

Persoonia silvatica Forest Geebung

Taxonomy

Persoonia silvatica L.A.S. Johnson

The taxon possibly forms hybrids with *P. confertiflora* in the eastern part of distribution, near Genoa (VicFlora, 2019).

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 A3ce+4bce

Species Information

Description and Life History

The taxon is an erect to spreading shrub or small tree to 7 m high; young branches sparsely to moderately hairy. Leaves alternate, narrowly elliptic, lanceolate or narrowly spathulate to oblanceolate, 3-12 cm long, 5-30 mm wide, discolorous, flat, sparsely to moderately hairy when young, glabrescent when mature, smooth; margins recurved. Inflorescence an axillary or terminal raceme (flowering axis c. 8-20 mm long), mostly terminated by a dormant bud, some growing on into a leafy shoot; flowers subtended mostly by scale leaves, sometimes by leaves; pedicels 1-4 mm long, glabrous to moderately hairy. Tepals 12-14 mm long, caudate, glabrous to moderately hairy, terminal spine to c. 1.5 mm long; anthers white; ovary glabrous. Drupe ovoid, to c. 15 mm long, c. 12 mm wide, green. The taxon flowers in summer (VicFlora, 2019).

Generation Length

The generation length of *Persoonia silvatica* is estimated to be 100 years. This is based on its life form and habitat (i.e. a slow-growing plant in old growth forest in cool areas).

Distribution

In Victoria, the taxon is apparently confined to far East Gippsland where it is locally common in montane forests (e.g., Bendoc, Errinundra Plateau, Mt Kaye, Howe Hill). The taxon also occurs in New South Wales (VicFlora, 2019).

Habitat

The taxon occurs in Cool Temperate Rainforest and Wet Forest. The altitude ranges from 200-900 metres (VicFlora, 2019). Some collections are from areas verging on subalpine woodlands.

Threats

Forest Geebung is threatened by increased fire frequency and intensity, exacerbated by climate change. If fires are intense there may be a diminution of the seed bank. The taxon is long-lived and has a slow response to fire or other disturbance before recruitment. The bushfires of 2019-20 are believed to have impacted around 54% of the

taxon's modelled habitat (DELWP 2020). Expert advice and field assessments have confirmed this species re-sprouts following fire. Reconnaissance work completed to date suggests the species is recovering well post-fire and has been observed at known sites resprouting readily. However, drought, elevated temperatures and repeated bushfires have the potential to damage or destroy recovering plants and/or seedlings. Forest Geebung recovery depends on the effective control of the impacts of herbivores and by preventing soil disturbance following fire recovery. Despite its bitter-tasting foliage, the taxon may be threatened by Sambar Deer browsing, particularly during post-fire recovery.

Forest Geebung may also be threatened by forestry operations in parts of its range, including the disturbance and removal of understorey species and invasion by weeds, although the degree of impact has not been investigated. Spatial analysis of likely habitat for Forest Geebung on all land tenures indicates that 60% occurs within the Comprehensive, Adequate and Representative (CAR) reserve system, including parks, reserves and special protection zones in State forest. Although no species-specific protections for Forest Geebung are included in the Victorian Code of Practice for Timber Production 2014, other more general forestry prescriptions such as protection and buffering of rainforest, old growth forest and waterways provide protection from timber harvesting. Following the 2019-20 bushfires, all known populations in areas available for harvesting are protected by 200 m buffer zones. In recent years, modified harvesting and forest regeneration practices have been implemented in native forest that are designed 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 style="text-align: center;"><i>based on any of the following:</i></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>			

Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the last 300 years is projected to be 30 to 50% (midpoint 40%), based on (b), (c) and (e) above.

Past decline is based on assumptions as to the effects of recent bushfires and on past forestry operations and other disturbances in the highly specific habitat of the taxon.

Eligible under Criterion A3 as Endangered

The population reduction over the next 100 years is projected to be 30 to 70% (midpoint 45%), based on (c) and (e) above.

Future decline is based on reduced habitat quality, reduced recruitment and the effects of more frequent and intense bushfires.

Eligible under Criterion A4 as Endangered

The population reduction over any 300 year period, including both past and future (up to 100 years in the future), is estimated to be 40 to 60% (midpoint 50%), based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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 and B2 as Vulnerable

The Extent of Occurrence (EoO) is estimated to be 8,683 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 638 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

The taxon is suspected to have fewer than ten locations.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, due to the identified threats, notably of more frequent and intense bushfires.

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 estimated that there are 15,000 to 30,000 mature individuals, which exceeds the thresholds for criterion C.

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 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

It is estimated that there are 15,000 to 30,000 mature individuals.

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

References

DELWP (2020) *Victoria's bushfire emergency: biodiversity response and recovery. Preliminary report - Version 2.* Department of Environment, Land, Water and Planning. East Melbourne. (retrieved from https://www.wildlife.vic.gov.au/__data/assets/pdf_file/0030/484743/Victorias-bushfire-emergency-Biodiversity-response-and-recovery-Version-2-1.pdf)



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VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Persoonia silvatica*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/969c3b38-9e5e-42d3-8788-c804c54fb185>