

Species Management Plan

Milky Silkpod *Parsonsia dorrigoensis*



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INTRODUCTION

Milky Silkpod (*Parsonsia dorrigoensis*) is listed in the Coastal IFOA (2018) as a species protected by the application of Species Management Plan. The species was the subject of a Flora monitoring plan for the previous IFOA, for which monitoring was undertaken and a report completed. It remained unclear following this program about the extent of the populations within the reserved areas within State Forests and the National Park estate.

SAVING OUR SPECIES STATUS

Milky Silkpod has been assigned to the 'Keep-watch' species management stream within the 'Saving our Species' program. This refers to an assessment that the species is predicted to be secure in NSW for 100 years without targeted site-based management.

2019/2020 Fires

In 2019/20 fire season substantial areas of public and private forests were affected by fire. Forestry Operations are proposed under site-specific conditions that include a requirement to take account of the impact of the fires on flora species managed under SMPs. This plan includes a consideration of the impact of fires on the Milky Silkpod population and includes measures to review the species response to those wildfires.

OBJECTIVES

The previous monitoring program identified that Milky Silkpod has some ability to recover from harvesting activities and to a lesser extent post-harvest burning, but there was limited information on the extent of populations within the reserved network. The objectives of this Species management plan are:

- To identify 30 *Milky Silkpod* SMP Exclusion Zones sites across the species distribution that occur in the harvest area and protect these from both harvesting and post-harvest burning
- to obtain a quantitative estimate of the proportion of individuals within the reserved network within State Forests, and within National Parks;
- to identify core reproductive populations within the broader population;
- Undertake monitoring to obtain a quantitative estimate of the proportion of individuals of *Parsonsia dorrigoensis* in the net harvest area which are killed, the proportion damaged by harvesting and post-harvest burning and the types and extent of damage sustained and to assess the extent to which damaged individuals recover vegetatively from different types and extent of damage.
- To assess Milky Silkpod recovery in wildfire affected areas.

In addition to these listed conservation objectives, the use of the wildlife habitat clump and tree retention clumps provisions within the coastal IFOA (Protocol 22) are expected to protect additional individuals and populations of *P. dorrigoensis* within operational areas from **forestry operations** where these can also meet the other selection criteria and objectives listed in Protocol 22 for clumps.

COMMENCEMENT DATE

The program of management, targeted survey and monitoring will commence in March 2020.

DISTRIBUTION AND ABUNDANCE

P. dorrigoensis occurs in coastal and subcoastal areas from Kew to Woolgoolga. There are unconfirmed records from outside this range, so the species may be more widespread than currently thought. Current information suggests that the occurrence at Kew (Kerewong State Forest) is disjunct, although many occurrences have been previously overlooked and intermediate populations may be discovered with further survey. The species is occasionally locally abundant in suitable habitat throughout its range. Population sizes have been estimated at about 60% of the known sites (summarised in Appendix 1), but it is unknown whether these estimates consistently include the total population of mature plants at each site. Based on these estimates the total population is about 20 000 individuals. Since there has been no overall systematic targeted survey, the actual total population is likely to substantially exceed this number.

ECOLOGY AND BIOLOGY

P. dorrigoensis occurs mostly in sheltered mid to lower slopes, usually on metasediments. The highest density of individuals often occurs in rainforest/eucalypt forest ecotones, but stands are recorded also from rainforest and from drier sites in eucalypt forest, on upper slopes and low ridges. Plants in drier sites tend to be smaller on average, although mature individuals which display evidence of past fruiting do occur in these situations. It may be more common in rainforest than records suggest, as plants in rainforest have most of their foliage in the higher vegetation strata and are easily overlooked. These patterns are probably largely related to fire history.

The species is a climber to at least 10 m high and possibly much larger. Its longevity is unknown but is likely to be at least several decades and may be of the order of centuries. Plants of moderate to large size appear to be resistant to periodic low intensity fire, based on the observation that numerous individuals in a recently burnt area had regrown from the persistent underground part of the main stem, even in individuals with an underground stem diameter of 2-3 mm. However, it may take at least several years for seedlings to develop fire resistance, and there are no observations to indicate how long it takes for plants which recover from one fire to develop resistance to a subsequent fire. Previous monitoring indicates that individuals are also moderately resilient to mechanical damage. The wind dispersed seeds are small and numerous, with a coma of long silky hairs. The frequent occurrence of stands on ecotones and the general lack of seedlings in habitats which have remained undisturbed for a decade or more suggest that recruitment follows suitable disturbance, if it coincides with suitable conditions of temperature and moisture. There is no evidence to indicate the extent of recruitment in the absence of disturbance.

CONSERVATION AND FOREST MANAGEMENT ISSUES

Within State Forest, *P. dorrigoensis* occurs partly in riparian and other harvest exclusion zones and partly in regrowth open forest subject to harvesting and post-harvest burning. The proportions are unknown, but it is estimated that about 50% of the total SF population may be in areas subject to harvesting and a much smaller proportion to post-harvest burning. These stands will be subject to a combination of regeneration and selection harvesting, in a mosaic within a Local area landscape of up to 1500 ha. Post-harvest burning is normally conducted if weather conditions allow but is patchy and doesn't affect the whole compartment. On average, about 30% of the net harvest area is directly affected by the operation (i.e. including soil disturbance and canopy removal). Based on previous estimates, it is predicted that no more than 20% of individuals within a compartment, and no more

than 30% of those within the harvest area, will be directly affected by harvesting in a single operation. The Flora expert panel identified mapping and protection of a selection of populations as an additional protection measure and this is proposed under an SMP approach.

2019/2020 Wildfires

The distribution of *P. dorrigoensis* records and the 2019/20 fires are shown in the map in Appendix 1. Of the 1098 records, 329 (30%) were inside the mapped burn perimeter of the 2019/20 wildfires. Burnt populations occurred in the western side of Collombatti and Ingalba SF and Ngambaa NR, as well as Thumb Creek, Mistake, Oakes and Roses Creek SFs and New England National Park. Populations around Coffs Harbour, the eastern side of Urunga MA and Eastern side of Ingalba, Collombatti, Ngaamba NR and Tamban SF were protected from fires during the fire season along with the southern extent of populations in Kendall Management Area.

REQUIREMENTS

1. Distribution Surveys:

Surveys for *P. dorrigoensis* will be undertaken during pre-operational surveys targeting potential habitat in operational areas at a minimum rate of 1km/hr. Individuals and populations of *P. dorrigoensis* recorded during pre-operational surveys will be used to determine the extent of the broader population of *P. dorrigoensis*, as well as core populations.

Reserved areas adjacent to operational areas will be searched during targeted flora surveys with broader surveys undertaken within the National Park estate undertaken opportunistically, within proximity of known records in consultation with NPWS area managers and SOS coordinator.

The occurrence and an estimate of population size of *P. dorrigoensis* will be recorded for this species during all comprehensive pre-operational and reserve area surveys in areas of potential habitat within each operational area triggered by a record. The method of estimating population size for larger populations will be recorded.

These targeted surveys will be conducted at a consistent rate of 1 km per hour to allow comparisons of detection rates and likely population sizes by habitat type, tenure and potential harvest status to help determine the likely proportion of the population that is protected in both reserves and State forest protection measures under the CIFOA.

2. Flora SMP Exclusion Zones

2.1 SMP Exclusion Zones - Selection and Protection:

- a) 30 Milky Silkpod SMP Exclusion Zones must be identified as exclusion zones by March 2023.
- b) Milky Silkpod SMP Exclusion Zones must be a minimum of 1 ha of base net area in size.
- c) Milky Silkpod SMP Exclusion Zones must be spread across the geographic range of Milky Silkpod within the SMP area.
- d) Milky Silkpod SMP Exclusion Zones must be mapped and recorded in the Flora_SMP_Exclusion dataset.
- e) Milky Silkpod SMP Exclusion Zones less than 2 ha in size are a Category 1 ESA.
- f) Milky Silkpod SMP Exclusion Zones 2 hectares or larger are a category 2 ESA.
- g) Milky Silkpod SMP Exclusion Zones may contribute to Wildlife Habitat Clumps where this is consistent with the requirements of Protocol 22.

Milky Silkpod SMP Exclusion Zones are intended to capture larger populations of Milky Silkpod that include mature reproductive individuals that occur in the net harvest area. Milky Silkpod exclusion zones should include a minimum of 20 Milky Silkpod plants and preferably include at least 1 large (>2m long) individual. An individual is identified as a separate vegetative material above ground, unless it is clearly part of the same underground rhizome or root material.

Milky Silkpod SMP Exclusion Zones will be selected from a combination of existing records and populations identified during targeted surveys in the first 3 years of the plan that are consistent with the aim of covering the species distribution and including large populations that occur in the net harvest area.

2.2 Other Flora SMP species Records

- a) Records of Milky Silkpod outside of *Milky Silkpod SMP Exclusion Zones* do not require site-specific protection.
- b) Notwithstanding 2.2 a), records may be included in wildlife habitat clumps and tree retention clumps where this is consistent with the requirements of Protocol 22.

3. Monitoring:

This species was previously monitored (Flora Monitoring Plan) under the previous Integrated Forestry Operating Approvals (IFOA) with three sites established in the Coffs Harbour and Kempsey area. These sites were not established for permanent and ongoing monitoring but will be re-located and reassessed to identify, as far as practical, the survival of those individuals in the longer term. The results of these reassessments will be reported at the first annual review meeting.

Three study sites will be selected over a period of three years, one site being established approximately annually. At least one of the three sites must be located where intensive harvesting is intended to be applied in the near future. At each site, four plots will be established that represent the spatial extent of the distribution of *P. dorrigoensis* within the study area and will be surveyed by the use of 20 metre by 20 metre plots with the number of individuals recorded within the area. Each plot will have the plot centre marked in the field and an average GPS location recorded. A health assessment of the population will be undertaken with comments relating to the disturbance history. A health assessment guideline and example recording form is provided in Appendix 2 and 3 respectively. Digital recording of the survey and results will also be undertaken with Site, Census and number of individuals recorded captured using the FCNSW Map App on an IPAD and details including; distance and bearing from a reference point or other marked trees, to facilitate re-location.

Location of study sites

The study site for the first year of the additional monitoring sites will be chosen from upcoming harvesting units where *P. dorrigoensis* is sufficiently common in the net harvest area. Study sites for the subsequent additional monitoring sites will be chosen from parts of the range of the species where sufficient numbers occur.

Factors measured and measurement frequency

Plots will be measured prior to harvesting (within six months), immediately post-disturbance (within one month of harvesting, or within one month of post-harvest burning if burning is conducted) and at nominally 1-3 years (at least 1 year should be allowed, to ensure any vegetative recovery is sustained).

Factors measured on each occasion are as follows:

- Initial (pre-harvest) measure - height, and foliage condition (coded as poor, moderate or good – refer to Appendix 2);
- Immediately post-harvest - type and extent of harvesting damage, coded as indicated in the attached sheet (Appendix 2). In addition, any new seedlings appearing post-harvesting, within the plot area, will be counted.
- One-year post-harvesting - height and foliage condition will be re-assessed and type and extent, if any, of vegetative recovery recorded for any damaged plants. Vegetative recovery will be coded as indicated in appendix 2. The number of additional, untagged plants within the plot area will be counted for the pre-harvest measure.

4. Post-fire Recovery Assessment

10 existing record sites will be selected that represent 5 sites with low-moderate fire severity and 5 sites with high-severe intensity to assess response to wildfires. Sites that local ecologists are confident they can relocate will be selected. As sites do not have accurate pre-fire population estimates sites will be visually assessed for response to determine if live plants can be located and assess their fire response. Sites will be assessed in 2020 prior to scheduled November annual review meeting. Pending results of 2020 surveys may be repeated in 2021 and beyond.

IMPLEMENTATION TIMETABLE

		2020	2021	2022	2023	2024	
Task	Proposed Commencement Date	Plot re-measure	Plot re-measure	Plot re-measure	Plot re-measure		Notes
SMP approval	March-2020						
Milky Silkpod SMP Exclusion Zone site selection							
Significant site-selection		Identify sites	Identify sites	Identify sites			
Monitoring Surveys							
Survey of reserved patches and NPWS estate		Dec 2020-Oct 2021	Ongoing	Ongoing			
Establishment and measure of first site		Mar/April 2020	Feb-Mar 2021	Feb-Mar 2022			Harvesting schedule dependent
Establishment and measurement of second new site		Jun/July 2020	Jun/July 2021	Jun/July 2022			Harvesting schedule dependent
Establishment and measurement of third new site			Jun/July 2021	Jun/July 2022	Jun/July 2023		Harvesting schedule dependent
Results summarise and compilation		Sept-Oct 2020	Sept-Oct 2021	Sept-Oct 2022	Sept-Oct 2023		
Review Meeting		Nov-20	Nov-21	Nov-22	Nov-23	Mar/Apr 2024	
Previous Monitoring Site Assessment							
Reassessment of previous monitoring sites		Nov 2020					
Wildfire Recovery Assessment							
Survey of sites in wildfire affected areas		Nov 2020 – Initial results	Report Oct 2021				

NOTE: the timing of the commencement of plot establishment will be dependent on the harvesting schedule and locating adequate populations, so the above proposed time frames may vary.

REVIEW

Following compilation of the survey results, plot implementation and re-measure of the previous monitoring plots a review of the information will be undertaken in November 2020 with subsequent review meetings proposed annually for this and other species managed by the Species Management Plan stream. This will be undertaken to assess progress on listed aims and proposed timeframes of completion.

APPENDIX 2. ASSESSMENT CODES FOR HEALTH AND DAMAGE

Harvesting Damage

Assessed as a two digit code (multiple codes may be used for a single plant if there are several types of damage). Codes are a subset of those used for trees, but for consistency the code numbers are left unchanged so will not be consecutive.

First digit = type of damage	Second digit = extent of damage
0 = undamaged	always 0
1 = 'crown' or branch damage	1 = minor 2 = moderate 3 = severe
2 = bark damage on stems, with exposed cambium	1 = minor 2 = significant damage affecting up to ½ circumference 3 = significant damage affecting over ½ circumference
3 = stem breaks	1 = < ½ of stem cross-sectional area broken 2 = > ½ of stem cross-sectional area broken, but not severed 3 = stem severed
5 = root disturbance	1 = < ½ root ball affected 2 = > ½ root ball affected 3 = completely uprooted

Recovery Codes


First character (type): A = 'crown' or secondary stem regrowth
 B = regrowth from primary stem above ground level
 C = coppice from stem at or near ground level
 D = root suckers

Second character (vigor): 1 = vigorous
 2 = moderate
 3 = weak

Crown / foliage condition

Good Most of the 'crown' (region of secondary branching and foliage development) densely leafy.
 Moderate 'Crown' moderately leafy.
 Poor 'Crown' sparsely leafy and with numerous dead or leafless secondary branches.

APPENDIX 3. EXAMPLE SURVEY FORM

		SMP FLORA SURVEY – CIFOA REGION				OFFICE USE ONLY	
						Survey name/ no.	
				Entry date			
STATE FOREST		M.A.		PLANNING AREA (S)			
PLOT NUMBER		LOCATION DESCRIPTION		SURVEY CPT.			
DATUM	AMG COORDINATES	Easting		AREA TYPE			
GDA94		Northing		<input type="checkbox"/> Net Harvest Area <input type="checkbox"/> Exclusion Area			
BROAD HABITAT TYPE							
FOREST TYPE NUMBER(S)		Rainforest		Sclerophyll		Woodland	
		<input type="checkbox"/> Subtropical <input type="checkbox"/> Dry <input type="checkbox"/> Temperate		<input type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Swamp		<input type="checkbox"/> Shrub <input type="checkbox"/> Heath <input type="checkbox"/> Tall	
OBSERVER(S)		TARGET SPECIES:					
DATE							
START TIME (24hr Format)							
FINISH TIME (24hr Format)							
TOTAL TIME							
Tree No.	Species	Distance (m)	Bearing	Height (m)	Plant Condition	Age Class	Comments
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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