Threatened Species Assessment

Podolepis hieracioides
Long Podolepis

Taxonomy

Podolepis hieracioides F. Muell.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is an erect, simple or sparingly branched herb, 20–70 cm high, renewed annually from a thickened persistent rootstock; stems woolly to glabrescent. Leaves scabrous to glabrescent, margins flat to revolute; basal leaves lanceolate to elliptic, to 20 cm long and 25 mm wide, base amplexicaul, apex acute; cauline leaves linear to narrow-lanceolate, mostly 5–13 cm long, 1–15 mm wide, sessile, stem-clasping, apex acute to acuminate. Capitula hemispherical, mostly 15–20 mm diam., 3–20 in dense cymes; peduncles 1–5 cm long; involucral bracts with linear, glandular claws; lamina ovate, scarious, virtually flat, smooth, shiny, apex obtuse; intermediate bracts 5–9 mm long, with claw longer than lamina; inner bracts long-clawed. Florets yellow; ray florets 15–30, ligules 10–18 mm long; disc florets numerous. Cypselas 2–3 mm long; pappus bristles 20–25, shortly connate at base, 6–8 mm long. Flowers December-April (VicFlora 2015).

Generation Length

The generation length of *Podolepis hieracioides* is estimated to be 5 to 20 years. This is based on the taxon's life form (perennial herb with persistent rootstock) and montane grassland/grassy woodland habitat which is likely to respond to moderately frequent localised disturbance (e.g. animal digging).

Distribution

In Victoria, the taxon is confined to montane and subalpine areas in the east. It also occurs in New South Wales and the Australia Capital Territory (VicFlora 2015).

Habitat

The taxon occurs in montane and subalpine open-forest, woodland or grassland (VicFlora 2015).

Threats

Past threats to the taxon include land clearance for agriculture, mostly grazing, and historic forestry operations. The taxon is threatened in the long-term by climatic drying and warming, resulting in changes in vegetation structure, such as increasing tree and shrub density, and potential changes in soil microflora particularly of mycorrhizal fungi. These impacts are likely to be exacerbated by imposed fire regimes, increasing the risk of repeat fire and recruitment failure. Small and isolated stands may also be threatened by targeted browsing by feral horses and deer during the early stages of recruitment.

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 A2 as Vulnerable

The population reduction over the past 15 to 60 years is estimated to be 40%, based on (c) and (e) above.

Much of the habitat of this taxon has been cleared for agriculture, particularly for cattle grazing in the Upper Snowy/Buchan/Delegate Rivers region, and forestry operations. The lack of recent records from the Snowy Range (type locality) suggests that the taxon may now be critically endangered or even extinct in that area.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 15 to 60 year period, including both past and future, is estimated to be 40%, based on (c) and (e) above.

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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 9,489 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented as there are multiple small isolated subpopulations that are all at risk from climate drying and grazing by feral animals, such that there is increased extinction risk and little or no probability of recolonisation should subpopulations become extinct.

It is estimated to have 2 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above in response to the identified threats, such as climate drying and warming, and grazing/browsing by feral animals.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 114 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 2 locations, and has a continuing decline in (i), (ii), (iii), (iv) 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				

Evidence:

Ineligible under Criterion C

It is inferred that there are 5,000 to 10,000 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:

Ineligible under Criterion D

It is inferred that there are 5,000 to 10,000 mature individuals, which exceeds the thresholds for criterion D.

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

VicFlora (2015.) Flora of Victoria, Royal Botanic Gardens Victoria: *Podolepis hieracioides.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/77840c38-37e3-4a62-8682-e71af381daa1 Accessed 27/3/2019.