Threatened Species Assessment

Grevillea jephcottii
Green Grevillea

Taxonomy

Grevillea jephcottii J.H. Willis

This taxon hybridises in the wild with *Grevillea lanigera*.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

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

Species Information

Description and Life History

Grevillea jephcotiti is a shrub to 3 m high, killed by fire, and an obligate seed regenerator. The breeding system is undocumented but is probably predominantly outcrossing. *Grevillea jephcotiti* is pollinated by honeyeaters, and gene-flow via pollinating birds is probably not more than a few hundred metres. Recruitment is assumed to be continuous but with a major pulse after fire. Ants harvest the seeds and bury them after eating the elaisome.

Generation Length

The generation length of *G. jephcottii* is suspected to be 30 to 60 years. The generation length is based on the typical longevity of *Grevillea* species (N. Marriott pers. comm.)

Distribution

G. jephcottii is a Victorian endemic. It is restricted to a small area in the north-east between Walwa and Corryong, centring on Burrowa-Pine Mountain National Park (VicFlora 2016).

Habitat

The taxon occurs in open to closed eucalyptus woodland or forest in shallow gravelly or sandy clay-loam over granite; often on steep hillsides among granite boulders.

Threats

The bushfires of 2019/20 impacted all of the Burrowa Pine Mountain NP, so presumably affected the entire distribution of *G. jephcottii*. The plants are killed by fire but regenerate by seed post-fire. Given the good rains in 2020 this is likely to have been successful, but browsing of recruits by Sambar Deer (*Rusa unicolor*) is a serious threat, as is the risk of more frequent fires. Up until 2019, Burrowa Pine Mountain NP had not burnt for 60 to 70 years

The taxon is threatened by climatic, physical and chemical environmental variables i.e. increased warming and drying, decreased rainfall, increased evaporation, extreme temperatures, increased frequency and intensity of bushfires, inappropriate timing of prescribed fire (winter and spring) and impacts of fire-control activities. Biotic threats include weed invasion (exotic and native species), Grevillea Leaf Skeletoniser, and nectar-robbing by

introduced honeybees (that are not effective pollinators). Ecological disturbances include decreased bird pollination success as the honeyeater guild declines because of reduced flowering and fragmentation of co-occurring floral resources.

Same areas as G. butrrowa, fire kille=, fire regen, sambar and repear fires, more

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 20 to 30%, based on (c) above.

A projected decline is based on a suite of threats, especially climate change and weed invasion.

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

The taxon is suspected to be severely fragmented. There are multiple, small isolated subpopulations that are all at risk such that there is increased extinction risk and little or no probability of recolonisation should subpopulations become extinct given the very poor seed dispersal of this taxon.

It is estimated to have 1 location. It has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on a suite of known threats, especially 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 91 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 (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:

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:

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. (1995) *The Grevillea Book: Volume 2* Kangaroo Press: Kenthurst.

VicFlora (2016) Flora of Victoria, Royal Botanic Gardens Victoria *Grevillea jephcottii.* Pine Mountain Grevillea. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/4eb1dfb3-ac36-4cfe-8007-75b8fee9fbcb