon is inferred to be very restricted. The taxon has a restricted distribution, occurring in a single location, such that this restriction makes the taxon capable of becoming Critically Endangered or Extinct within a time frame of one or two generations. This is in response to the impact of the identified long term threats, notably imposed anthropogenic fire regimes, climatic warming and drying, and targeted browsing by deer, rabbits, and even macropods.

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
- Jeanes, J.A. (1996). Fabaceae. In N.G. Walsh and T.J. Entwisle (Eds.), *Flora of Victoria Vol. 3, Dicotyledons Winteraceae to Myrtaceae*. Melbourne: Inkata Press.
- VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Dillwynia oreodoxa*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/bc6b7332-cd96-4424-9b3a-9ba4285d4deb>