Threatened Species Assessment

Grevillea parvula
Genoa Grevillea

Taxonomy

Grevillea parvula Molyneux & Stajsic

The taxon has been previously referred to *Grevillea victoriae* var. *leptoneura* Benth. It has naturalised at two sites in the Dandenong Ranges and near Branxholme (western Victoria) from cultivated plants.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria B1ab(iii,v)+2ab(iii,v)

Species Information

Description and Life History

The taxon is spreading to erect shrub to 3 m high x 3 m wide; fire sensitive and an obligate seed regenerator from a soil-stored seed bank of unknown longevity. Recruitment assumed to be continuous with a post-fire pulse. Pollinated by honeyeaters, thus gene-flow (via pollen) only a few hundred metres. Seed dispersal is passive and secondary dispersal (only a few tens of metres) is by ants which bury the seeds after eating the elaisomes.

Generation Length

The generation length of *Grevillea parvula* is suspected to be 30 to 70 years. This is based, in part, on typical longevity of *Grevillea* plants (Neil Marriott pers. comm.) and an assumption of continuous recruitment. It is also influenced by the likely pre-European settlement fire interval which is likely to have been around 50 years across the Victorian range of the taxon. Intense fire events result in mass or pulse recruitment from soil-stored seedbanks.

Distribution

In Victoria, the taxon is restricted to the East Gippsland region in, for example, the catchments of the Wallagaraugh and Genoa Rivers and at Mt Kaye. The taxon is also naturalised from cultivated plants at Monbulk, in the Dandenong Ranges, and north of Branxholme, in western Victoria. It also occurs in south-east NSW where it is more common (VicFlora 2017). The taxon is reliably recorded from the headwaters of the Cann River eastward to the New South Wales border, extending almost to sea level in the general vicinity of Mallacoota Inlet.

Habitat

The taxon has the broadest altitudinal range among the members of the *G. victoriae* species complex, from near sea level to over 1100 metres above sea level in south-east New South Wales. It often grows in riparian sites but also in woodland and open forest (VicFlora 2017).

The habitat range of the taxon includes dry sclerophyll woodland to tall damp forest on slopes and in riparian situations, as well as Melaleuca swamp scrub at the lowest altitude; sites are usually boulder-strewn, on granitic and sedimentary geology.

Threats

Historic habitat loss to agriculture is likely to have been negligible, since almost all records are in state forest or national parks and other reserves. Current and projected threats include climate change (decreased rainfall, increased evaporation, extreme temperatures, extreme rainfall events causing flash floods, soil erosion and/or severe scouring in riparian environments); increased frequency and intensity of fire, inappropriate timing of prescribed fire (winter-spring); impacts of fire-control activities; environmental damage and damage to plants by Sambar Deer (targeted browsing and antler rubbing); roadworks; weed invasion; nectar robbing by exotic honeybees; *Phytophthora cinnamomi* (Cinnamon Root-rot); and decreased bird pollination success as the honeyeater guild declines because of reduced flowering and fragmentation of co-occurring floral resources.

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 A3 as Vulnerable

The population reduction over the next 90 to 100 years is projected to be 10 to 50% (midpoint 30%), based on (c) and (e) above.

This is based on the projected impact of the identified threats.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 90 to 210 year period (up to 100 years into the future) is projected to be 10 to 70% (midpoint 40%), based on (c) and (e) above.

The taxon has not been subject to significant historic habitat loss in the relatively remote areas in which it occurs. Some decline in population density may have already occurred in response to the early impact of the identified threats. An estimate of future decline is based on the projected impact of the identified threats.

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

The taxon is estimated to be severely fragmented naturally at the landscape scale since most occurrences are sufficiently distant naturally to preclude genetic exchange. Seed dispersal is passive and secondary dispersal (only a few tens of metres) is by ants (myrmecochory) which bury the seeds after eating the elaiosomes.

It is estimated to have one location. It has a continuing decline in (iii) and (v) above, in response to the current and projected impact of the identified threats.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 80 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it is severely fragmented, has 1 location and has a continuing decline in (iii) 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 as Data Deficient

There is insufficient evidence to support an estimate of total 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.

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

References

Australian Virtual Herbarium online

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