

Grevillea neurophylla subsp. *neurophylla* Granite Grevillea

Taxonomy

Grevillea neurophylla subsp. *neurophylla* Gand.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(iv,v)

Species Information

Description and Life History

The taxon is an erect to spreading shrub. Newer branches not columnar, the foliage usually open. Leaves irregularly ascending or occasionally spreading, not or moderately crowded, sometimes irregularly curved or wavy; longest leaves usually less than 4 cm long. Perianth and style white to very pale pink; limb with brown hairs; fruits 8–10 mm long. Flowers September-February (VicFlora 2017).

The taxon is a shrub to 2.5 m high x 1.2 m wide and is a post-fire resprouter. Recruitment is by seed only, and is continuous with a post-fire pulse from soil-stored seedbank of unknown longevity. It is pollinated by insects, and its breeding system is probably outcrossing. Gene-flow is at a short distance of only a few tens of metres, and seeds are passively dispersed, with secondary dispersal by ants which bury the seeds after eating the elaisome.

Generation Length

The generation length of *Grevillea neurophylla* subsp. *neurophylla* is suspected to be 30 to 50 years. This is based on typical longevity of *Grevillea* taxa (N. Marriott pers. comm.).

Distribution

In Victoria, the taxon is restricted to the montane eastern part of the State at Omeo, Nunniong Plateau, Mitta Mitta, and the upper Genoa River (VicFlora 2017).

Habitat

The taxon grows in eucalypt woodland or open forest, often in gullies or rocky slopes near creeks but not usually flood zones. Substrates are mostly granite-derived, but are sometimes sandstone-derived.

Threats

Threats to the taxon include the effects of climate change, such as decreased rainfall, increased evaporation, extreme temperatures, extreme rainfall events causing flash floods, soil erosion, and severe scouring of riparian environments. Other threats include increased frequency and intensity of fire, inappropriate timing of prescribed fire, impacts of fire-control activities, soil erosion, damage by Sambar deer (*Rusa unicolor*), weed invasion, nectar robbing of flowers by exotic honeybees, and Cinnamon Root-rot Fungus.

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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 style="text-align: center;"><i>based on any of the following:</i></p> <ul style="list-style-type: none"> (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.

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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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 13,728 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, based on at least 20 subpopulations mapped over a very large geographic region, which are too distant from each other to allow gene-flow between them.

It has a continuing decline in (iv) and (v) 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 80 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented and has a continuing decline in (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:

Ineligible under Criterion C as Data Deficient

No reliable estimate of the total population size for the taxon is available.

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

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

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

Makinson, R.O. (2000) *Grevillea*, *Flora of Australia* 17A:1-460.

Olde, P., and Marriott, N. (1994). *The Grevillea Book: Volume 3*. Kangaroo Press: Kenthurst.



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