National Recovery Plan for the Bent Pomaderris *Pomaderris sericea*

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Australian Government

Department of Environment, Climate Change and Water NSW

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This is a Recovery Plan prepared under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999, with the assistance of funding provided by the Australian Government.

This Recovery Plan has been developed with the involvement and cooperation of a range of stakeholders, but individual stakeholders have not necessarily committed to undertaking specific actions. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved. Proposed actions may be subject to modification over the life of the plan due to changes in knowledge.

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Summary

The Bent Pomaderris *Pomaderris sericea* is a small shrub that is endemic to south-eastern Australia, where it is known from just three populations (two in New South Wales and one in Victoria) comprising a total of only about 20 plants at the Victorian site and an unknown number at the other two. Little is known of its ecology or threats to the species. The Bent Pomaderris is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act), Threatened under the Victorian *Flora and Fauna Guarantee Act* 1988 and Endangered under the New South Wales *Threatened Species Conservation Act* 1995. This national Recovery Plan for *P. sericea* details the species' distribution and biology, conservation status, threats, and recovery objectives and actions necessary to ensure its long-term survival.

Species Description

The Bent Pomaderris *Pomaderris sericea* is a deciduous shrub growing to about 2 m in height, with branchlets covered by golden hairs that mask the star-shaped hairs on the underside of the leaves. Leaves are alternate, narrow and ovate, 6–30 mm long and 5–10 mm wide, the length not more than 3.5 times the width. Leaves have recurved margins and a hairless upper surface. The small yellow flowers are covered in long, soft, shaggy, grey to golden hairs overlying star-shaped hairs, and form dense pyramid-shaped inflorescences 1–3 cm across. Flowers lack petals but have a floral tube about 1 mm long, and sepals about 2 mm long. The ovary is sparsely hairy. Flowering occurs in October (description from Walsh & Entwisle 1999). The branchlets covered by golden hairs that mask the star-shaped hairs on the underside of the leaves, the hairless upper surface of the leaf, and leaf shape and size help to distinguish this species from other *Pomaderris* species in Victoria (Walsh & Entwisle 1999). There have been no targeted studies of the biology or ecology of this species.

Distribution

Pomaderris sericea is widely but patchily distributed from the upper Genoa River in far-eastern Victoria to central eastern New South Wales (Wakefield 1951; Walsh & Entwisle 1999) in the South East Corner and Sydney Basin IBRA bioregions (*sensu* DEH 2000).

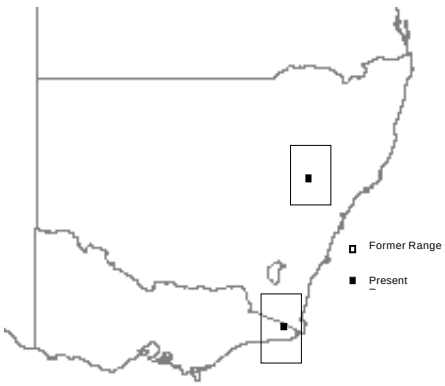

Figure 1. Distribution of *Pomaderris sericea*

Maps showing the detailed distribution of *P. sericea* are available from the Department of Environment, Climate Change and Water (for NSW) and the Department of Sustainability and Environment (for Vic).

Population information

Only three populations of *Pomaderris sericea*, containing only about 20 plants at one site and an unknown number from the other two, are known. Populations occur in the following locations:

- Coopracambra National Park, Victoria. Fewer than 20 plants observed in 1987 (N. Walsh unpubl.).
- Morton National Park, New South Wales. Population size unknown.
- Wollemi National Park, New South Wales. Population size unknown.

A key recovery action is to obtain updated information on all populations.

Habitat

The Victorian population of *Pomaderris sericea* grows in crevices between sandstone slabs within the flood zone of the upper Genoa River. Vegetation is riparian scrub and associated species include *Calytrix tetragona*, *Grevillea patulifolia*, *Pomaderris angustifolia* and *Pomaderris prunifolia*. The population at Morton National Park in New South Wales occurs in disturbed tall open forest of *Ceratoptalum apetalum*, *Eleocarpus* species and *Eucalyptus downii*. Plants occur near the base of a slope beneath a sandstone cliff at about 200 m above sea level. The population at Wollemi National Park (NSW) occurs in dry sheltered forest with *Eucalyptus punctata*, *Eucalyptus sparsifolia*, *Acacia buxifolia*, *Acacia doratoxylon*, *Dodonaea boroniifolia*, *Entolasia stricta* and *Poa affinis*. Soils are derived from Narrabeen Sandstones. Recovery actions include survey and mapping of habitat that will lead to the identification of habitat critical to the survival of the species.

Threats

The Bent Pomaderris is known only from three very small areas within a wide distribution. As there is no information on past distribution or abundance, and no evidence of any declines in existing populations, it is not possible to determine if the species has declined in range and/or abundance. The Victorian population is threatened by Poplar *Populus nigra* and Willow *Salix rubens* (a Weed of National Significance) expansion along the Genoa River, which could conceivably extirpate that population. The apparently very small population sizes and apparent low fecundity pose serious threats to long-term survival of the species. Current or potential threats to NSW populations of *P. sericea* are not known, but will be investigated as part of Recovery Plan implementation.

Recovery Information

Overall Objective

The **overall objective** of recovery is to minimise the probability of extinction of Bent Pomaderris in the wild and to increase the probability of important populations becoming self-sustaining in the long term. Within the life span of this Recovery Plan, the **specific objectives** of recovery for Bent Pomaderris are to:

1. Determine distribution, abundance and population structure
2. Determine habitat requirements
3. Manage threats to populations
4. Identify key biological functions
5. Determine growth rates and viability of populations
6. Establish plants in cultivation
7. Build community support for conservation

Program Implementation and Evaluation

This Recovery Plan guides recovery actions for the Bent Pomaderris and will be implemented and managed by the Department of Environment, Climate Change and Water (for NSW) and the Department of Sustainability and Environment (for Vic), supported by other agencies, educational institutions, regional natural resource management authorities and community groups as appropriate. Implementation of recovery actions in NSW will be according to the NSW Priority Action Statement (PAS) for the species. Technical, scientific, habitat management or education components of the Recovery Plan will be referred to specialist groups on research, *in situ* management, community education and cultivation as required. Contact will be maintained between the State agencies on recovery issues concerning the Bent Pomaderris. The Recovery Plan will run for a maximum of five years from the date of its adoption under the EPBC Act, and will be reviewed within five years of the date of its adoption.

Recovery Actions and Performance Criteria

Action	Description	Performance Criteria
Specific Objective 1: Determine distribution, abundance and population structure		
1.1	Undertake surveys to determine the area and extent of populations, the number, size and structure of populations, and inference or estimation of population change. **Responsibility: DSE, DECCW**	• All three population sites searched, sites mapped for population size, condition and habitat.
Specific Objective 2: Determine habitat requirements		
2.1	Survey known habitat and collect floristic and environmental information relevant to community ecology and condition. **Responsibility: DSE, DECCW**	• Species/habitat specific survey design prepared. • Habitat critical to survival mapped for all populations. • Requirements for completion of critical life history stages, recruitment and dispersal identified at known sites. • Ecological processes that maintain habitat of Morton NP and Wollemi NP populations identified.
2.2	Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference. **Responsibility: DSE**	• Predictive model for potential habitat developed and tested at two sites.
Specific Objective 3: Manage threats to populations		
3.1	Identify threats to NSW populations. **Responsibility: DECCW**	• Current or potential threats to Morton NP and Wollemi NP populations identified.
3.2	Identify and control threats from pest plants. **Responsibility: PV, DECCW**	• Measurable seedling recruitment/vegetative regeneration and measurable reduction in plant mortality at all sites.
3.3	Manage the threat of fire and other disturbance. **Responsibility: DECCW**	• Preparation of management prescriptions for NSW sites including relevant Hazard Reduction (HR) conditions on Threatened Species HR list. • Education of personnel undertaking hazard reduction activities near known populations or habitat in awareness of species location & identity and avoidance of negative impacts. • Provision of information to Rural Fire Service and inclusion of mitigation measures on Bush Fire Risk Management Plan(s), risk register and/or operation map(s). • Inclusion of fire protection operational guidelines to protect this species from fire in Reserve Fire Management Strategy.

Specific Objective 4: Identify key biological functions		
4.1	Evaluate current reproductive/regenerative status, seed bank status, by determining longevity, fecundity and recruitment levels. **Responsibility: DSE, DECCW**	• Reproductive ecology and regenerative potential quantified for all sites. • Seed bank potential quantified for all sites.
4.2	Determine seed germination requirements. **Responsibility: DSE**	• Stimuli for recruitment identified. • Management strategies identified to maintain, enhance or restore processes fundamental to reproduction and survival.
Specific Objective 5: Determine the growth rates and viability of populations		
5.1	Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data. **Responsibility: DSE**	• Techniques for monitoring developed and implemented. • Population growth rates determined and Population Viability Analysis completed for all populations.
Specific Objective 6: Establish plants in cultivation		
6.1	Establish cultivated plants *ex situ* for inclusion in living collections to safeguard against any unforeseen destruction of wild populations. **Responsibility: DSE, RBG-S/M**	• Development of effective propagation and cultivation techniques. • At least 15 mature plants in cultivation.
6.2	Establish a seed bank and determine seed viability. **Responsibility: DSE, BGT-S/M**	• Long-term storage facility identified. • Seed from all populations in storage. • Inclusion in SeedQuest NSW program for research on seed viability and requirements for successful conservation storage.
Specific Objective 7: Build community support for conservation		
7.1	Identify opportunities for community involvement in the conservation of *P. sericea*. **Responsibility: DSE, PV**	• Presentations to community nature conservation groups.

Abbreviations: DECC: Department of Environment and Climate Change, NSW; DSE: Department of Sustainability and Environment, Victoria; PV: Parks Victoria; RBG: Royal Botanic Gardens, Sydney & Melbourne

Management Practices

The philosophy of the strategy for recovery is habitat conservation, restoration and management combined with an understanding of the ecological and biological requirements of *P. sericea*. The emphasis is on using knowledge to better implement *in situ* management techniques that protect populations and promote regeneration and recruitment. To achieve this, recovery actions are primarily structured to (i) acquire baseline data, (ii) assess habitat condition including ecological and biological function, (iii) protect populations to maintain or improve population growth and (iv) to engage the community in recovery actions. On-ground site management will aim to mitigate threatening processes and thereby insure against extinction. Major threats requiring management include competition from pest plants, inappropriate disturbance regimes and small population sizes. A range of strategies will be necessary to alleviate these threats including weed control and disturbance management.

Broadscale protection measures applicable to all populations include legal protection of sites, habitat retention and liaison with land managers including private landholders. In addition, searches of known and potential habitat should continue to better define the distributions and size of populations. The Recovery Plan also advocates strategies to fill some of the major gaps in our knowledge to date. These include an understanding of the mechanisms underlying recruitment and regeneration. Successful *in situ* population management will be founded on understanding the relationships between *P. sericea* and associated flora, and its response to environmental processes. These are directly linked to biological function and are thus vital to recovery. Demographic censusing will be necessary to gather life history information and to monitor the success of particular management actions.

In addition to the above, *ex situ* conservation measures will be required and will include seed storage and plant cultivation. Cultivating *ex situ* populations will also aim to increase the amount of seed available for reintroduction to sites. Community participation in recovery actions will be sought, particularly in regard to recovery team membership and implementation of on-ground works.

Affected Interests

All populations of *P. sericea* fall under the jurisdiction of the Department of Environment, Climate Change and Water (for NSW) and Parks Victoria (for Vic), who have been contacted and have approved the actions outlined in this Recovery Plan.

Role and Interests of Indigenous People

Indigenous communities on whose traditional lands *P. sericea* occurs have been advised, through the relevant regional Indigenous facilitator, of the preparation of this Recovery Plan and invited to provide comments and be involved in the implementation of the plan.

Biodiversity Benefits

The Recovery Plan includes a number of potential biodiversity benefits for other species and vegetation communities in both Victoria and NSW. Principally, this will be through the protection and management of habitat. The adoption of broad-scale management techniques and collection of baseline data will also benefit a number of other plant species growing in association with *P. sericea*, particularly those species with similar life forms and/or flowering responses. The Recovery Plan will also provide an important public education role as threatened flora have the potential to act as 'flagship species' for highlighting broader nature conservation and biodiversity issues such as land clearing, grazing, weed invasions and habitat degradation.

Social and Economic Impacts

The implementation of this Recovery Plan is unlikely to cause significant adverse social and economic impacts. All populations occur within national parks, and protection measures will have negligible impact on current recreational and commercial activities in those parks.

Acknowledgments

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Priority, Feasibility and Estimated Costs of Recovery Actions

Action	*Description*	*Priority*	*Feasibility*	*Responsibility*	*Cost estimate*					
					Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	**Conservation status**									
1.1	Collect baseline data	1	100%	DSE	$15,000	$0	$0	$0	$0	**$15,000**
2	**Habitat requirements**									
2.1	Survey known habitat	1	100%	DSE, DECCW	$20,000	$0	$0	$0	$0	**$20,000**
2.2	Identify, survey potential habitat	1	75%	DSE,	$0	$30,000	$	$	$	**$30,000**
3	**Manage threats**									
3.1	Identify threats NSW	1	60%	DECCW	$0	$0	$0	$0	$0	**$0**
3.2	Control threats	1	75%	PV, DECCW	$0	$10,000	$10,000	$	$0	**$20,000**
3.3	Manage fire threat	1	60%	DECCW	$0	$0	$0	$0	$0	**$0**
4	**Identify key biol. functions**									
4.1	Evaluate reproductive status	2	75%	DSE	$12,000	$0	$0	$0	$0	**$12,000**
4.2	Seed germination	2	75%	DSE	$0	$12,000	$12,000	$	$	**$24,000**
5	**Growth rates, pop. viability**									
5.1	Conduct censusing	2	100%	DSE,	$10,000	$15,000	$15,000	$15,000	$15,000	**$70,000**
5.2	Collate, analyse and report	3	100%	DSE,	$0	$0	$0	$0	$5,000	**$5,000**
6	**Establish pops. in cultivation**									
6.1	Establish cultivated plants	3	50%	DSE, RBG-M	$0	$0	$15,000	$15,000	$15,000	**$45,000**
6.2	Establish a seed bank	2	50%	DSE, RBG-S	$0	$0	$4,000	$4,000	$4,000	**$12,000**
7	**Education, communication**									
7.1	Community extension	3	100%	DSE	$6,000	$6,000	$6,000	$6,000	$6,000	**$30,000**
	TOTAL				**$63,000**	**$73,000**	**$62,000**	**$40,000**	**$45,000**	**$283,000**