Threatened Species Assessment

Grevillea floripendula
Ben Major Grevillea

Taxonomy

Grevillea floripendula R.V. Sm.

Olde and Marriott (1995) identify two forms: Ben Major form and Musical Gully form. these are considered to warrant 'horticultural recognition' (cf. taxonomic recognition).

Current conservation status

Listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1997).

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

Proposed conservation status

Critically Endangered in Australia

Criteria A2ace+3bce+4abce; C1+C2a(ii)

Species Information

Description and Life History

The taxon is a spreading decumbent to semi-prostrate shrub, 0.3–1 m high. Branchlet indumentum villous. Leaves pinnatisect or occasionally pinnatifid, 2–6.5 cm long, 1.5–4 cm wide, with 5–9(–11) angular-obovate primary lobes, these again 2–6-dentate to -fid or sometimes simple, basal lobes 1–2 cm long, 0.5–1.5 cm wide; lower surface with an open to sparse indumentum of curly to wavy hairs; margin shortly recurved. Conflorescences terminal, usually pendulous, usually simple, secund, 3–5.5 cm long; peduncles (10–)20–30 mm long, 0.4–0.5 mm wide; rachises tomentose; outer surface of perianth greenish to mauve, subsericeous to loosely tomentose, inner surface mauve-maroon to blackish, glabrous; pistil 13.5–16 mm long, ovary stipitate, subvillous, style yellow to red, glabrous, pollen presenter oblique. Fruits subsericeous, with longitudinal brown stripes. Flowers October-December (VicFlora 2019).

It is a shrub 3 m across with a longevity of 30 - 50 years, and is apparently an obligate seed regenerator, but with minor resprouting that may occur after fire. Flowers are pollinated by birds (honeyeaters). A soil-stored seedbank develops, and seeds are likely to have a longevity of 5-10 years.

Generation Length

The generation length of *Grevillea floripendula* is suspected to be 30 to 60 years. This based on an absolute longevity of plants (perhaps up to 100 years) and the fire frequency for this obligate seed regenerator.

Distribution

Grevillea floripendula is restricted to a small area north of Beaufort, from Waterloo to Ben Major Forest (VicFlora 2019)

Habitat

The taxon occurs on dry sclerophyll forest on shallow, stony, quartz-rich soils derived from Ordovician sediments, and rock outcrops are frequent.

Threats

The taxon is threatened by climatic, physical, and chemical environmental variables including decreased rainfall, increased evaporation, extreme temperatures, increased frequency and intensity of bushfires, inappropriate timing of prescribed fire, impacts of fire-control activities, and soil erosion and loss. Drying and warming of the environment, including droughts, is likely to lead to plant death and a lack of successful recruitment of seedlings. Plants probably require longer than 10 years to attain reasonable levels of seed production, so increasing occurrence of fires will restrict recruitment.

Anthropogenic threats include roadworks and other infrastructure. Biotic threats include weed invasion by both exotic and native taxa, parasitism of host plants by *Cassytha melantha* and *C. pubescens*, browsing by goats, *Grevillea* Leaf Skeletoniser, and Cinnamon Root-rot Fungus.

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 Critically Endangered

The population reduction over the past 90 to 180 years is estimated to be 95%, based on (a), (c) and (e) above.

The past population reduction is extrapolated from data of Neil Marriott (pers. comm.). According to Carter *et al* (2006), *G. floripendula* occurred in about 21 populations with a total of about 4,000 plants. Marriot reported that only one of the 21 populations documented in the Recovery Plan now survive.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Critically Endangered

The population reduction over the next 90 to 100 years is projected to be 100%, based on (b), (c) and (e) above.

The future decline prediction, by Neil Marriott (pers. comm.), is based on the trend of decline attributed to climate change.

Eligible under Criterion A4 as Critically Endangered

The population reduction over any 90 to 180 year period, including both past and future, and up to 100 years in the future is estimated to be 95 to 100%, based on (a), (b), (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 B as Endangered

The Extent of Occurrence (EoO) is estimated to be 321 km², and the Area of Occupancy (AoO) is estimated to be 68 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to have 1 location, 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:

Eligible under Criterion C1 as Critically Endangered

It is estimated that there are 200 mature individuals, and there is estimated to be a continuing decline of 50-60% within one generation.

Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 200 mature individuals.

The number of mature individuals is estimated to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100 %.

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 D as Endangered

It is estimated that there are 200 mature individuals.

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

References

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