Threatened Species Assessment

Almaleea capitata
Slender Parrot-pea

Taxonomy

Almaleea capitata (J.H. Willis) Crisp & P.H. Weston

The taxon was previously known as *Dillwynia capitata* and is considered a Victorian endemic, comprising of two varieties: the type variety *Dillwynia captitata* var. *capitata* and the more widespread variety *D. capitata* var. *uliginosa*. The varieties are no longer recognised.

The taxon has been confused with *Almaleea subumbellata,* as it shares a similar habit and habitat range, and the two are apparently sympatric at Forlorn Hope Plain on the Nunniong Plateau.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988*. (SAC 1991).

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

Proposed conservation status

Endangered in Victoria

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

Species Information

Description and Life History

The taxon is a slender, trailing shrub; branches to 1 m long, stems appressed-pubescent. Leaves narrowly elliptic, 3-9 mm long, 0.5-1.5 mm wide; apex acute; upper surface glabrous; lower surface minutely scabrous and with sparse, pale hairs; stipules c. 1 mm long. Inflorescence a head of c. 4-10 flowers; bracts ovate, hairy, 1-1.25 mm long; calyx hairy, 5-6 mm long including pedicel 1.5-2 mm; bracteoles attached to pedicel 0.5-1 mm below calyx tube, narrowly lanceolate, c. 1 mm long, hairy; standard 5-7 mm wide; ovary and base of style densely hairy. The taxon flowers in December (VicFlora 2019).

Generation Length

The generation length of *Almaleea capitata* is estimated to be 50 to 120 years. This is based a plausible pre-settlement fire interval of 50-120 years or more.

The reference by one collector to the taxon 'ascending from rhizomes' is interpretable as stolons buried in *Sphagnum* etc. Therefore the interpretation of the taxon as being long-lived and capable of resprouting post-fire is tenuous. Severe fire is likely to destroy all parts of the plant, and the taxon is more likely to be an obligate seed regenerator (OSR), recruiting post-fire or following scouring of the site or other localised disturbances.

Distribution

The taxon is confined in Victoria to a few sites in the eastern subalpine area such as Forlorn Hope Plain, Diggers Holes, Wonnangatta valley and near Mt Cobberas. It also occurs in NSW and the ACT (VicFlora 2019). Duplicates of one of the only ACT collections in the Australian Virtual Herbarium (AVH) are determined to both *A. capitata* and *A. subumbellata.* This calls into question the reliability of the determination of the ACT collections.

It is likely that the highly disjunct type population at Cranky Charlie's Turntable near Clover Dam, between Tawonga and Bogong township, has become locally extinct since 1949. This is possibly in response to the heavy machinery and vehicles active in the area for the West Kiewa Hydro scheme, resulting in severe degradation of habitats in the area.

Habitat

The taxon is found on montane snow plains and open valleys on moist gently sloping sites on the edge of wet, badly drained flats, at altitudes above 1200 metres. The precipitation is more than 900 mm/annum. The taxon's distribution may extend into *Eucalyptus stellulata* or *E. dives* woodland, but it is usually a component of shrubland dominated by *Epacris microphylla* or mixed shrubland/grassland. The taxon is a habitat specialist and the habitat range includes Sphagum bogs, peaty wet heaths and their ecotones with grassy woodlands dominated by *Eucalyptus stellulata*, *E. pauciflora* and *E. camphora.* The taxon is recorded as 'rooted deeply in sphagnum moss' on the Wonnangatta River near Wonnangatta Station, and it is also recorded in sphagnum bogs in the Cobberas.

Threats

Most areas where the taxon occurs are subject to grazing, and the major threat to the taxon is unacceptably high grazing pressure from horses, cattle and rabbits. Other impacts such as trampling, the effects of cattle faeces, soil disturbance, particularly from brumbies, and the introduction of exotic species may also adversely affect the taxon (SAC 1991).

The taxon is not threatened by fire and it is unlikely to suffer from selective grazing, but it requires a very specialised habitat, on an ecotone between swamp and forest. This habitat type is very likely to be damaged from trampling by stock and brumbies seeking access to water, and by people and vehicles in emergency situations, for exam, undertaking fire control activities (SAC 1991).

The taxon is also now threatened by Sambar Deer *Rusa unicolor*, which are undergoing a population explosion across the very restricted Victorian range of the taxon. Sambar threaten the taxon by trampling and wallowing in the wetland habitat. The taxon is also potentially threatened by targeted browsing, particularly of recruiting stands following fire, as has been observed for a related threatened plant *Pultenaea weindorferi* in similar wetland habitats.

The taxon is a habitat specialist and is highly dependent on hydrological stability of its wetland habitat, and it is therefore increasingly threatened by climatic drying, a threat that is now well-established at all sites.

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:

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 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 2,099 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally at the regional and landscape scales. with most stands isolated in catchment systems between which seed dispersal is highly improbable, since the taxon has no specialised mechanism for long-distance dispersal. This precludes the possibility of recolonisation in the event of local extinction.

It is estimated to have 1 location. It has a continuing decline in (iii) and (v) above, based on the current and projected impact of the identified threats, including grazing, trampling by stock, people and vehicles in emergency situations, targeted browsing by Sambar, and climatic drying.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 100 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is estimated to be severely fragmented, has 1 location and has a continuing decline in (iii) and (v) 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				

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Evidence

Ineligible under Criterion C as Data Deficient

There is no available estimate of population size for the taxon.

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 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.

SAC (1991). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 144 *Almaleea capitata.*

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Almaleea capitata*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/6ed72579-8df8-4e7f-9cf1-2eaf8615894f