



# Expanding environmental biosecurity capacity to protect our unique ecosystems on K'gari (Fraser Island)

*Progress Report (PBSF025)*

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## 1. Executive Summary

Exotic pests threaten cultural and environmental biodiversity values unique to Australia, prime topical examples being myrtle rust affecting Australian Myrtaceae and the more recent decline of Bunya pines in the Bunya Mountains National Park. This project aims to develop and deliver training that enhances environmental biosecurity awareness, thereby increasing the capacity of the Butchulla, the traditional custodians of K'gari (Fraser Island), to detect, monitor and report on priority pests that may threaten culturally and environmentally significant species within Fraser Island (K'gari) World Heritage Area. This project expands on the project PBSF012, initiating a train-the-training program to allow the extension of environmental biosecurity awareness and reporting capacity. Training in partnership with the Butchulla Land and Sea Rangers (BLSR) has been extended to Queensland Parks and Wildlife Service (QPWS) staff and community rangers including Landcare groups from Hervey Bay and Sunshine Coast (Gubbi Gubbi). Additionally, training in myrtle rust assessment and monitoring has been conducted, including in wildfire affected sites.

## 2. Introduction

Exotic pests threaten cultural and environmental biodiversity values unique to Australia. Myrtle rust is the second most significant plant pathogen to invade the native environment in Australia and several reviews have highlighted serious gaps relating to Australia's environmental biosecurity. Under the World Heritage Convention, the Federal Government (with day-to-day management devolved to the State) has responsibility for identifying and protecting the Outstanding Universal Value (OUV) and ensuring its conservation for current and future generations. Australia's World Heritage properties are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and are thus recognised as matters of national environmental significance under the EPBC Act's assessment and approval provisions. Therefore, ensuring biosecurity risks, including myrtle rust are identified then managed effectively are paramount to fulfilling these obligations. This project expands on the previous work done in project PBSF012, further expanding environmental biosecurity awareness and forest health surveillance. Additional training in myrtle rust identification and assessment methods are also a focus.

## 3. Aims and Objectives

This project aims to increase the capacity of traditional custodians (Butchulla) to detect, monitor and report on myrtle rust and other pest and disease threats to the Fraser Island (K'gari) World Heritage Area. Additionally, a train-the-trainer program will be initiated to expand capacity on K'gari and neighbouring regions.

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## 4. Method/Process

In a collaboration (Butchulla Aboriginal Corporation (BAC), DAF, BQ, BLSR and DES), adopt a coordinated response to myrtle rust by:

- Establishing centralised data protocols and integrate with national reporting systems
- Establishing current impact status of myrtle rust priority species
- Mapping distribution of selected species for conservation planning
- Establishing a train-the-trainer program on K’gari, co-ordinating surveys, investigating traditional burn programs for managing myrtle rust
- Developing strategies to enable germplasm collection and storage
- Facilitating knowledge sharing to other First Nations peoples – Kakadu National Park and Gondwana Rainforests of Australia

## 5. Achievements, Impacts and Outcomes – September 2020 update

### Biosecurity and forest health – train-the-trainer program

A partnership between Department of Agriculture and Fisheries (DAF), Department of Environment and Science (DES) and the Butchulla Land and Sea Rangers (BLSR) made a successful application for funding through the Australian Heritage Grants. This has enabled the employment of an additional BLSR focussed on Forest health and Biosecurity. Matilda (Tilly) Davis was the successful candidate and commenced working with the BLSR in late July 2020. This will enable there to be a full time focus on Forest health and Biosecurity for K’gari, including myrtle rust.

A Forest health and biosecurity training workshop was recently run by Dr Pegg and Dr Shuey in collaboration with the BLSR and Alana Hazel from the World Heritage Unit, DES. This training was delivered to Community Rangers and Landcare groups from the Fraser Coast and Sunshine Coast Regions, along with Queensland Parks and Wildlife Rangers. Butchulla Elders Aunty Joyce Bonner and Aunty Rachel Killer also attended the training day. Funding to assist with the running of the workshop was provided through a small Council Grant.

Training was a combination of theory and practical exercises. The key message presented was “Biosecurity is a shared responsibility – we can all contribute to protect our unique

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environments". The training was aimed at increasing awareness and capacity to detect and report on forest health and biosecurity threats.

The workshop outline was as follows:

- **Part 1 - Biosecurity overview**
  - 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?**
  - Cultural and ecological values of K'gari (Fraser Island) – Presented by Butchulla Land and Sea Rangers
- **Part 3 – Forest health & biosecurity**
  - Plant pests and pathogens
- **Part 4 – What can I do to help?**
  - Creating awareness
  - Forest health surveillance
  - Reporting
  - Symptoms and signs – pest and disease identification.

Additional training workshops are planned for:

- 1<sup>st</sup> of September 2020 - Women's workshop on K'gari – delivered by BLSR (Tilly Davis)
- November 2020 – QPWS K'gari Rangers – BLSR & DAF Queensland

### **Myrtle rust surveys and assessments**

Covid-19 closure delayed some activities, but surveys were recently conducted to:

1. Train new BLSR in myrtle rust symptom identification and assessment methods
2. Inform BAC elders about the project and broader forest biosecurity activities

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3. Conduct surveys and establish monitoring sites in wildfire affected southern parts of K'gari

Training included the establishment of different plot types to capture:

- Impact within mixed species environments
- Impact on seedling regeneration
- Impact on selected species

A new myrtle rust assessment form has been developed with a focus on capturing post fire impact.

Surveys sites included:

**Wangoolba Creek - Central Station.** This is a culturally significant and women's only area in a rainforest ecosystem. No rust was found on Myrtaceae within this area. This site is undisturbed with little or now evidence of new, susceptible growth flush on species like *Syzygium oleosum*.



Dr Shuey preparing the women to search for myrtle rust at Wangoolba creek on K'gari.

Left to right: Chantel Van Wamelen, Jodie Rainbow, Aunty Rachel Killer, Tilly Davis, Aunty Joyce Bonner & Dr Louise Shuey.

**Boorangoora (Lake McKenzie).** This is a culturally significant site and a frequently visited tourist location on the island. A range of Myrtaceae inhabit the lake edge including *Melaleuca quinquenervia*, *Leptospermum polygalifolium* and *Homoranthus virgatus*. Myrtle rust was identified on *M. quinquenervia* and *H. virgatus*, with the most significant impact identified on *H. virgatus*. Repeated infection has caused significant dieback of individuals at this site.

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However, there is also evidence of potential resistance/tolerance within the species at this and other sites across the island. Further surveys will be done to look at this in more detail. The ecological significance of this species is unknown making it difficult to detail impact. There is no record of this species having any cultural significance.

**Wildfire sites – Southern K’gari.** A lightning strike sparked a wildfire in November 2019 that burnt significant areas of coastal heath and woodland towards the southern tip of K’gari. This included *M. quinquenervia* wetlands where five myrtle rust monitoring plots were established in different locations. All sites were in areas where fire intensity levels were high, reaching the tree canopies. Myrtle rust impacts were identified in all sites infecting epicormic reshoots, with associated dieback becoming evident. These plots will be monitored by BLSR with another joint survey also planned for November 2020. Myrtle rust impact on seedling regeneration was also identified. Data from these fire sites will be included in as part of a National project (PBSF029 and NESP funding).



Establishing myrtle rust monitoring plots on K’gari – impacts on seedling regeneration.

Left to right: Tilly Davis, Jodie Rainbow, Blayde Foley, Dr Louise Shuey, Myles Broome, Chantel Van Wamelen & Dr Geoff Pegg.





*Austropuccinia psidii* (myrtle rust) impacts on paperbark (*Melaleuca quinquenervia*) regenerating after wildfire on K'gari.



Butchulla Land and Sea Rangers from left Chantel Van Wamelen, Jodie Rainbow, Tilly Davis, assessing myrtle rust impacts on paperbark, *Melaleuca quinquenervia*.





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