Threatened Species Assessment

Gompholobium inconspicuum
Creeping Wedge-pea

Taxonomy

Gompholobium inconspicuum Crisp

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a prostrate or decumbent shrub, to c. 20 cm tall; stems slender, glabrous or sparsely hairy when young, densely tuberculate. Leaves trifoliolate, shortly petiolate; leaflets linear, 3–10 mm long, to c. 1 mm wide, subsessile, glabrous, margins recurved, apex acuminate; stipules minute, subulate. Flowers 7–12 mm long, solitary or few in racemes; pedicel c. 5 mm long, usually shorter than calyx. Calyx 5–6 mm long, blackish, lobes valvate, triangular-acuminate, nearly reaching base of calyx, not ridged at edges, inside margins ciliolate; petals pale lemon-yellow or yellow-green with darker markings; keel minutely ciliate or glabrous; ovules 12–20. Pod ovoid, 8–11 mm long, c. 6 mm wide, turgid, glabrous, sessile; seeds numerous, ellipsoid, c. 1.2 mm long. Flowers August–September (VicFlora 2021).

The taxon is killed by fire, with recruitment largely dependent on fire for seed germination.

Generation Length

The generation length of *Gompholobium inconspicuum* is estimated to be 10 to 20 years. Shrubby pea taxa are generally short-lived, being killed and recruiting from fire. It is expected that the sclerophyllous vegetation in which the taxon is present will ideally be burnt every 10 to 20 years (Cheal 2010).

Distribution

In Victoria the taxon occurs near Orbost, Mount Raymond, near Genoa, and along the Genoa River and its tributaries. It is also found in New South Wales.

Habitat

The taxon is found in heath and heathy woodland.

Threats

Threats to the taxon include an increase in fire frequency and intensity, which can kill plants before they reach reproductive age, and a decrease in rainfall, which can decrease recruitment, growth, and flowering. Both of these are potential consequences of climate change. Conversely, too infrequent fires may also result in a lack of recruitment, and long-term absence of fire may cause extinction of subpopulations if senescence of mature plants occurs and seeds lose viability.

Some populations are potentially threatened by the maintenance of infrastructure, such as regular slashing near power lines at Mount Raymond, and the widening and maintenance of the road along the Princes Highway.

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 1,672 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented as all sites of occurrence in Victoria are at least 2 km apart, and usually much further, which is a distance that exceeds the dispersal capabilities of this taxon, which is likely restricted to seed dispersal by gravity or ants (Auld 1996). Consequently, it is unlikely that sites would be recolonised from nearby subpopulations if local extinction occurs.

It is estimated to have 2 locations and has a continuing decline in (iii) above, based on the impacts of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 29 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 2 locations, 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 as Data Deficient

There is insufficient evidence to determine the number of mature individuals. There are too few records to provide estimates of the number of mature individuals present at sites of occurrence to establish typical numbers of individuals present in subpopulations. It has also been noted that it is very cryptic and hard to spot, making it difficult to estimate number of individuals at sites (Crisp 1995).

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

There is insufficient evidence to determine the number of mature individuals.

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

References

Auld, T.D. (1996). Ecology of the Fabaceae in the Sydney region: fire, ants and the soil seedbank. *Cunninghamia* 4: 531-551.

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Crisp, M.D. (1995). *Gompholobium inconspicuum* (Fabaceae: Mirbelieae), a new species from south-eastern Australia. *Muelleria* 8: 307-310.

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

VicFlora (2021). Flora of Victoria, Royal Botanic Gardens Victoria: *Gompholobium inconspicuum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/70e898cf-29d7-434a-bce9-abbaa1504ce0