

Daviesia wyattiana Long-leaf Bitter-pea

Taxonomy

Daviesia wyattiana F.M. Bailey

Current conservation status

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

Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(iii,v)+2ab(iii,v)

Species Information

Description and Life History

Sparse erect shrub 1-2.5 m tall; branches glabrous; branchlets triangular in cross-section to winged. Phyllodes linear, 4-22 cm long, 2-10 mm wide, grey-green, apex acute or obtuse, base tapered; midrib prominent, venation pinnate, obscure. Inflorescence umbelliform, 4-7-flowered; peduncle 7-28 mm long; pedicels filiform, 5-15 mm long, subtended by an involucre of ovate bracts 2-3 mm long. Calyx 3.5-4.5 mm long including c. 1 mm receptacle, teeth sub-equal, acute; corolla mostly yellow; standard broadly ovate, c. 7 mm long, c. 8 mm wide, yellow with a purple marking. Pod obliquely triangular, 7-10 mm long, 4-5 mm wide; seeds oblong, c. 3 mm long. Flowers August-November (VicFlora 2019).

Generation Length

The generation length of *Daviesia wyattiana* is inferred to be 15 to 150 years (midpoint 70 years). Presumably *D. wyattiana* has a similar response to fire like most *Daviesia* taxa that occur in a similar habitat, which tend to respond well and be more common after fire. The taxon occurs on top of Mt Kaye in rocky habitat which is seldom burnt, and pea seeds can spend many years in the soil seed bank.

Distribution

The taxon is very localised in East Gippsland, where it is found on Mt Kaye in dry sclerophyll forests. Rogers (1980) reported that he and Vn Barton saw the taxon at Wangarabell in 1967, but there are no collections to substantiate this record. A number of naturalists have searched the Wangarabell area without success, most recently in 2014 (John Eichler pers.comm. 2 May 2019). The taxon also occurs in Qld, NSW.

Habitat

At Mt Kaye it apparently grows in dry sclerophyll forest, but very little information is available about the habitat and associated taxa of the Mt Kaye population.

In NSW the taxon grows in dry sclerophyll forest, sporadic on ridges with skeletal soils, north from Woolgoolga and south from Budawang Ra.

Threats

The number of mature plants is low, and as these plants occur in isolation from the nearest populations in NSW this limits genetic variation.

The effect of fire, future drying as a result of climate change, and browsing by macropods is unknown but possible. Inappropriate fire regimes and future drying may increase fire frequency, which if too frequent might not be suitable for the survival of the taxon.

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:

Ineligible under Criterion A

The population reduction for this taxon is below the threshold for eligibility under 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:

Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 8 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. These threats include future drying and increase in fire frequency, low genetic variation, and isolation.

It has a continuing decline in (iii) and (v) above, based on the likely impacts on regeneration post the 2020 bushfires, and the possibility of post-fire impacts such as drought and grazing.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 8 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) and (v) above.

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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 suspected that there are 50 to 250 mature individuals, but this qualifier is too weak.

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 ² 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

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

Rogers, K.C. (1980). *Across mountain and plain: writings of an East Gippsland field naturalist*. Bairnsdale Field Naturalists Club, 15 Turnbull Street, Bairnsdale, Vic. 3875.



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