Threatened Species Assessment

Dillwynia prostrata
Matted Parrot-pea

Taxonomy

Dillwynia prostrata Blakely

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria A3ce+4ce; B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a prostrate, perennial shrub; stems rooting at nodes, covered with short, curved, ascending or appressed hairs. Leaves linear to narrow-oblong to spathulate, 2-5 mm long, c. 0.5 mm wide, crowded, glabrous or with a few stiff hairs near apex, smooth, apex acute to shortly acuminate; petiole to c. 0.5 mm long. Flowers 1-4 in sessile or subsessile, terminal and upper axillary clusters; pedicel 1-3 mm long. Calyx 4-5 mm long, virtually glabrous; standard 7-10 mm long, notched, yellow with radiating red veins; wings shorter, obovate-oblong, yellow; keel shortest, obtuse, dark red. Pod ovoid to globular, 4-6 mm long, 3-4 mm wide, villous; seeds usually 2. The taxon flowers from October to December (VicFlora, 2017).

Generation Length

The generation length of *Dillwynia prostrata* is estimated to be 20 to 50 (midpoint 35) years. *Dillwynia* spp. are mostly killed after fire, so this is based on the history of fires in the region.

Distribution

In Victoria, the taxon occurs around Wulgulmerang in East Gippsland. This is a rare taxon that is known only from a few colonies in the upper Snowy River area of East Gippsland. The taxon also occurs in New South Wales (VicFlora, 2017).

Habitat

The taxon grows on open woodland on poor stony soil (VicFlora, 2017).

Threats

Inappropriate fire regimes are the main threat to *Dillwynia prostrata*. An increase of fire frequency and intensity kills plants before they reach a reproductive age. Decreased rainfall may also decrease recruitment, growth, and flowering of existing plants. Increase in both fire frequency and intensity, and decrease in rainfall, are potential consequences of climate change. The taxon is also likely to be at increasing risk of targeted browsing and trampling by feral horses and Sambar Deer (*Rusa unicolor*).

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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:

Eligible under Criterion A3 as Endangered

The population reduction over the next 60 to 100 years is projected to be 25 to 75% (midpoint 50%), based on (c) and (e) above.

This is based on the impacts of the identified threats, notably a drying climate, increased fires and damage by herbivores.

Eligible under Criterion A4 as Endangered

The population reduction over any 60 to 150 year period, including both past and future (up to 100 years in the future) is estimated to be 30 to 80% (midpoint 50%), based on (c) and (e) above.

There is likely to have been a minor loss in numbers in the past, as a result of the identified threats. Future decline is based on the increasing impacts of the ongoing threats.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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 118 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location, as all sites of occurrence are within close proximity (within 15 km) and suffer from the same threatening processes that have the potential to affect all individuals within a short period of time.

It has a continuing decline in (iii) above based on the potential threats, including the effects of climate change resulting in lower rainfall and a change to fire frequency.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 28 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon has 1 location, and has a continuing decline in (iii) 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

It is estimated that there are 1,200 to 3,200 mature individuals, but other thresholds under this criterion have not been met.

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 km2 or number of locations ≤·5

Evidence:

Eligible under criterion D 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

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 prostrata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/cf67c963-b950-479e-ad50-909a44a2cbda