Threatened Species Assessment

Gompholobium glabratum
Dainty Wedge-pea

Taxonomy

Gompholobium glabratum Sieber ex DC.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion D2

Species Information

Description and Life History

The taxon is a decumbent or ascending shrub, to c. 40 cm tall; stems slender, often sparsely hairy, densely tuberculate. Leaves pinnate, petiolate; leaflets 5-7, linear to narrow-oblanceolate, 3-15 mm long, c. 1 mm wide, shortly petiolulate, more or less glabrous, margins revolute or recurved; stipules absent. Flowers 8-10 mm long, in short, terminal, few-flowered heads; pedicel to c. 10 mm long, often shorter than calyx. Calyx to c. 8 mm long, black, glabrous outside, tuberculate, lobes valvate, triangular-lanceolate, acute, not ridged at edges, inside margins tomentose; petals bright yellow or greenish-yellow, outer surface with grey markings; keel black towards apex, not ciliate; ovules 8-10. Pod obliquely obovoid or broad-obloid, 8-10 mm long, c. 6 mm wide, turgid, glabrous, stipitate; seeds numerous, reniform, c. 1 mm long, light brown. The taxon flowers from August to October (VicFlora 2019).

Generation Length

The generation length of *G. glabratum* is estimated to be 45 to 70 years. The taxon is inferred from field observation to be a relatively short-lived obligate seed regenerator, which recruits episodically following major bushfire events at an estimated pre-settlement interval of 45-70 years. This may be supplemented by sporadic and opportunistic recruitment in response to small-scale localised site disturbance events, although the paucity of records in long-unburnt vegetation suggests the taxon behaves as a key fire response species. Longevity may be as low as 3-5 years or potentially up to 10-15 years.

Distribution

The taxon is very rare in Victoria where it is known only from the upper Genoa River and the upper Cann River Valley (VicFlora 2019). The taxon has also been recorded near the coast east of Tamboon Inlet, in the headwaters of the Thurra River south of Mt Kaye and in the Howe Range area east of Mallacoota Inlet, as well as in NSW.

Habitat

The taxon is found in dry sclerophyll forest and heathland, often on sandy soils (VicFlora 2019) where often associated with *Eucalyptus sieberi* (Silvertop Ash) and *Leptospermum trinervium* (Paperbark Tea-tree). Other common associates include *Acacia myrtifolia* (Myrtle Wattle), *A. obtusifolia* (Blunt-leaf Wattle), *A. terminalis* (Sunshine Wattle), *Angophora floribunda* (Rough-barked Apple), *Banksia serrata* (Saw Banksia), *E. consideniana* (Yertchuk), *E. muelleriana* (Yellow Stringybark), *L. continentale* (Prickly Tea-tree), *Pultenaea hispidula* (Rusty Bush-pea), *Xanthorrhoea australis* (Austral Grass-tree) and *X. resinosa* (Spear Grass-tree).

Threats

The taxon is unlikely to have suffered any historic decline through habitat loss to agriculture since almost all Victorian records are within Coopracambra or Croajingolong National Parks, in habitats of marginal value for grazing or cropping. Whilst the taxon is likely to be well adapted to recurrent fire events, it may be threatened in the longer term by recruitment failure in response to extreme drought stress in the season following episodic recruitment. The taxon may also be threatened by increasing local density and browsing impacts of Sambar deer which have targeted an unexpectedly wide range of tree and understorey taxa, particularly during their recruitment phases.

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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 1,383 km² and the Area of Occupancy (AoO) is estimated to be 24 km², derived from accepted, post-1970 records in the Victorian Biodiversity Atlas, but other thresholds under this criterion have not been met.

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 no available estimate of population size since there is no Victorian monitoring data for the taxon and no collector has commented regarding population size.

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. It has a single location and an estimated AoO of 24 km2, such that this restriction makes the taxon capable of becoming Critically endangered or Extinct within a time frame of one or two generations in response to the impact of the identified threats, notably by recruitment failure in response to extreme drought stress in the season following episodic recruitment.

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 (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Gompholobium glabratum*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/e0573ce6-987a-4169-8b01-a01cf8a69c03