

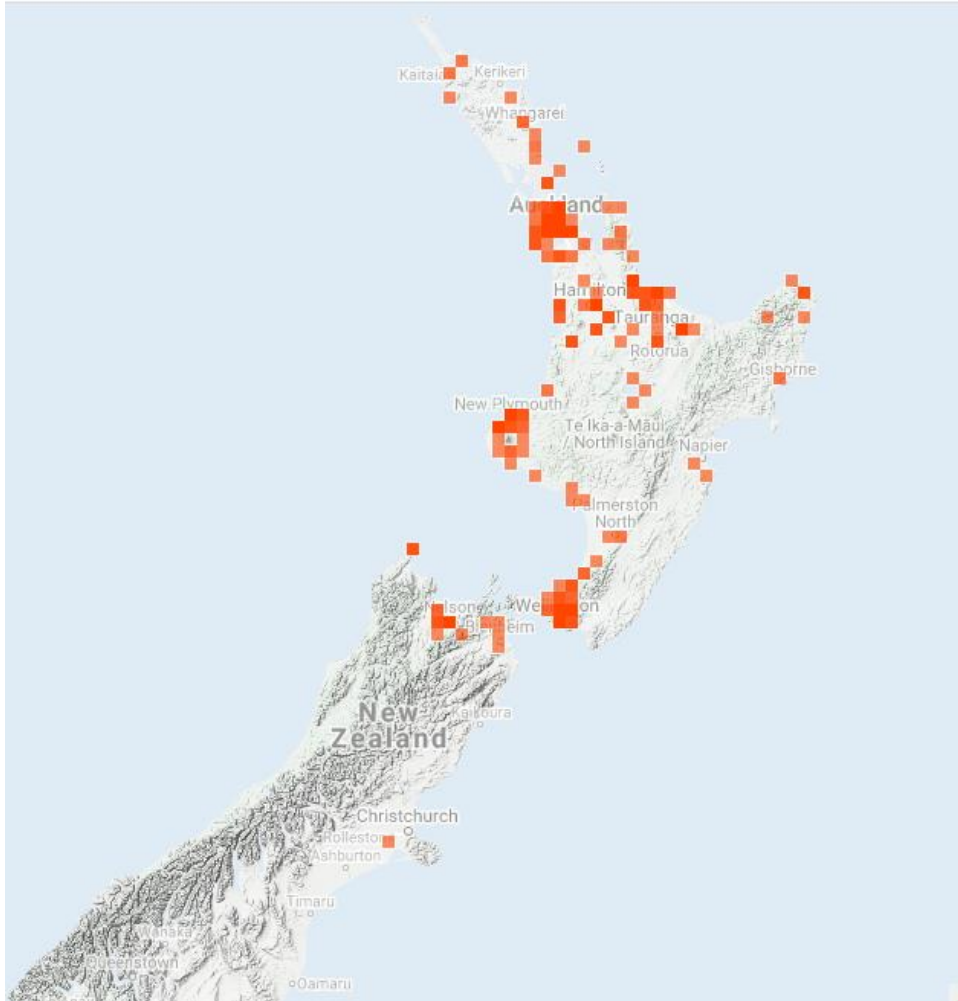
# MYRTLE RUST

## Update March 2021



Image credit:  
<https://www.stuff.co.nz/business/farming/92187601/deadly-myrtle-rust-endangers-manuka-and-pohutukawa>

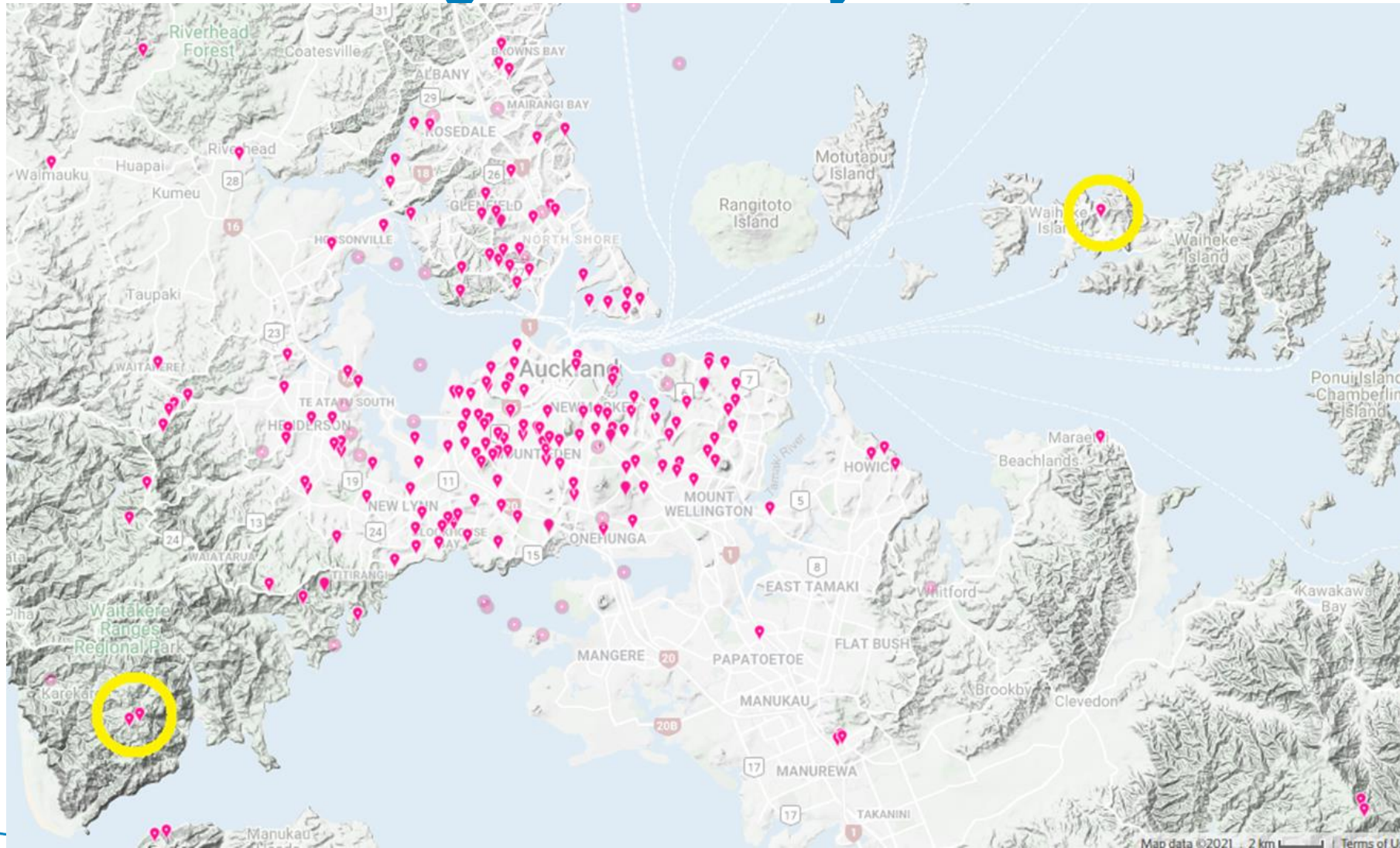
# Myrtle Rust (*Austropuccinia psidii*)



- Fungal disease that infects growing tissues of Myrtaceae
- Detected on Raoul Island in March 2017
- Originated in Brazil and dispersed to North America, Asia, Pacific, Australia and New Zealand.
- It (pandemic strain) is now widespread in most of the northern half of NZ



# Sites in auckland region where myrtle rust has been found



# Myrtle Rust (*Austropuccinia psidii*)

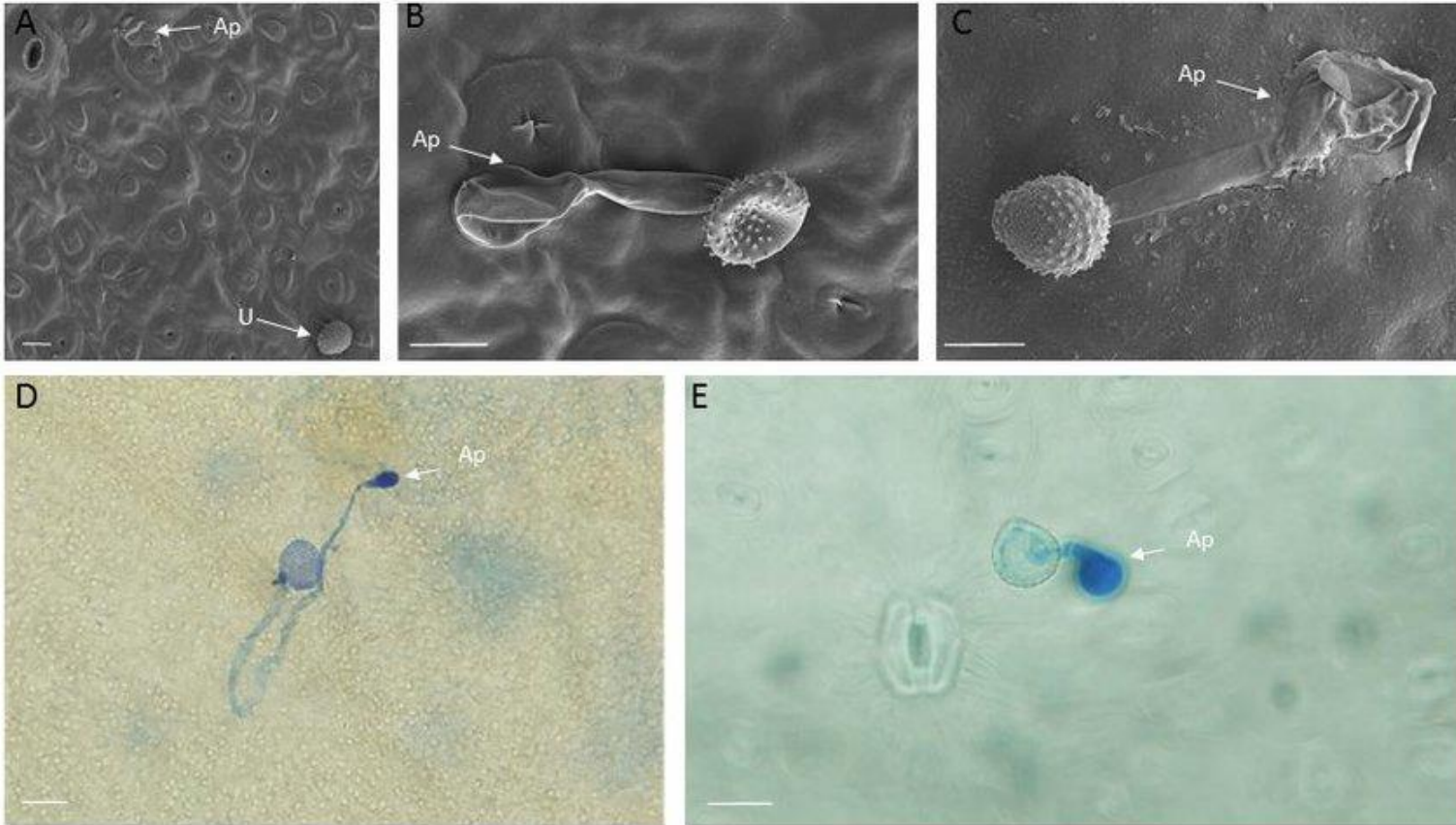


Image credit: Peri Tobias

- Quite strange biology:  
Genome size (> 1Gbp),  
Host range (> 480 species)  
  
Unusually resistant to chemical controls





Impacts vary with host susceptibility, climate and spore-loading

# Susceptibility

- Australian experience -----
  - Incursion response surveillance here
  - Scion field observation plots (Rotoma)
  - Lab inoculations and genetic resistance screening
  - Infected sites managed
- 
- Full list of known infected species in NZ: [myrtlerust.org.nz](http://myrtlerust.org.nz) > resources



*Rhodomyrtus,*  
*Rhodamnia spp*



# Susceptibility

- Australian experience
- Incursion response surveillance here
- Scion field observation plots (Rotoma)
- Lab inoculations and genetic resistance screening
- Infected sites managed



*Lophomyrtus*

*Agonis*

*Metrosideros*

*Syzygium*

- Full list of known infected species in NZ: [myrtlerust.org.nz](http://myrtlerust.org.nz) > resources

# Susceptibility

- Australian experience
- Incursion response surveillance here
- Scion field observation plots (Rotoma)
- Lab inoculations and genetic resistance screening
- Infected sites managed



***Lophomyrtus***

***90% of new growth infected***

***100% seedlings infected***

***Fruit, flowers etc infected***

Some rātā  
(*diffusa*, *fulgens*,  
*perforata*)

- Full list of known infected species in NZ: [myrtlerust.org.nz](http://myrtlerust.org.nz) > resources

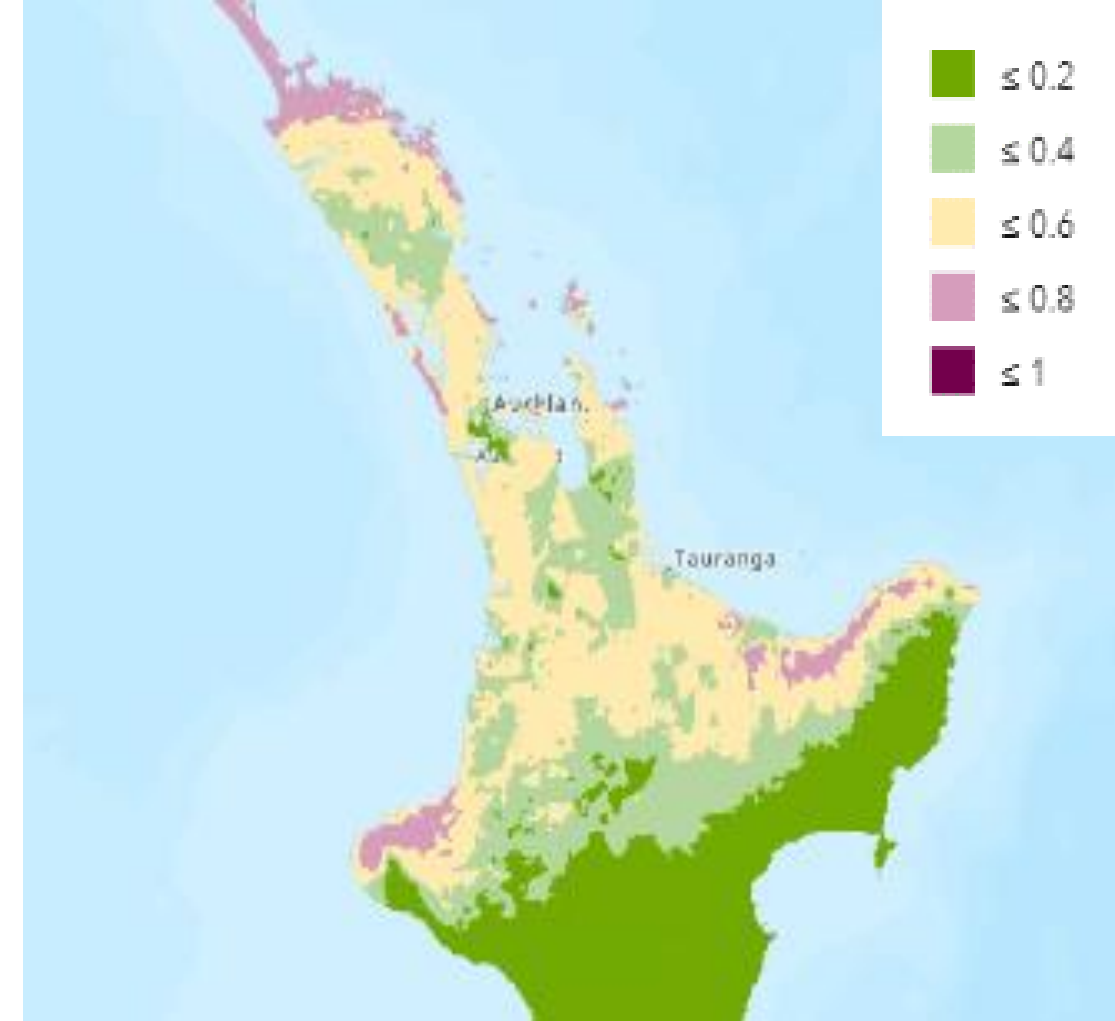


# Susceptibility

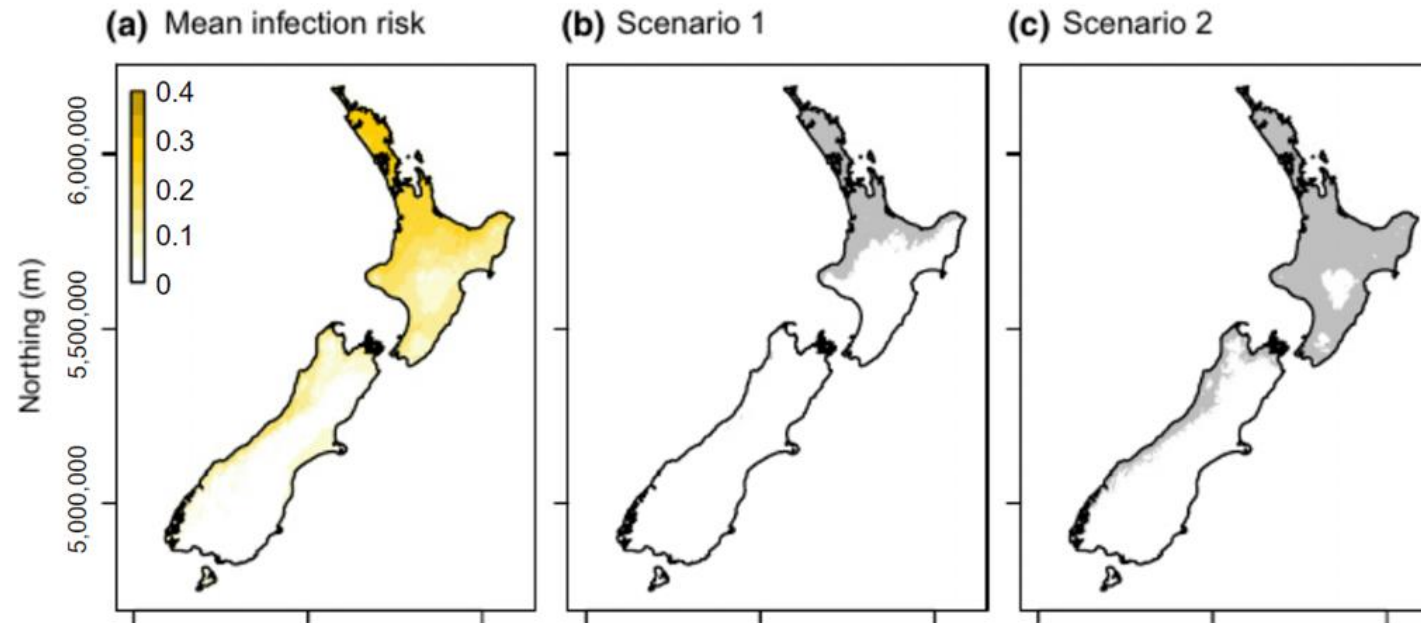
- Australian experience
- Incursion response surveillance here
- Scion field observation plots (Rotoma)
- Lab inoculations and genetic resistance screening ----- Limited, but:
  - No resistance identified in Pōhutukawa, ramarama, rohutu
  - Leaf and stem resistance identified in some mānuka, and kānuka but not in same plants
- Infected sites managed
- Full list of known infected species in NZ: [myrtlerust.org.nz](http://myrtlerust.org.nz) > resources

# Climate

- Myrtle rust optimal temperature range: 24-27°C
- Spores require moist surfaces for 6 hours of darkness to germinate
- Climate process model  
<https://plantandfood.maps.arcgis.com/apps/webappviewer/index.html?id=db12ae762a0a4e3eb8c61b1f67120c3b>
- Refugia models (McCarthy 2019)



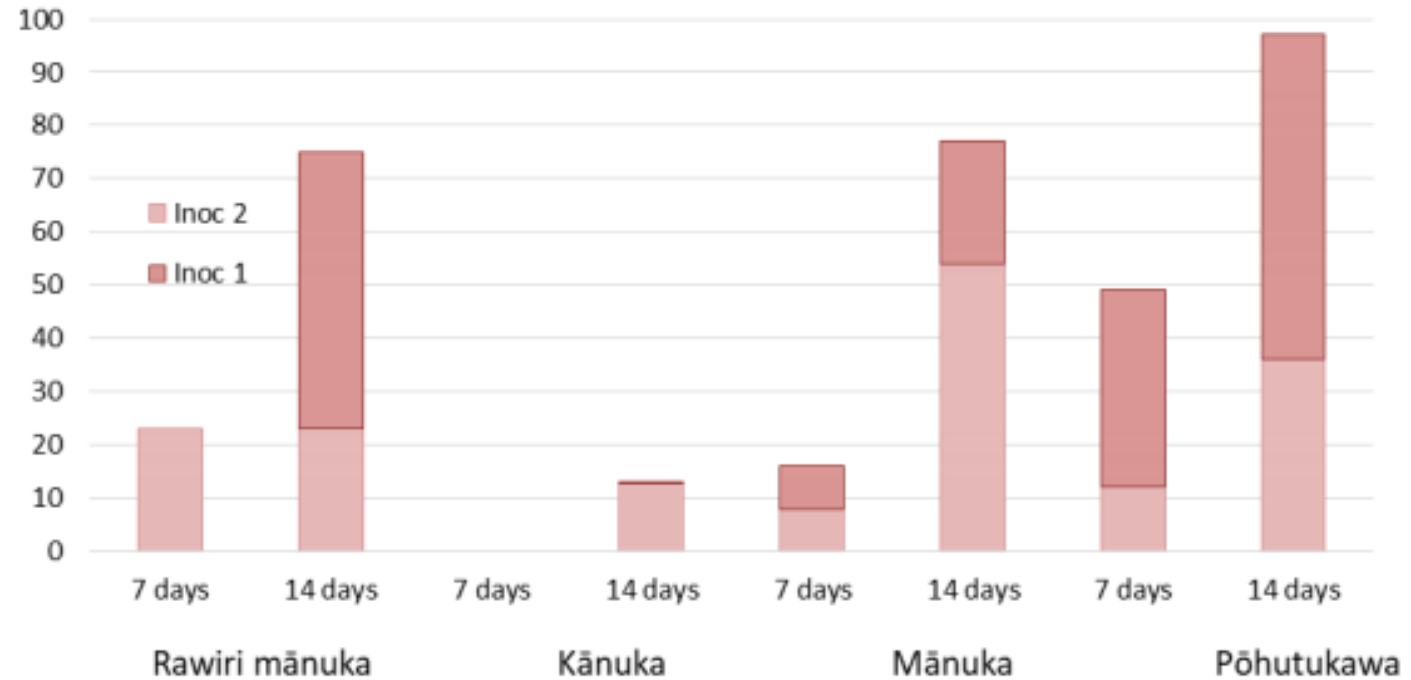
# Climate modelling cont'd





# Susceptibility

- Australian experience
- Incursion response surveillance here
- Field observation plots (Rotorua lakes)
- Lab inoculations and genetic resistance screening
- Infected sites managed (in Auckland recently)



**Figure 1.3.2. Percentage of seedlings with yellow myrtle rust lesions 7 and 14 days after inoculation with the South African strain of *Austropuccinia psidii* for four Myrtaceae plant species: *Kunzea linearis* (rawiri mānuka), *Kunzea robusta* (kānuka), *Leptospermum scoparium* (mānuka), and *Metrosideros excelsa* (pōhutukawa).**

- Full list of known infected species in NZ: [myrtlerust.org.nz](http://myrtlerust.org.nz) > resources

# Spore loading

- AKA inoculum loading – how many spores are available to begin infections.
- Some “resistant” plants have been observed infected when very close to infected susceptibles, e.g. Feijoa during street surveys, rātā among *Lophomyrtus* stands.
- Australian experience and research -----

## Lessons from the Incursion of Myrtle Rust in Australia

Angus J. Carnegie<sup>1</sup> and Geoff S. Pegg<sup>2</sup>

<sup>1</sup>New South Wales Forest Science, New South Wales Department of Primary Industries—Forestry, Parramatta, New South Wales 2150, Australia; email: angus.carnegie@dpi.nsw.gov.au

<sup>2</sup>Department of Agriculture and Fisheries, Dutton Park, Queensland 4102, Australia



Research Note | Published: 23 March 2020

### Effect of *Austropuccinia psidii* inoculum concentration on myrtle rust disease incidence and severity

[K. B. Ireland](#) & [G. S. Pegg](#)

*Australasian Plant Pathology* **49**, 239–243(2020) | [Cite this article](#)

225 Accesses | 1 Altmetric | [Metrics](#)

Abstract

Date:

Address:

Auckland 1025

Dear Sir/Madam,

Auckland Council has been notified about the pest **myrtle rust** (*Austropuccinia psidii*) on a plant at your property address. The plant reported to be infected is plant description at spot on property.

Myrtle rust is an invasive fungal disease that threatens many plants in the family Myrtaceae, which includes New Zealand native species such as ramarama, pōhutukawa, and mānuka. Exotic hosts include monkey apple, bottle brush and willow myrtle. For more information please visit [www.myrtlerust.org.nz](http://www.myrtlerust.org.nz).

Myrtle rust is an unwanted organism, meaning it is illegal to spread it, however there is no legal requirement to destroy the infected plant(s). In order to protect the environment, Auckland Council encourages landowners and occupiers to remove infected material (in the case of small infections) or whole plants if practical, while following hygiene practices recommended by Biosecurity New Zealand. For advice on how to do this, please see [www.myrtlerust.org.nz/how-you-can-help](http://www.myrtlerust.org.nz/how-you-can-help) or contact me directly using the details below.

I am happy to provide any further information including advice and assistance [in regard to:](mailto:murray.foa@aucklandcouncil.govt.nz)

- Control options
- Identification of any other suspected myrtle rust infections on your property
- Other steps you can take to protect against myrtle rust
- Or any other concern relating to myrtle rust.

Thank you for your assistance with this matter, which will help to protect our environment from the harmful effects of myrtle rust.

Yours faithfully,



Murray Foa  
Senior Plant Pathogens Advisor  
Auckland Council - Environmental Services  
[Murray.foa@aucklandcouncil.govt.nz](mailto:Murray.foa@aucklandcouncil.govt.nz)  
021573274



Susceptible  
tissue

Spore  
loading

Warmth,  
humidity

myrtle  
rust

1. Replace monkey apple/lilly pilly hedges with alternatives like pittosporum.
2. Limit pruning to autumn and early winter.
3. Destroy infected material by:
  - Burying deeper than 50cm
  - OR wrapping in plastic and leaving in sun 6-8 weeks before composting.
4. Clean tools with methylated spirits or 5-10% bleach and wash clothing and hats after pruning.



## NZPPI MYRTLE RUST PROTOCOLS

[Myrtle Rust Declaration  
Process](#)

[Garden Retail & Landscape  
Guidance](#)

[Nursery Management  
Protocol](#)

[Plant Survey Protocol](#)

[Myrtle Rust Spray Program](#)

[Nursery Dispatch  
Declaration](#)

[Plant Transport Protocol](#)

[Plant Transport Declaration](#)

# Myrtle Rust Specific Module

measures to manage myrtle rust in addition to the core  
standard and checklist

## Reducing the Impact of Myrtle Rust



# Research programmes

## Beyond Myrtle Rust

*A research programme with funding from the Ministry of Business, Innovation & Employment (MBIE) Endeavour fund*

Scroll to [Overview](#) [In this section](#) [News & updates](#)

Beyond Myrtle Rust (BMR) is a collaborative, multi-faceted research programme that aims to study the behaviour, ecology, and impacts of the disease myrtle rust (MR) in New Zealand.

[Back a level](#)



# Research programmes

Home / Tools & resources / Identification tools

► **Key to the Myrtaceae of New Zealand**

 **Manaaki Whenua**  
Landcare Research

 **Unitec**  
Institute of Technology  
TE WHARE WĀNANGA O WAIRAKA

► **Integrated *ex situ* conservation strategies for endangered New Zealand Myrtaceae species**

Jayanthi Nadarajan , Karin van der Walt , Carlos A. Lehnebach , Hassan Saeiahagh & Ranjith Pathira

Pages 72-89 | Received 12 Feb 2020, Accepted 07 Apr 2020, Published online: 12 May 2020


 Download citation  <https://doi.org/10.1080/0028825X.2020.1754245>  Check for updates

 **Wellington Gardens**

**Plant & Food RESEARCH**  
RANGAHAU AHUMARA KAI



► **Efficacy of Fungicides Applied for Protectant and Curative Activity Against Myrtle Rust**

Amin K. Pathan , William Cuddy, Mark O. Kimberly, Kwasi Adusei-Fosu, Carol A. Rolando, and Robert F. Park





# Recent tools added

## 1 – Myrtle Rust Site Risk Assessment

Risk Matrix Settings			
Myrtle rust presence in site		Activity vector risk	
1 Low	A single, small infection* has been identified, or a prior infection was noted recently but now subsided or no longer detectable.	1 Insignificant	A single person momentarily visiting the site with no need to touch plants or go near myrtles.
2 Localised infection	One or two plants in a restricted part of the site known to have pustules, no heavy infection or widespread spores noted.	2 Minor	Work involving few people in the site but not interacting with myrtles specifically, and myrtles can be avoided during the activity.
3 Moderate	Multiple plants observed to have pustules / lesions, or at least one plant shows heavy signs of infection (some tissues covered in pustules and spores, or crown dieback noted).	3 Moderate	Work involving many people or significant amounts of equipment in the site but not specifically on/around myrtles, or low impact work (e.g. one person moving through area) that does involve myrtles (e.g. collecting seed).
4 Highly infected	Multiple plants at multiple locations in the site have lesions or pustules, or many plants in a stand show signs of heavy infection.	4 Major	Work involving many people or significant amounts of equipment specifically on/around myrtles, or needing to move in close proximity to myrtles.
5 Widespread	Multiple plants are heavily infected and the wider area appears contaminated with spores (e.g. spores are abundant enough to be visible contaminating non-myrtle or non-plant surfaces, such as the ground or water surface).	5 Extreme	Activity specifically moving myrtle plants or foliage through/out of area.



Risk Matrix						
Myrtle rust presence	5 Widespread	Moderate	High	High	Extreme	Extreme
	4 Highly infected	Moderate	Moderate	High	High	Extreme
	3 Moderate	Low	Moderate	Moderate	High	High
	2 Localised	Low	Low	Moderate	Moderate	Moderate
	1 Low	Low	Low	Low	Moderate	Moderate
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Extreme



Risk Tolerance and Actions				
Risk Rating	Risk Tolerance	Approval	General Actions/Mitigations (for specific advice contact I&ES plant pathogens team)	Monitoring Review
Low	Tolerable risk not higher than natural vectors.	Not required	Proceed as usual while taking care to note any new myrtle rust or the presence of susceptible species, which may alter the risk profile of your work. Wash clothing after visiting site (normal laundry). Ask your workers to remain vigilant for any further infections that may have been undetected or that arise subsequently.	Annually or if activity/myrtle rust presence changes.
Moderate	Risk can be tolerated with mitigations in place	Team Leader	Proceed with caution, modify activity to reduce risk as much as possible. Ensure all team members are informed of the risk and controls, and bring hygiene equipment (sterilant, nitrile gloves, disinfectant wipes, plastic bags) in case of suspected contamination. Ask your workers to remain vigilant for any further infections that may have been undetected or that arise subsequently. Team Leader to sign off. Controls to be actively monitored to ensure effectiveness.	Quarterly or if activity/myrtle rust presence changes.
High	Undesirable risk	Parks Sports and Rec Department Head	Stop task and reassess activity immediately. Alter planned work and put control measures in place to lower risk to acceptable level (see risk and suggested mitigations register below). Detailed risk assessment with further controls to be approved by Department Head and I&ES biosecurity plant pathogens team. Controls to be actively monitored to ensure effectiveness.	Monthly or if activity/myrtle rust presence changes.

# Myrtle Rust Fact Sheet – a practical guide

- Auckland Council Bio delivery team are funding the development of the document to help provide practical advice for arborists on options to minimise disease spread, how to recognise the disease, options available for control, and tips to help advise clients.
- The document is draft and your feedback will be helpful to further develop the document for use by the industry.
- The feedback received will help to shape the good practice guide
- A final version will be available for review at the next Tree Health Seminar at Botanic Gardens on 15<sup>th</sup> May 2021, where further discussions are planned.
- Send feedback on fact sheet to [comms@nzarb.org.nz](mailto:comms@nzarb.org.nz)

# More information

## Wealth of knowledge is accumulating

- <https://www.myrtlerust.org.nz/home>
  - iNaturalist.nz/observations
    - <https://inaturalist.nz/>
  - NZ plant producers inc.
    - <https://nzppi.co.nz/>
  - Auckland Botanic Gardens
- <https://www.aucklandbotanicgardens.co.nz/>
  - DOC and MPI training resources are online
- <https://www.doc.govt.nz/news/media-releases/2019/online-training-programme-launched-to-help-public-identify-myrtle-rust/>
- <https://www.mpi.govt.nz/biosecurity/long-term-biosecurity-management-programmes/myrtle-rust/>

