

## *Eucalyptus pauciflora* subsp. *parvifructa* Grampians Sally

### Taxonomy

*Eucalyptus pauciflora* subsp. *parvifructa* Rule

### Current conservation status

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

### Proposed conservation status

Vulnerable in Australia

Criterion D2

### Species Information

#### Description and Life History

The plants blooms and set viable seed around 6-10 years old, but only replace an adequate elevated seed bank after about 15-20 years for resprouts (longer for new germinants). Germination and establishment are into recently-burnt sites, and are rarely (but not unknown) in unburnt vegetation, as the taxon's habitat amongst rocks in elevated locations ensures that in pockets there is ample light available at ground level in unburnt vegetation.

Plants are slow growing, due to the shallow soil in this rocky habitat, and susceptible to drought (also due to shallow soil depths). Nevertheless, individuals are long-lived (well over 100 years) and able to resprout after fires. They are tolerant of frosts and the occasional snowfall. Individuals are usually killed in wildfires, storms or droughts before they reach 150 years old or thereabouts.

#### Generation Length

The generation length of *Eucalyptus pauciflora* subsp. *parvifructa* is inferred to be 70 to 160 (midpoint 110) years. This taxon has long-lived individuals that are well able to coppice and resprout from the lignotuber if burnt or otherwise defoliated.

#### Distribution

The taxon is restricted to the highest parts of the Mt William Range in the Grampians, from 800m ASL to 1100m ASL.

#### Habitat

The taxon is scattered in exposed sandstone peaks and plateaux at 800-1100 m ASL. These have a reliable water supply and lower temperatures in summer than anywhere else in the region, but are exposed to high winds and shallow soils overall. It is scattered in this rocky habitat, but is locally common. Soils relatively infertile, but with moderate organic matter content and shallow to moderate depth. Bushfires are rare.

#### Threats

The taxon is not subject to forestry operations or firewood collection as occurrences are relatively remote from tracks and often inaccessible. Climate change is a threat, as a drying climate will likely lead to increased death

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rates for plants, and increased fire frequency. The taxon will coppice, but not as vigorously as many other eucalypts, and there is proportional death of mature specimens in every fire. Goat browsing is a minor threat.

## 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> <ul style="list-style-type: none"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul>			

## Evidence:

### Ineligible under Criterion A

The taxon does not have a past or future decline sufficient to meet the thresholds under this criterion.

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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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 16 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is inferred to have 1 location. The taxon will coppice but not as vigorously as many other eucalypts and there is proportional death of mature specimens in every fire. Repeat fires could lead to serious damage to all individuals.

It has a continuing decline in (iii) and (v) above, substantially due to climate change and fire damage, and some goat browsing.

### Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 16 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records from the VBA. As above, it has 1 location and has a continuing decline in (iii) 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

It is suspected that there are 5,000 to 45,000 (midpoint 25,000) mature individuals, but other thresholds under this criterion have not been met.

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 <sup>2</sup> or number of locations ≤ 5

### Evidence:

#### Eligible under criterion D2 as Vulnerable

The taxon is suspected to be very restricted, with an AoO of 16km<sup>2</sup>, such that this restriction make is possible that the taxon could become Critically Endangered or Extinct within a timeframe of one or two generations, based on the impacts of the identified threats, namely climate change-induced fire frequency.

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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[https://www.environment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf](https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Eucalyptus pauciflora* subsp. *parvifructa*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/ef7c983f-2838-47d1-96c4-d59e40fe6035>