



# Enhancing community capacity to assess the impacts of Myrtle rust on rainforest Myrtaceae

*Progress Report (APBSF020/CONT19/1017)*

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## Contents

1.	Executive Summary	4
2.	Introduction	4
3.	Aim	5
4.	Methods/Process	5
5.	Achievements, Impacts and Outcomes – April 2021 update	7
9.	Appendices, References, Publications	9

## 1. Executive Summary

The initial proposal for this project was to work with Traditional Owners in the Gondwana Rainforest World Heritage Area. However, since securing funding, the NSW Department of Planning, Industry and Environment employed two Aboriginal Project Officers as part of their Biodiversity and Conservation division. We thus took the opportunity to utilise this on-ground expertise and shifted the focus to the Coffs Harbour Local Land Council and local Indigenous Protected Areas (Minyurnai IPA and Gumma IPA), with direct links into these Indigenous communities through the Aboriginal Community Engagement team. We believe this will be a better outcome for the sustainability and longevity of cross-cultural learning and engagement in biosecurity with Indigenous Australians.

Workshops were held over 4 days with Aboriginal Rangers in Coffs Harbour (Coffs Harbour Local Aboriginal Land Council and Gumma IPA) and Minyurnai LPA. The first day in each region focused on biosecurity, forest health, myrtle rust symptoms, impact and monitoring, and included a field tour to look at myrtle rust on local Myrtaceae. This also allowed for cross-cultural discussions on the importance of cultural values for biosecurity agencies and the need for monitoring the impact of invasive species 'on country'. Butchulla Land and Sea Rangers from Queensland also attended and presented, which was vital for the success of the workshops, with NSW Aboriginal Rangers able to learn from the experiences of their Queensland counterparts.

Discussions were held to identify the most appropriate way to utilise Indigenous cultural knowledge to advance the importance of Indigenous culture in biosecurity. To utilise this knowledge to “prove sacredness” it needs to be made public (i.e. to non-Indigenous Australians), and the Aboriginal Project Officers will work with the Aboriginal Rangers to ensure approval is obtained for any Indigenous Culturally and Intellectual Property rights. As an example, for a particular native species (e.g. *Melaeluca quinquenervia*, paperbark), while the exact use or cultural significance of the species is sacred and not to be made public, a broad categorical description of its cultural importance may be, such as bush-food, tools, medicinal, scar tree, shelter.

## 2. Introduction

The invasive pathogen myrtle rust (*Austropuccinia psidii*) is impacting Australia’s native ecosystems. In less than 10 years myrtle rust has devastated native flora leading to three species being listed as Critically Endangered — *Rhodomyrtus psidioides*, *Rhodamnia rubescens* and *Lenwebbia* sp. (Carnegie & Pegg 2019; Fensham et al. 2020). Despite this, and calls for monitoring of native flora threatened by myrtle rust (Makinson et al. 2020), there is no structured surveillance of flora to gain an understanding of what other species are being threatened. There is also negligible monitoring of currently threatened species, other than individual research projects (e.g. Pegg et al. Fire and Rust (ANPC/PBSF029); K’gari Butchulla biosecurity project (PBSF025)) and Saving our Species programs investigating germplasm capture (Stehn 2021).

Monitoring of the impacts of myrtle rust in native ecosystems was initially conducted by a small cohort of primary industries researchers (Carnegie et al. 2016; Pegg et al. 2018), then with the

addition of project-based research (e.g. Fernandez Winzer et al. 2018; Fensham et al. 2020; Pegg et al. 2020; ) and more recently the Saving our Species surveys. However, there is a need to tap into a broader range of stakeholders and land managers. Traditional Owners manage large parts of Australia (<https://www.niaa.gov.au/indigenous-affairs/environment/indigenous-protected-areas-ipas>), and have a keen interest in the health of their ‘country’. Aboriginal Rangers are underutilised in forest biosecurity and invasive species impact assessment.

Biosecurity measures aim to protect Australia’s economic, environmental, and social values, market access, tourism, and human health (Craik et al. 2017). While assumed to be included as part of social values, Indigenous cultural values are not specifically considered in biosecurity decision making. Cross-cultural learning can improve biosecurity and invasive species management by gaining an understanding of Indigenous methods to manage ‘country’, clearly understanding the cultural importance of for example specific plant species or ecosystems (i.e. why they need to be protected), and encouraging traditional owners to be involved in biosecurity.

However, Indigenous cultural values are not clearly defined or understood by non-Aboriginal people in Australia. To paraphrase Yui Elder Max Duramunmun Harrison (<https://www.youtube.com/watch?v=06UpQQQ7cBM>), while non-Aboriginal people can see that a church is sacred, they cannot understand or see the “energy or ceremony” in a tree or rock or sacred place, they cannot see the sacredness of it, so Aboriginal people have to “prove” that it is a sacred site. We believe that one way to illustrate proof of sacredness or cultural values is to provide tangible examples of why something is sacred. For example, a certain species of Myrtaceae is part of a significant story, or a bushfood, or canoes or spears were made from it. Providing these tangible examples to biosecurity agencies and policy makers will help increase the profile and importance of Indigenous cultural values in biosecurity decision making, to the benefit of both Indigenous and non-Indigenous Australians.

### **3. Aim**

1. Raise awareness with Traditional Owners (Aboriginal Rangers) of biosecurity and invasive species impact monitoring through training workshops.
2. Engage with Traditional Owners to actively monitor the impact of myrtle rust on culturally significant Myrtaceae ‘on country’.
3. Through cross-cultural learning, work with Traditional Owners to gain and understanding of the cultural values of Myrtacea to feed back into biosecurity policy.

### **4. Methods/Process**

Development of training modules

Training modules developed as part of PBSF012 were used as a template and adapted based on learnings from previous workshops and discussions with the project team.

A week of workshops were held in the Northern Rivers region of NSW 22–26 February 2021. The main workshops, with Coffs Harbour Local Land Council, Gumma IPA and Minyumai IPA, focused on biosecurity, invasive species impact monitoring, and germplasm collection and storage (??). Workshops were held at the Coffs Harbour Botanic Gardens and Minyumai IPA. Formal presentations were interspersed with group activities seeking input from participants on what they thought biosecurity meant, and what was the cultural importance of protecting native flora (trees) and field tours looking for pests and diseases and how to assess damage.

The workshop outline was as follows:

- **Part 1 - Biosecurity overview – Angus Carnegie (DPI NSW)**
  - Biosecurity – what is it and why is it important?
  - Environmental biosecurity priority lists
  - Significance of biosecurity
    - How do things get here?
    - Reducing the risk & what happens when they do arrive?
- **Part 2 – What are we protecting? Chantel Van Wamalen/Tilly Davis (Butchulla Land and Sea Rangers)**
  - Cultural and ecological values of K’gari (Fraser Island) – Presented by Butchulla Land and Sea Rangers
  - Impacts of myrtle rust on K’gari
  - Programs to expand awareness and capacity
- **Part 3 - Cultural aspects of myrtle rust – Aj Perkins**
  - Potential impacts to Aboriginal people and culture
  - What it means for you and your community in protecting country, culture and LORE from biosecurity threats
- **Part 4 – Forest health & biosecurity Louise Shuey/Geoff Pegg (DAF)**
  - An introduction to forest pests and pathogens and the impacts
  - Myrtle rust
    - Biology
    - Host range and impact
  - Where, when and what to look for
- **Part 5 – What can I do to help? Geoff Pegg**
  - Creating awareness
  - Forest health surveillance activities
  - Reporting
  - Symptoms and signs – pest and disease identification.
- **Part 6 – Conserving species affected by myrtle rust – Craig Stehn DPIE**
  - Data capture
    - What to capture?
    - How to capture?
    - Why capture this?
- **Part 7 - Conservation seed collecting and plant material – Gavin Phillips (Australian Plant Bank)**

## Agenda of Workshops

Presenter	Topic
Aj Perkins, DPIE	Welcome to Country, Aims of workshop
Angus Carnegie, DPI	Introduction to biosecurity
Chantel van Wamelen & Tilly Davis, Butchulla Ranger	Biosecurity on K'gari, cultural values and impact of myrtle rust.
Aj Perkins, DPIE	Cultural aspects of myrtle rust
Louise Shuey, DAF	Introduction to forest health
Geoff Pegg, DAF	Symptoms and signs of pests and diseases
Geoff Pegg, DAF	Myrtle rust symptoms, impact, how to assess
Craig Stehn, DPIE	Data capture: what, how, why
Gavin Phillips, Australian PlantBank	Conservation seed collecting and plant material collecting for conservation

## 5. Achievements, Impacts and Outcomes – April 2021 update

Over 45 attendees attended the two workshops. Following on from the workshops, a number of activities have been planned:

- Ongoing discussions with Aboriginal Ranger groups on the best method to conduct monitoring and capture data of the impact of myrtle rust on country.
- Planning is currently underway (DAF, DPI) to revisit northern NSW to conduct surveys with Aboriginal Rangers, identifying and assessing myrtle rust on species in the local environments, demonstrating and practicing forest health survey and recording methods and discussing reporting plans. Reporting of pests and diseases and any associated impacts remains an issue along with how the data is stored and in what form.
- In the early stages of developing information posters for each IPA that provides background on biosecurity, myrtle rust, the importance of monitoring and reporting, as well as cultural aspects of key species in their region.
- This project has allowed for the extension of Indigenous Ranger networks with a focus on forest health and biosecurity and the threat invasive pests like myrtle rust pose to Indigenous land and culture. It links with and builds on the previous and existing Butchulla Land and Sea ranger projects PBSF012 and PBSF025.

## Seeking approval to change focus of the project

The original project proposal (and contract) stipulated we would be working with Traditional Owners in the **Gondwana Rainforest World Heritage Area**. However, after the project was approved, the NSW Department of Planning, Industry and Environment employed two Aboriginal Officers in Coffs Harbour (including Aj Perkins) as part of their Biodiversity and Conservation group. This was an opportunity not to miss, with a direct link into

Traditional Owner groups and the potential to mentor a young local who could lead the charge with this work into the future. As such, we are no longer working in the Gondwana Rainforest WHA, but with Aboriginal Ranger groups in Coffs Harbour Local Aboriginal Land Council, Gumma Indigenous Protected Area (IPA) and Minyumai IPA. And specifically, with DPIE (Aj Perkins). We have also brought on board Craig Stehn from Saving our Species (DPIE) due to the threat of myrtle rust on the Critically Endangered scrub turpentine and native guava — two key species to focus impact assessments within Indigenous country. Furthermore, we invited Gavin Phillips, Seed Collection Manager with Royal Botanic Gardens,

- As such, we seek formal approval for this change in focus.



## 9. Appendices, References, Publications

### Media output: DPI Workplace

#### Biosecurity training for Aboriginal Rangers: cross-cultural learning for improved biosecurity

Angus Carnegie (DPI Forest Science) is with Aj Perkins (DPIE Aboriginal Officer) and Geoff Pegg (Queensland DAF) conducting biosecurity training with Aboriginal Rangers in northern NSW. More than 45 people attended the Biosecurity Workshops, including Rangers from Minyurni Indigenous Protected Area (NSW), Gumma IPA (NSW), Coffs Harbour Local Aboriginal Land Council (NSW) and Butchella Rangers (Queensland). The Aboriginal Ranger groups that attended manage significant areas of important habitat for critically endangered and culturally significant species affected by myrtle rust. This project, funded by the Australian Plant Biosecurity Science Foundation, is closely aligned with **Regional NSW Top Priorities**: Project Safeguard Biosecurity (strategies to ensure early detection and eradication of exotic pests) and the Aboriginal Ranger Program (empowering Traditional Owners with knowledge to manage their forest estates).





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