



Diuris dendrobioides Wedge Diuris

Taxonomy

Diuris dendrobioides Fitzg.

A possible natural hybrid between *Diuris punctata* and *D. dendrobioides* has been recorded for Victoria.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Diuris cuneata* (SAC 1992).

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

Proposed conservation status

Critically Endangered in Victoria

Criteria A2ce; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)

Species Information

Description and Life History

Flowering plant usually 20-40 cm tall, slender to moderately stout. Leaves 1 or 2, linear, channelled, 10-25 cm long. Flowers 1-9, erect, pale lilac to mauve, often with darker spots and suffusions, sometimes fragrant; pedicel (excluding ovary) 2-5 cm long, mostly enclosed within bract; dorsal sepal erect, broadly ovate, 15-20 mm long; lateral sepals deflexed, usually parallel, narrow-linear, greatly exceeding petals, 50-90 mm long; petals obliquely erect or recurved, ovate to elliptic, tapering to base, 12-20 mm long. Labellum 3-lobed from base, 10-13 mm long; lateral lobes erect, about half as long as mid-lobe, oblong, margins entire; mid-lobe keeled, long-clawed, broadly fan-shaped, margins irregular, with 2 longitudinal yellow ridges from the base ending in tooth-like processes around midway along lamina. Column narrowly winged. Flowers Nov.-Dec (VicFlora 2018).

Generation Length

The generation length of *Diuris dendrobioides* is estimated to be 20 to 40 (midpoint 30) years. Generation time for non-colonial terrestrial orchids is estimated to be a nominal 30 years based on the annual replacement of the mother tuber by daughter tubers. Whilst somatically immortal, each individual is susceptible to endogenous exhaustion or environmental causes of mortality at rates likely to result in replacement at intervals of several decades only. Such orchids are classed as obligate seed regenerators (OSRs) reliant on seed-based recruitment for population maintenance.

Distribution

Wedge Diuris is found in the central and south-coast NSW and north-eastern Victoria, where it is widespread but generally uncommon. It grows in colonies in open forest, grassland and low coastal scrub communities (Jones 1988). In Victoria, Wedge Diuris is restricted to a sole locality in north-eastern Victoria in the vicinity of Wodonga.

Habitat

Its habitat consists of remnant grassy woodland dominated by *Themeda triandra* (Kangaroo Grass), *Daviesia latifolia* (Hop Bitter-pea) and various eucalypt species (DSE 1992).

Threats

It is likely that the taxon has suffered a historic loss through land clearing, but it is likely to be at the southern edge of its range in Victoria, and may not have been widely distributed. Only one population is extant, as the other was lost from the Boorhaman site in 2016.

The small size of the habitat, its isolation and the inability to reinstate former influences on the natural environment—such as natural fires and macropod grazing—may hinder conservation (SAC 1992). Part of the area is a road reserve where past grading, slashing and road widening has caused habitat modification and weed invasion, such as *Lolium perenne* (Perennial Rye Grass), *Briza maxima* (Large Quaking-grass) and *Cirsium vulgare* (Spear Thistle). DSE (1992) noted thirty-two exotic species, 50% of which were a significant threat to the grassland community. The dominant Kangaroo Grass, while important to the ecology of the reserve, can out-compete and smother other native taxa if it is not regularly reduced, by natural fires or macropod grazing. DSE (1992) also noted that Eucalypt regeneration was occurring in some areas and could potentially revert the site from open grassy woodland to open forest.

The gene pool is extremely small and totally isolated, making the taxon highly vulnerable to stochastic events.

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:

Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 60 to 120 years is suspected to be 50 to 80%, based on (c) and (e) above.

Habitat destruction and degradation has undoubtedly been the prime reason for the decline to virtual extinction in the wild of this orchid. It may have been lost from the Boorhaman site in 2016.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A2 as Endangered

The population reduction over the next 60 to 100 years is suspected to be 40 to 70%, based on (c) and (e) above. The very small size of the existing population makes it highly susceptible to stochastic events.

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 (EEO)	< 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 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the AoO to ensure consistency with the definition of the AoO as an area within the EoO.

It is estimated to have one location, as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above due to the identified threats.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has one location and has a continuing decline in (i), (ii), (iii), (iv) 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:

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 50 to 100 mature individuals. The current population is estimate based on monitoring and field observations.

The number of mature individuals is estimated to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100 %.

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 D as Endangered

It is estimated that there are 50 to 100 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

DSE (1992). Action Statement – Wedge Diuris *Diuris cuneata*. (No. 22). Department of Sustainability and Environment, Melbourne. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0023/32684/Sunshine_Diuris_Diuris_fragrantissima.pdf



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VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Diuris dendrobioides*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/297bcd14-c93a-46c1-bcdd-8a5106a002a0>