

Grevillea obtecta Fryerstown Grevillea

Taxonomy

Grevillea obtecta Molyneux

Willis (1973, p. 40) as cited in VicFlora (2016) refers to an undescribed taxon from '...Elphinstone state Forest between Drummond and Fryerstown, with a similar population in Enfield district south of Ballarat'; the former population is *G. obtecta*, the latter is *G. bedggoodiana*. According to Carr (pers. comm.) the taxon is very variable in leaf form and to some extent habitat forms, with three recognised forms: 'Fryers Range form', Upper Loddon form' and 'Drummond North form'. However these have no taxonomic standing. Olde and Marriott (1994) also distinguish 3 forms.

Current conservation status

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

Proposed conservation status

Endangered in Australia

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

Species Information

Description and Life History

The taxon is a prostrate to straggling shrub to 25 cm high, sometimes forming mats to 2 m across. Branchlet indumentum loosely villous to tomentose. Leaves very variable, divided, 3–18 cm long, 2–6 cm wide, usually ovate to obovate in outline, 5–13(–19)-fid to -partite or occasionally simple and coarsely serrate, with triangular to oblong-ovate primary lobes 0.5–3 cm long, (0.2–)0.5–1.0(–1.5) cm wide; lower surface with an open indumentum of curved to curled hairs; margin recurved to flat. Conflorences terminal, erect to decurved, simple, secund, 3.5–6 cm long; peduncles 5–15 mm long, (1–)1.2–1.5 mm wide; rachises villous; young inflorescences conspicuously bracteose; outer surface of perianth light green, loosely tomentose or villous, inner surface purplish-black and glabrous; pistil 12–15 mm long, ovary stipitate, subvillous, style yellow to pale or deep pink, glabrous except near base, pollen presenter oblique. Fruits subvillous. Flowers August–December (VicFlora 2016).

The taxon is a post-fire resprouter. Reproduction is by seed, but with a limited amount of viable seed produced. If clonality is widespread, inbreeding depression is likely. It is pollinated by honeyeaters, thus gene-flow is likely to be less than 1 km. Olde and Marriot (1994) report that flowers are visited by 'marsupial mice' (probably *Antechinus flavipes*) and these may be pollinators which are attracted by the unusual honey-scented flowers. A soil-stored seed bank is assumed but its size and longevity are unknown. Seeds are passively dispersed, and ants, which bury the seed after eating the elaiosome, are secondary dispersers.

Generation Length

The generation length of *Grevillea obtecta* is inferred to be 100 years. The taxon is suckering and form large clones, as such the generation length is indefinite. Therefore a nominal figure of 100 years is proposed.

Distribution

The taxon is restricted to an area bounded by Castlemaine, Guildford, Glenlyon, and Taradale, in central Victoria.

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Habitat

The taxon occurs on slopes and ridges in dry sclerophyll forest or in woodland such as heathy dry forest or grassy dry forest, on shallow, well-drained, gravelly loam derived from Ordovician sediments.

Threats

Threats to the taxon include the effects of climate change such as reduced rainfall, increased evaporation, and extreme temperatures, as well as increased frequency and intensity of fire, inappropriate timing of prescribed fire, impacts of fire control activities, soil erosion, roadworks, damage to plants by off-road vehicles, weed invasion, *Grevillea* Leaf Skeletonisers, nectar-robbing by exotic honeybees that do not pollinate, Cinnamon Root-rot Fungus, decreased bird pollinator success as the honeyeater guild declines because of reduced flowering and fragmentation of co-occurring floral resources, and inbreeding depression. Browsing and grazing by rabbits, wallabies, and kangaroos is likely to have reduced subpopulations since the 1850s.

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 A3 as Vulnerable

The population reduction over the next 100 years is suspected to be 30%, based on (c) above.

Future decline is based on the suite of threats currently operating.

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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 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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 748.4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented based on the number of subpopulations, and the distance between many of them, precluding gene-flow.

It is inferred to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the impact of the identified threats, particularly climate change and weed invasion.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 96 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 1 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 Vulnerable

It is estimated that there are 3,573 mature individuals. The number of mature individuals is projected to continue to decline, and there are less than 1,000 mature individuals in each subpopulation.

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:

Ineligible under Criterion D

It is estimated that there are 3,573 mature individuals which exceeds the threshold 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:

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