



## *Pomaderris virgata* Upright Pomaderris

### Taxonomy

*Pomaderris virgata* N.G. Walsh

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Victoria

Criteria A2ce+4ce; B1ab(iii,v)+2ab(iii,v); C2a(i)

### Species Information

#### Description and Life History

Slender, erect perennial shrub to c. 5 m high, flowering in spring. It is a non-respouter under normal conditions and effective recruitment is from seed alone. Recruitment is probably maximal following fire and good follow-up conditions. In a domestic garden situation, seed remained dormant in the soil for about 15 years and subsequently germinated (N. Walsh, pers. obs.)

#### Generation Length

The generation length of Upright Pomaderris is estimated to be 10 to 30 years, from a longevity of plausibly 40 years, a pre-settlement fire interval plausibly in the 50 year range and the likelihood that episodic fire-induced mass recruitment greatly exceeds the proportion of recruitment responding continuously to small scale soil disturbances.

#### Distribution

The taxon is known in Victoria from two sites between approximately 6 and 8 km NNW of Goongerah in east Gippsland. It also occurs in south-eastern New South Wales.

#### Habitat

The taxon is known from dry open forests on ridges with shallow soils derived from sedimentary parent material. Associated species include *Eucalyptus sieberi*, *E. smithii*, *Acacia obliquinervia*, *A. silvestris*. (data from herbarium collections).

#### Threats

Upright Pomaderris is extremely rare, with two sites close together, with a total of about 50 plants recorded, so is threatened by stochastic events. It is estimated that 88% of the likely habitat was affected by the 2019-20 bushfires.

Elevated bushfire intensity and frequency under climate change may threaten this taxon. While it is somewhat fire-adapted, it does not resprout reliably, relying on successful recruitment from seed and replenishment of soil seed bank for its persistence. Recovery depends on the control of feral herbivores, the likelihood of drought affecting recruitment, the risk of future repeat fires, and planned burning at suitable levels.

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Upright Pomaderris was found during a pre-logging survey within the Yalmy State Forest; there may be some risk to other undiscovered subpopulations from forestry or fire management operations if they cannot be reliably detected and protected prior to operations.

The other subpopulation is within the Snowy River National Park. The habit of the plant (slender, erect, usually not leafy in the lower half) may reduce its attractiveness to Sambar Deer, but it may be subject to antler damage when males 'de-velvet'. There are no known observations of this, but the clean lower trunk is characteristic of shrubs that are favoured for this activity.

Spatial analysis of likely habitat for Upright Pomaderris on all land tenures indicates that 67% occurs within the CAR reserve system, including parks and reserves, special protection zones and areas excluded from harvesting by prescription under the Victorian Code of Practice for Timber Production 2014. A species-specific prescription is included in the Code for this species.

In recent years, modified harvesting and forest regeneration practices have been implemented in native forest to further mitigate the potential threat from forestry operations to threatened species and their habitats.

### 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>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
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### Evidence:

#### Eligible under Criterion A2 as Critically Endangered

The population reduction over the past 30 to 90 years is inferred to be 50 to 85%, based on (c) and (e) above.

The taxon was not known in Victoria prior to 1989. It is restricted in Victoria to two small populations which were mostly or entirely impacted by the 2019-20 fires. It is believed to have 100% of its two Victorian sites occurring within the footprint of the 2019-20 fires. About 65% of its modelled habitat may have been impacted by high severity fires. It is thought to be fire-sensitive in the context of these fires, and may have been significantly impacted. It is also believed to have been at some risk of post-fire impacts such as herbivory.

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

### Eligible under Criterion A3 as Endangered

The population reduction over the next 30 to 90 years is suspected to be 25 to 60%, based on (c) and (e) above.

Recovery from the 2019-20 bushfires depends on the control of feral herbivores, the likelihood of drought affecting recruitment, and the risk of future repeat fires.

### Eligible under Criterion A4 as Critically Endangered

The population reduction over any 30 to 90 year period is suspected to be 50 to 80%, based on (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 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 4 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of AoO as an area within EoO.

Considering the limited dispersal ability of the taxon, the barriers to dispersal, or lack of habitat separating them, the individuals can be considered to be severely fragmented.

Two locations are accepted, as one subpopulation occurs within the Snowy River National Park and the other occurs within Yalmy State Forest, so are subject to different threats and management regimes.

The taxon has a continuing decline in (iii) and (v) above, given the likelihood of increased drought, and fire frequency and intensity under climate change.

#### Eligible under Criterion B2 as Critically Endangered

The AoO across the taxon's range is estimated to be 4 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is suspected to be severely fragmented, has two locations and is suspected to have 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:

#### Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 10 to 100 (midpoint 50) mature individuals. In 1989, an estimate of about 50 plants had been made for one population and a single plant was recorded at the other. Both populations were probably burnt in the 2014 Goongerah fires. Their fate since is unknown.

The number of mature individuals is inferred to continue to decline and the number of mature individuals in each subpopulation is 50 or fewer.

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 D as Endangered

The taxon is estimated to have 10 to 100 (midpoint 50) 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. 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)

DELWP (2020) *Victoria's bushfire emergency: biodiversity response and recovery Preliminary report - Version 2*. Department of Environment, Land, Water and Planning, East Melbourne.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Pomaderris virgata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cf2a659b-6ed0-4dfd-8650-a913a2e06377>