**Publication date: 5 December 2025**

**Notice of and reasons for the Final Determination**

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to list *Pomaderris sericea* N.A.Wakef. as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act and, as a consequence, to omit reference to *Pomaderris sericea* N.A.Wakef. from Part 2 of Schedule 1 (Endangered species) of the Act. Listing of Critically Endangered species is provided for by Part 4 of the Act.

The NSW Threatened Species Scientific Committee is satisfied that *Pomaderris sericea* N.A.Wakef. has been duly assessed by the Commonwealth Threatened Species Scientific Committee under the Common Assessment Method, as provided by Section 4.14 of the Act. After due consideration of Commonwealth DCCEEW (2024), the NSW Threatened Species Scientific Committee has made a decision to list the species as Critically Endangered.

**Summary of Conservation Assessment**

*Pomaderris sericea* N.A.Wakef. was found to be Critically Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Clause 4.3(a)(d)(e i,ii,iii,iv), Clause 4.4(a)(e i,ii A(I)) and Clause 4.5(a) because: 1) the species has a very highly restricted geographic distribution with an estimated extent of occurrence of between 4 $km^2$ and 11,551 $km^2$, and an area of occupancy of 4–8$km^2$; 2) it is considered to be severely fragmented, and is known from 1–3 threat-defined locations; 3) the total number of mature individuals is extremely low (<50), with an extremely low number of mature individuals in each subpopulation (≤50); and 4) there is inferred continuing decline in the EOO, AOO, the area, extent, and quality of habitat, number of mature individuals and the number of subpopulations due to the combined effects of adverse fire regimes and increased drought due to climate change, loss of riparian habitat due to changes in site hydrology and erosion, and competition with invasive woody weeds.

The NSW Threatened Species Scientific Committee has found that:

1. *Pomaderris sericea* N.A.Wakef. (family Rhamnaceae) is described as a “shrub to c. 2 m high; branchlets sericeous with golden simple hairs. Leaves narrow-elliptic, 6–30 mm long, 5–10 mm wide, obtuse, margin recurved, upper surface glabrous, lower surface sericeous with appressed golden to coppery hairs, entirely obscuring underlying stellate hairs, secondary veins obscure; stipules 2–4 mm long, deciduous. Panicles rather dense, c. pyramidal, 1–3 cm long and wide; bracts deciduous. Flowers yellow, externally villous, with grey to golden simple hairs over pale stellate hairs; pedicels 1–2 mm long; hypanthium 0.8–1 mm long; sepals 1.7–2.1 mm long, deciduous; petals absent; disc absent; ovary virtually inferior, summit simple-pubescent, style branched near base. Operculum membranous, c. half mericarp length.” (Walsh 1999).

2. The known populations of *Pomaderris sericea* are widely distributed from East Gippsland in Victoria north to Wollemi National Park (NP) in New South Wales (NSW). However, it is not known if the species is still extant at some of the previously known localities (ALA 2023). *Pomaderris sericea* was considered by

Silcock *et al.* (2020) as possibly extinct, but further surveys are required to confirm its status.

3. The total number of mature individuals of *Pomaderris sericea* is estimated to be <50. The species is known historically from three subpopulations: Coopracambra NP in Victoria (estimated to be <20 plants; Carter and Walsh 2010), Wollemi NP (approximately 15 plants; Bell 2008) and Berrima (subpopulation size unknown) in NSW. The species was last observed in 1987 in Coopracambra NP, in 1997 in Wollemi NP, and in 1984 at Berrima (Carter and Walsh 2010; ALA 2023). A subpopulation was also previously thought to occur in Morton NP in the Bundanoon area, NSW (Carter & Walsh 2010). This location has since had significant survey effort, and the record was found to be a misidentification (K McDougall pers. comm. 29 November 2022 in Commonwealth DCCEEW 2024).

4. *Pomaderris sericea* has a very highly restricted geographic distribution. The extent of occurrence (EOO) is reported as between 4 $km^2$ and 11,551 $km^2$, based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by IUCN (2024). The area of occupancy (AOO) is estimated to be 4–12 $km^2$ based on the species occupying a single (2 x 2 km) grid cell, the scale recommended for assessing the area of occupancy by IUCN (2022). Ranges are based on the possibility of one to three of the subpopulations being extant.

5. *Pomaderris sericea* is considered to be severely fragmented, given the likely small population size, short dispersal distances, isolation of subpopulations and likelihood that the loss of any one subpopulation is unlikely to be recolonised.

6. The subpopulation of *Pomaderris sericea* at Wollemi NP occurs in a narrow gorge along a small creekline (Bell 2001, 2008) in dry sheltered forest. The topography of the record locality has also been described as an east facing spur/sheltered creek slopes and sheltered creek bed (ESP 2013). The geology is Narrabeen Sandstone (ESP 2013, Carter & Walsh 2010). Associated species include *Eucalyptus punctata*, *E. sparsifolia*, *Acacia buxifolia*, *A. doratoxylon*, *Dodonaea boroniifolia*, *Entolasia stricta*, *Grevillea mucronulata*, *Isopogon dawsonii*, *Lepidosperma laterale*, *Phyllanthus hirtellus*, *Poa affinis* and *Styphelia triflora* (ALA 2023). The habitat at the Berrima subpopulation is undocumented.

7. *Pomaderris sericea* has been recorded flowering in October (VicFlora 2023). Some *Pomaderris* species take an estimated 2–6 years to reach maturity and produce seed, with shorter times associated with sites that have comparatively high moisture availability (Patykowski *et al.* 2014, Maryott-Brown & Wilks 1993). The pollinators of *P. sericea* are unknown, although insects may generally be the primary pollinators of *Pomaderris* species (Patykowski *et al.* 2014). Seeds may be dispersed by ants across short distances (Patykowski *et al.* 2014). Dispersal by water might also occur in riparian habitats.

8. The sensitivity of *Pomaderris sericea* to fire is not documented, however *Pomaderris* species are characterised as being obligate seeders (fire killed) (Falster *et al*. 2021). Many *Pomaderris* are reliant on fire to promote germination of soil-stored seed (Patykowski *et al.* 2016). *Pomaderris* seeds are physically dormant and are cued to germinate by high temperature thresholds, such as >80°C or 100°C for some species (Le Breton *et al.* 2020; Patykowski *et al.* 2016; Ooi *et*

*al.* 2014). Additionally, most species seem to have a seedbank which has a range of dormancy breaking requirements, with most seeds requiring fire-related temperatures for dormancy breaking, while others have lower temperature thresholds or no dormancy, which allows them to recruit in the inter-fire period (T LeBreton pers. comm. 3 May 2023 in Commonwealth DCCEEW 2024).

9. *Pomaderris sericea* is primarily threatened by adverse fire regimes and fire-drought interactions exacerbated by climate change, the loss of riparian habitat due to changes in site hydrology and erosion, and competition from woody weeds including crack willow (*Salix fragilis* var. *fragilis*). 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and competition', 'Anthropogenic climate change' and 'Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants' are listed as Key Threatening Processes under the Act.

10. *Pomaderris sericea* is known from 1–3 threat-defined locations based on the most serious plausible threat of fire and fire-drought interactions. Given the substantial geographic distance between subpopulations, they likely represent separate locations with a possibility that one or two subpopulations may be extinct.

11. It is highly likely that at least one or two of the three subpopulations of *Pomaderris sericea* are extinct, given the lack of recent observations despite survey efforts, and this suggests continuing decline in EOO, AOO, subpopulations and number of mature individuals can be inferred in the species. Approximately 77% of the modelled range of the species was within the extent of the 2019–2020 bushfires (Gallagher 2022). Climate change is expected to bring increases in average temperatures with more hot extremes and a greater number of dangerous fire weather days with longer fire seasons (Bureau of Meteorology and CSIRO 2022). This will likely lead to increased drying of habitat and exposure to fire related threats, and potentially higher fire frequency. Frequent fires that occur before plants have replenished the seed bank are likely to be detrimental to *P. sericea* by exhausting soil-stored seed reserves (Natale 2016). Conversely, low-severity fires such as planned burns may pose a threat to *P. sericea* if seed regeneration fails due to insufficient temperatures to break dormancy. Population declines occur when fires kill mature plants but fail to stimulate seed germination. Populations may also decline through natural seedbank decay. Climate change may increase the occurrence and impact of fire-drought interactions. Pre-fire drought can stress or kill mature individuals and increase the flammability of *P. sericea* habitat, while post-fire drought can lead to the desiccation and death of seedlings.

12. Continuing decline in the area, extent and quality of habitat available to *Pomaderris sericea* is also likely to be occurring through the loss of riparian habitat due to changes in site hydrology and erosion, and competition with invasive woody weeds. Climate change is predicted to alter precipitation regimes causing more time in drought and more intense short-duration heavy rainfall events (Bureau of Meteorology and CSIRO 2022). Given the species' preference for damp locations such as riverbanks, *P. sericea* is likely susceptible to reduced stream flows and drying habitat conditions during drought periods. Conversely, heavy rainfall events may cause plant mortality and a loss of soil-stored seed through prolonged flooding, bank erosion and scouring of the substrates occupied by *P. sericea*, and

in upslope areas from excessive runoff and surface erosion. Searches conducted in 2012–2013 and 2017 near the Wingecarribee River at Berrima, found that local waterways were subject to bank erosion and flooding associated with damming, contributing to declines in habitat quality and potentially the loss of individuals (ESP 2013; ESP pers. comm. 5 October 2022 in Commonwealth DCCEEW 2024). At Coopracambra NP, plants occur within the flood zone and may also be affected by extreme flood events. Where fires and floods coincide, severe erosion events can dramatically alter riparian areas through bank failure and silting of the waterway, directly affecting *P. sericea* and degrading both the quality and extent of its habitat. Such events can also facilitate the spread of invasive woody weeds such as crack willow, which is already known to occur in the habitat of *P. sericea* (Carter and Walsh 2010) and can compete with the species in riparian areas.

13. *Pomaderris sericea* N.A.Wakef. is eligible to be listed as a Critically Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing an extremely high risk of extinction in Australia in the immediate future as determined in accordance with the following criteria as prescribed by the *Biodiversity Conservation Regulation 2017*:

**Assessment against *Biodiversity Conservation Regulation 2017* criteria**

The Clauses used for assessment are listed below for reference.

**Overall Assessment Outcome:**

**Critically Endangered under Clause 4.3(a)(d)(e i,ii,iii,iv), Clause 4.4(a)(e i,ii A(l)) and Clause 4.5(a).**

**Clause 4.2 – Reduction in population size of species**
**(Equivalent to IUCN criterion A)**
**Assessment Outcome: Data Deficient**

| | | | |
|---|---|---|---|
| **(1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:** | | | |
| | (a) | for critically endangered species | a very large reduction in population size, or |
| | (b) | for endangered species | a large reduction in population size, or |
| | (c) | for vulnerable species | a moderate reduction in population size. |
| **(2) - The determination of that criteria is to be based on any of the following:** | | | |
| | (a) | direct observation, | |
| | (b) | an index of abundance appropriate to the taxon, | |
| | (c) | a decline in the geographic distribution or habitat quality, | |
| | (d) | the actual or potential levels of exploitation of the species, | |
| | (e) | the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites. | |

**Clause 4.3 – Restricted geographic distribution of species and other conditions (Equivalent to IUCN criterion B)**
**Assessment Outcome: Critically Endangered under Clause 4.3(a)(d)(e i,ii,iii,iv)**

| | | | | | | |
|---|---|---|---|---|---|---|
| **The geographic distribution of the species is**: | | | | | | |
| | (a) | for critically endangered species | | | very highly restricted, or | |
| | (b) | for endangered species | | | highly restricted, or | |
| | (c) | for vulnerable species | | | moderately restricted. | |
| **and at least 2 of the following 3 conditions apply**: | | | | | | |
| | (d) | the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations, | | | | |
| | (e) | there is a projected or continuing decline in any of the following: | | | | |
| | | (i) | an index of abundance appropriate to the taxon, | | | |
| | | (ii) | the geographic distribution of the species, | | | |
| | | (iii) | habitat area, extent or quality, | | | |
| | | (iv) | the number of locations in which the species occurs or of populations of the species. | | | |
| | (f) | extreme fluctuations occur in any of the following: | | | | |
| | | (i) | an index of abundance appropriate to the taxon, | | | |
| | | (ii) | the geographic distribution of the species, | | | |
| | | (iii) | the number of locations in which the species occur or of populations of the species. | | | |

**Clause 4.4 – Low numbers of mature individuals of species and other conditions (Equivalent to IUCN criterion Clause C)**
**Assessment Outcome: Critically Endangered under Clause 4.4(a)(e i,ii A(I))**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **The estimated total number of mature individuals of the species is:** | | | | | | | |
| | (a) | for critically endangered species | | | | very low, or | |
| | (b) | for endangered species | | | | low, or | |
| | (c) | for vulnerable species | | | | moderately low. | |
| **and either of the following 2 conditions apply:** | | | | | | | |
| | (d) | a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species): | | | | | |
| | | (i) | for critically endangered species | | | very large, or | |
| | | (ii) | for endangered species | | | large, or | |
| | | (iii) | for vulnerable species | | | moderate, | |
| | (e) | both of the following apply: | | | | | |
| | | (i) | a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and | | | | |
| | | (ii) | at least one of the following applies: | | | | |
| | | | (A) | the number of individuals in each population of the species is: | | | |
| | | | | (I) | for critically endangered species | extremely low, or | |
| | | | | (II) | for endangered species | very low, or | |
| | | | | (III) | for vulnerable species | low, | |
| | | | (B) | all or nearly all mature individuals of the species occur within one population, | | | |

| | | | | |
|---|---|---|---|---|
| | | | (C) | extreme fluctuations occur in an index of abundance appropriate to the species. |

**Clause 4.5 – Low total numbers of mature individuals of species**
**(Equivalent to IUCN criterion D)**
**Assessment Outcome: Critically Endangered under Clause 4.5(a)**

| **The total number of mature individuals of the species is:** | | | |
|---|---|---|---|
| | (a) | for critically endangered species | extremely low, or |
| | (b) | for endangered species | very low, or |
| | (c) | for vulnerable species | low. |

**Clause 4.6 – Quantitative analysis of extinction probability**
**(Equivalent to IUCN criterion E)**
**Assessment Outcome: Data Deficient**

| **The probability of extinction of the species is estimated to be:** | | | |
|---|---|---|---|
| | (a) | for critically endangered species | extremely high, or |
| | (b) | for endangered species | very high, or |
| | (c) | for vulnerable species | high. |

**Clause 4.7 – Very highly restricted geographic distribution of species– vulnerable species**
**(Equivalent to IUCN criterion D2)**
**Assessment Outcome: Vulnerable under Clause 4.7**

| | |
|---|---|
| For vulnerable species, | the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period. |

Professor Angela Moles, FRSN
Chairperson
NSW Threatened Species Scientific Committee

**Supporting Documentation:**

Commonwealth DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2024). Conservation Advice for *Pomaderris sericea* (bent Pomaderris). Australian Government, Canberra, ACT.

**References:**

ALA (Atlas of Living Australia) (2023) Records of *Pomaderris sericea* species page. Accessed: 3 July 2023. Available at: https://bie.ala.org.au/species/https://id.biodiversity.org.au/node/apni/2914940.

Bell SAJ (2001) Notes on the distribution and conservation status of some restricted plant species from sandstone environments of the upper Hunter Valley, New South Wales. *Cunninghamia* **7**: 77–88.

Bell SAJ (2008) Rare or threatened vascular plant species of Wollemi National Park, central eastern New South Wales. *Cunninghamia* **10(3)**: 331–371.

Bureau of Meteorology & CSIRO (Commonwealth Scientific and Industrial Research Organisation) (2022) State of the Climate 2022. Available at: http://www.bom.gov.au/state-of-the-climate/.

Carter O & Walsh N (2010) National Recovery Plan for the Bent Pomaderris *Pomaderris sericea*. Department of Sustainability and Environment, Melbourne.

ESP (Ecological Surveys & Planning) (2013) PAS2 Data Deficient Project. Report for the NSW Office of Environment & Heritage by S Douglas & S David, Ecological Surveys & Planning, Exeter.

Falster D, Gallagher R *et al.* (2021) AusTraits, a curated plant trait database for the Australian flora. *Scientific Data* **8**: 254, https://doi.org/10.1038/s41597-021-01006-6. Accessed: 3 July 2023. Available at: https://bie.ala.org.au/species/https://id.biodiversity.org.au/node/apni/2914940#ausTraits.

Gallagher RV (2022) Bushfire Expert Panel – Fire-affected plant species data. DOI: doi.org/10.5281/zenodo.5908826.

IUCN (International Union for Conservation of Nature) (2022) Guidelines for using the IUCN red list categories and criteria. Version 15. IUCN Standards and Petitions Committee.

Le Breton TD, Natale S, French K, Gooden B, Ooi MKJ (2020) Fire-adapted traits of threatened shrub species in riparian refugia: implications for fire regime management. *Plant Ecology* **221**: 69–81.

Maryott-Brown K & Wilks D (1993) Rare and endangered plants of Yengo National Park and adjacent areas. NSW National Parks and Wildlife Service, Sydney, Australia.

Natale S (2016) The role of fire in the population dynamics of the threatened plant species *Pomaderris walshii* and *Pomaderris adnata*. Honours Thesis, University of Wollongong.

Ooi MKJ, Denham AJ, Santana VM, Auld TD (2014) Temperature thresholds of physically dormant seeds and plant functional response to fire: variation among species and relative impact of climate change. *Ecology and Evolution* **4**: 656–671.

Patykowski J, Gibson M & Dell M (2014) A review of the conservation ecology of Round-leaf Pomaderris *Pomaderris vacciniifolia* F. Muell. Ex Reissek (Rhamnaceae). *The Victorian Naturalist* **131**: 44–51.

Patykowski J, Dell M & Gibson M (2016) Germination ecology and seed dispersal of a critically endangered plant: a case study of *Pomaderris vacciniifolia* (Round-Leaf Pomaderris). *PloS One* **11**: e0161665.

Silcock J, Field A, Walsh N & Fensham R (2020) To name those lost: assessing extinction likelihood in the Australian vascular flora. *Oryx* **54**: 167–177.

VicFlora (2023). Flora of Victoria, Royal Botanic Gardens Victoria. Accessed: 7 February 2023. Available at: https://vicflora.rbg.vic.gov.au/flora/taxon/65b225fb-5eb6-49fc-b317-d6705e69844d.

Walsh N (1999) *Pomaderris*, in: NG Walsh & TJ Entwisle (eds), Flora of Victoria. Volume 4 Dicotyledons: Cornaceae to Asteraceae. Inkata Press, Melbourne.