



# GIS for the Myrtle Rust Response

How GIS has increased the operational and planning capabilities of the  
Myrtle Rust Response Team

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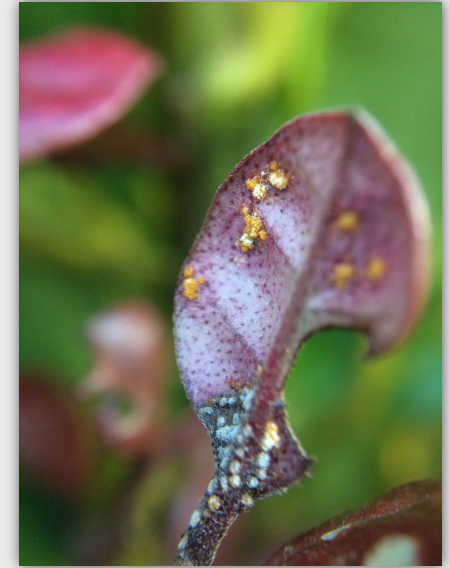
# What's Covered

- What is Myrtle Rust?
- The first incursion in New Zealand
- The GIS lifecycle for the response
  - Initial Response
  - Formalising Processes
  - Mature Processes
- Key learnings



# Huh? Myrtle Rust?

- Myrtle rust is a fungal disease
- Attacks plants in the myrtle family including pōhutukawa, mānuka and ramarama
- Initial symptoms are yellow pustules on leaves, tips and stems. Infection may result in plant death
- Myrtle rust spreads by wind, insects, birds, people, or machinery
- MPI is the lead agency, supported by AQ and DOC
- Where it's found:
  - All over the world inc. Australia
  - Raoul Island – March 2017
  - Mainland New Zealand – May 2017

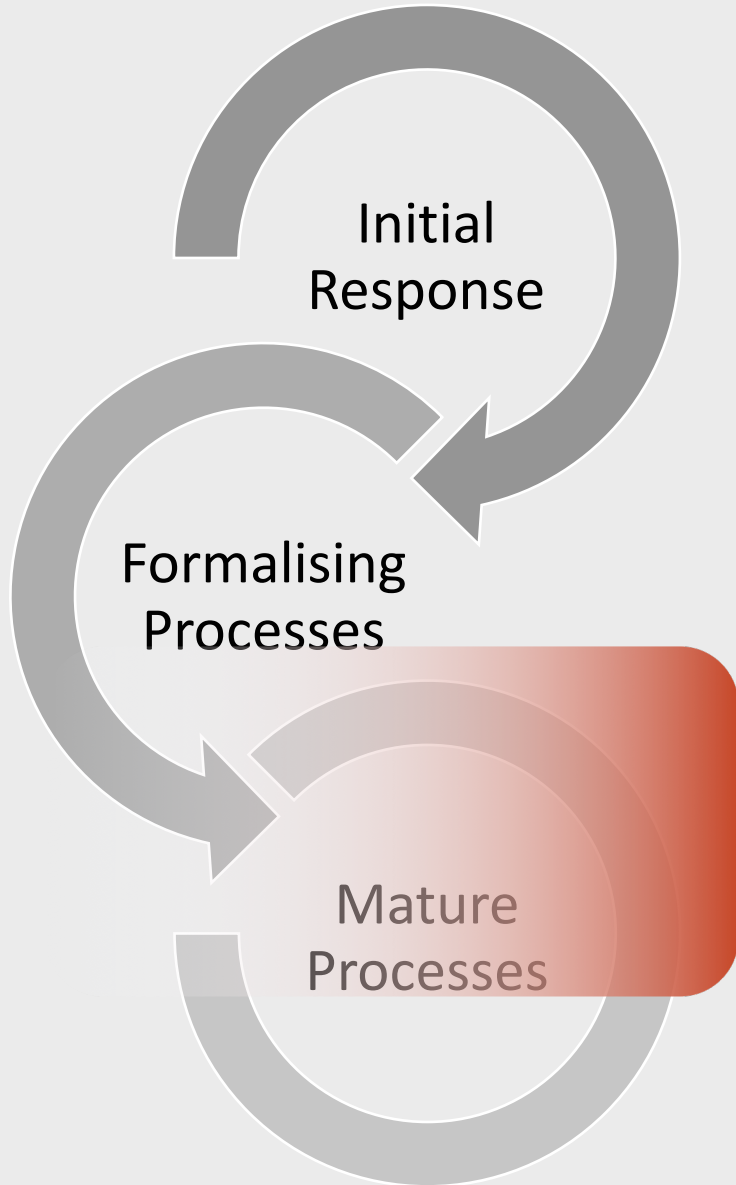


# First Incursion

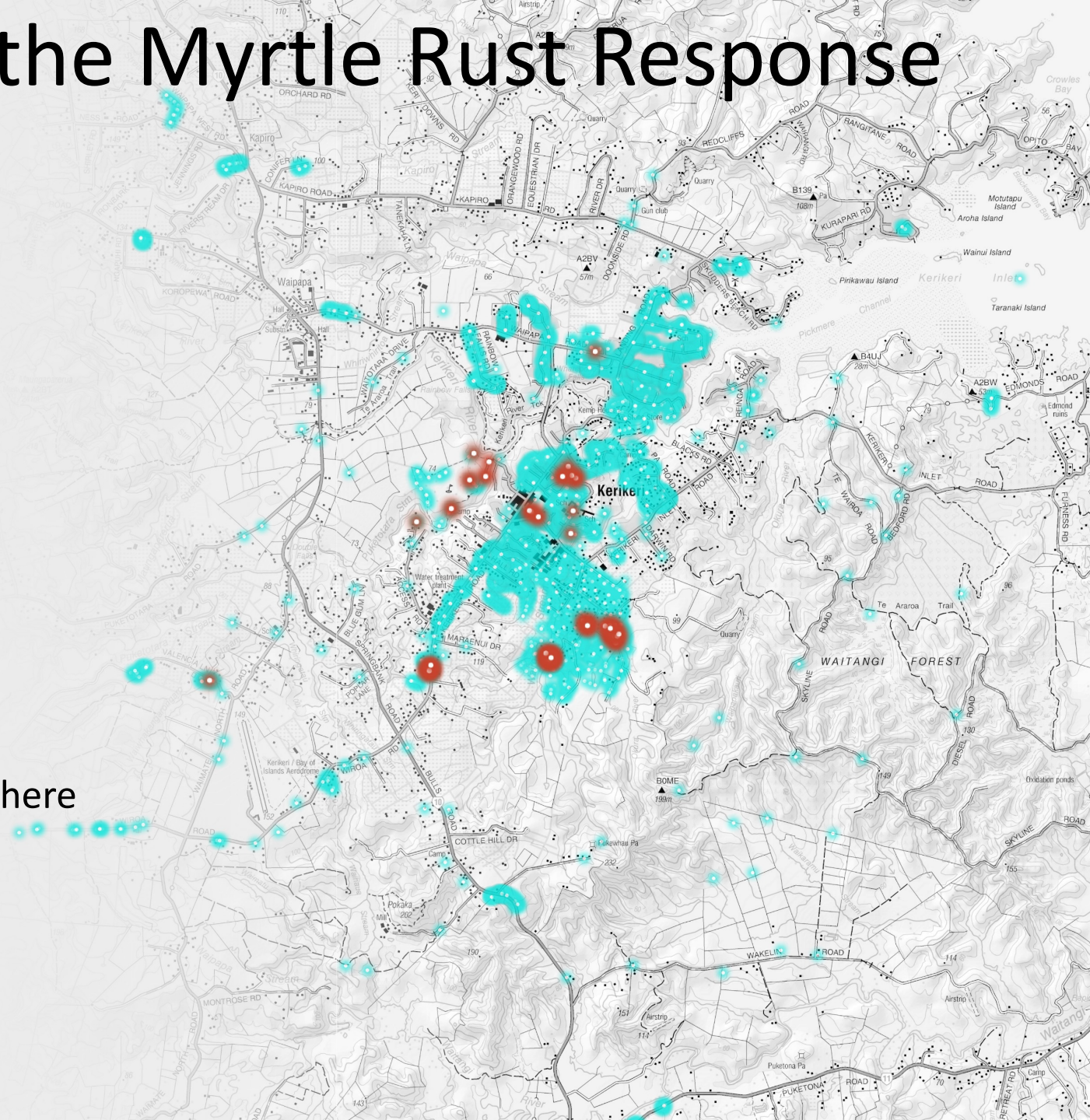
- Identified on Raoul Island by a visiting biologist
- Likely to be wind born from Australia
- Surveillance is conducted to determine spread
- Seed collection begins for native species
- Surveillance, Seed Collection and Control the cornerstone for DOC's response



# The GIS lifecycle for the Myrtle Rust Response



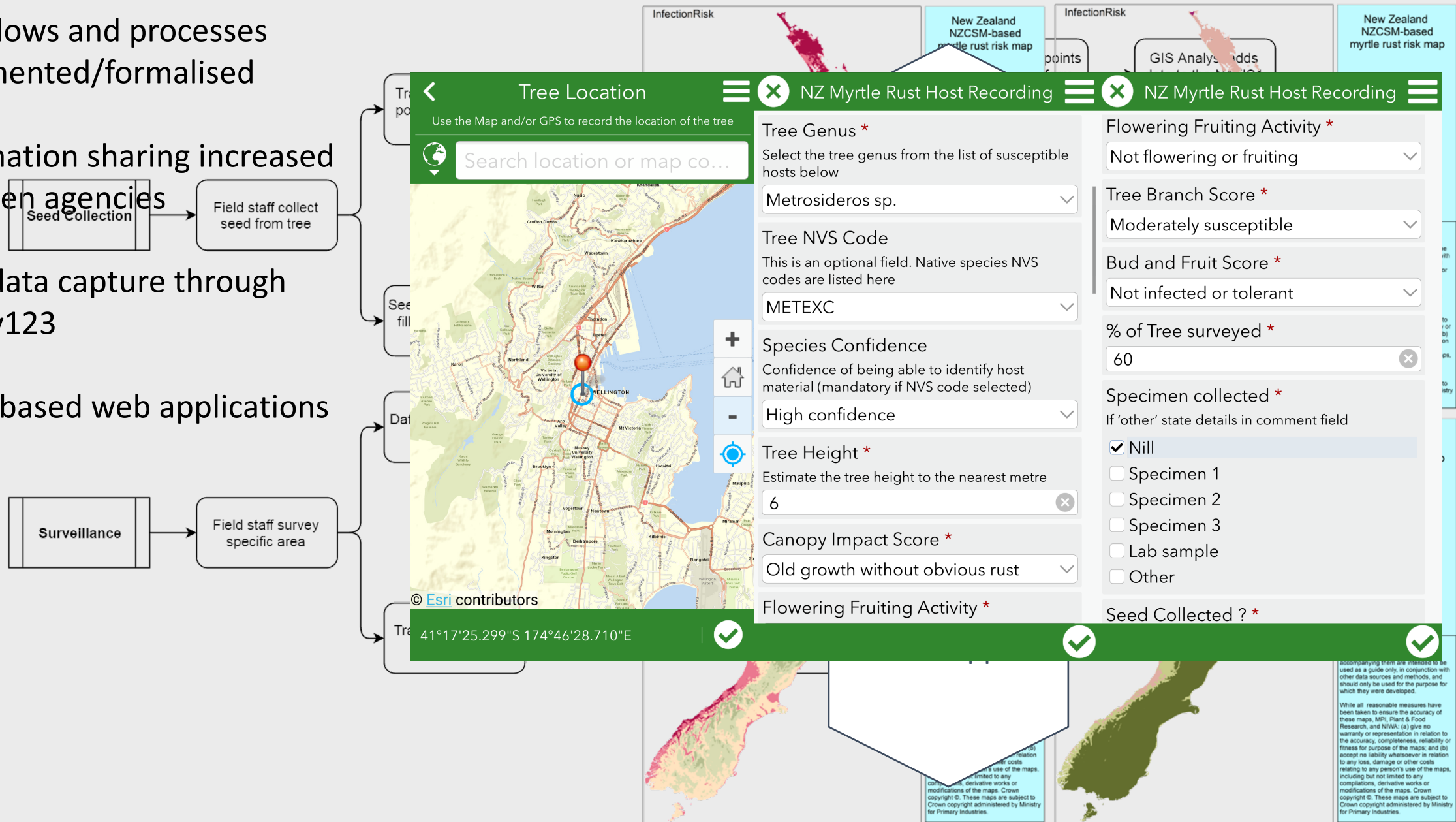
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# Formalising Processes

- Data flows and processes documented/formalised
- Information sharing increased between agencies
- Field data capture through survey123
- AGOL based web applications

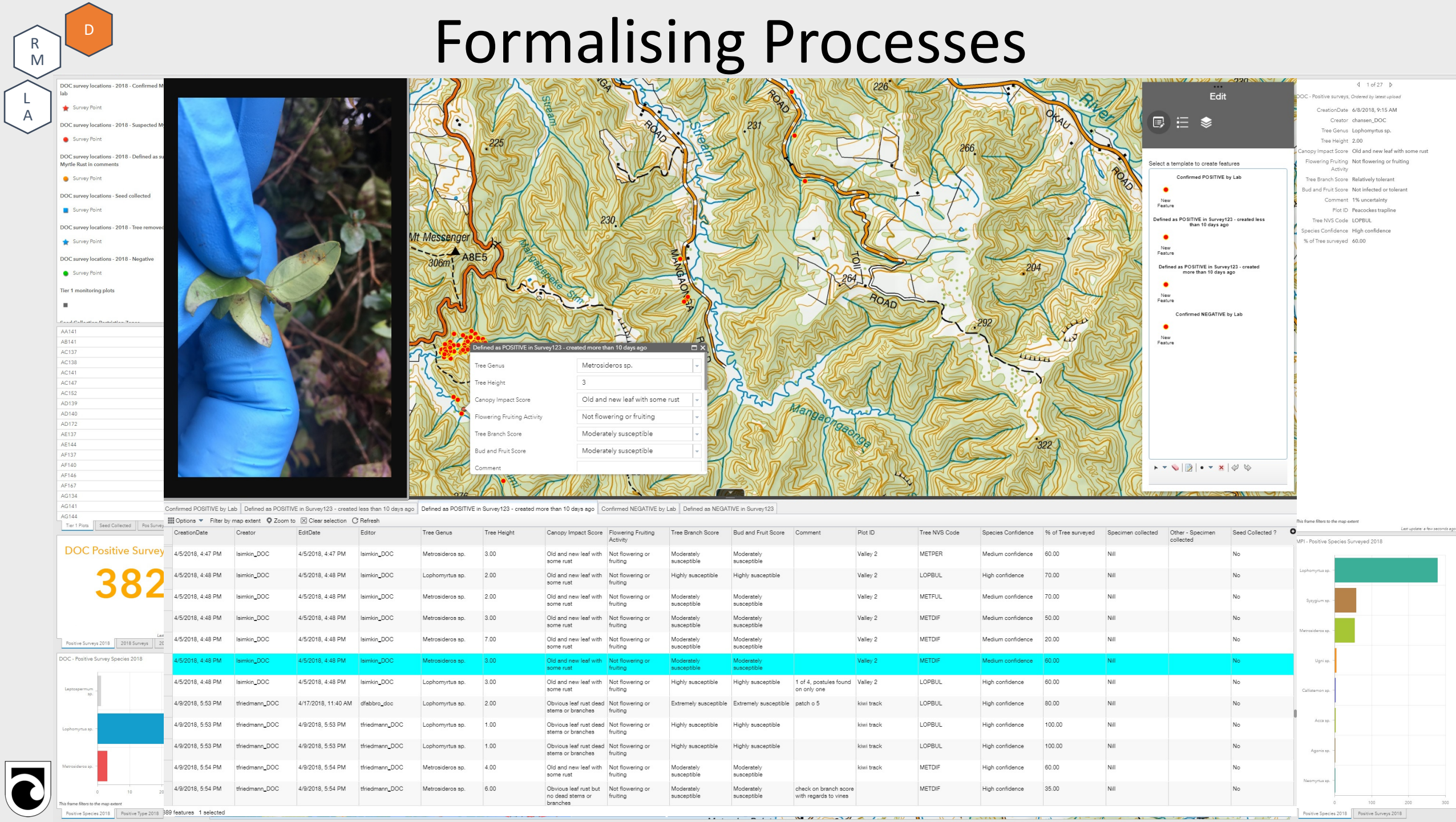


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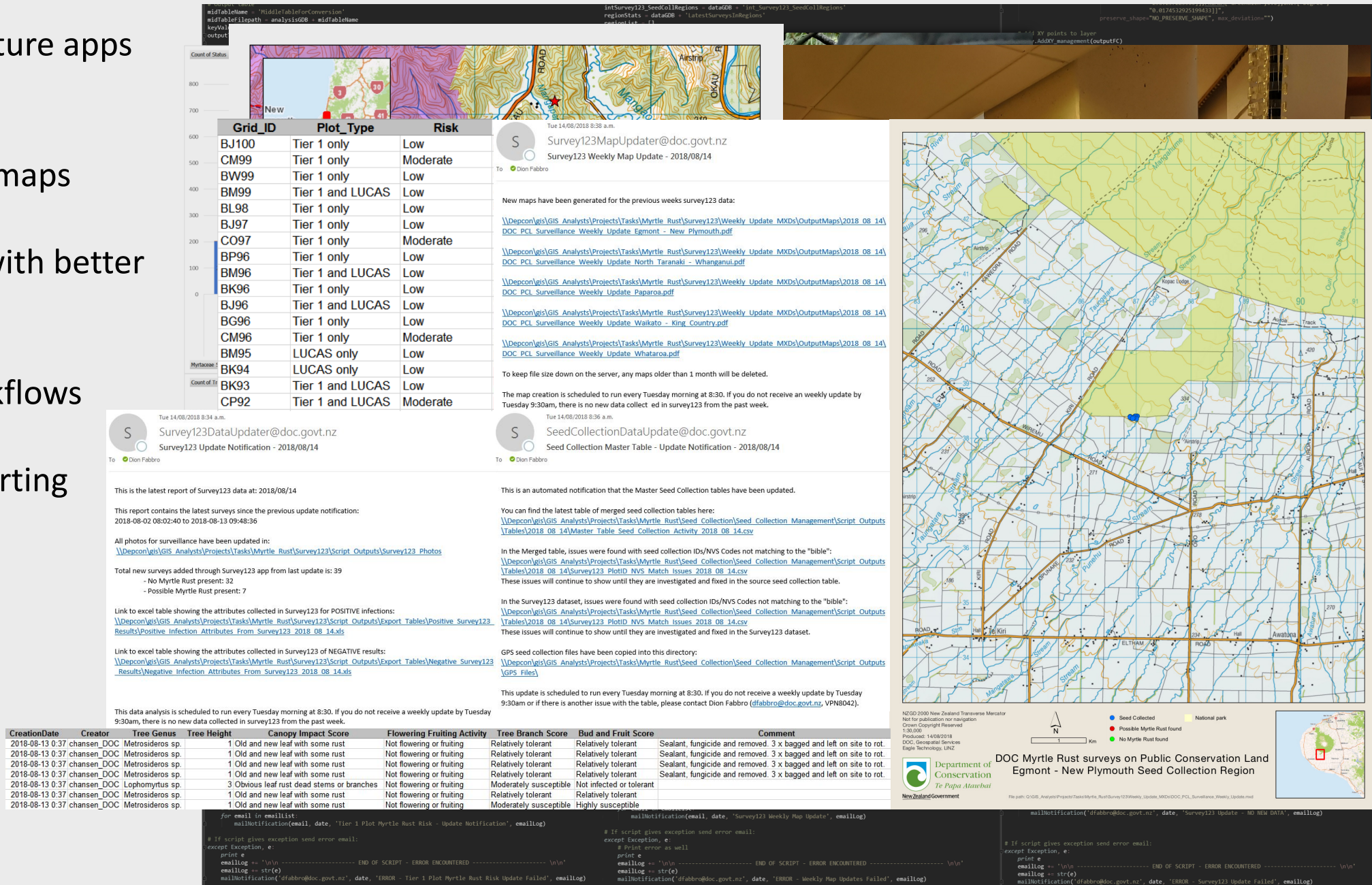
The figure displays a map of New Zealand with collection points for Myrtaceae seeds, overlaid with a bar chart showing the count of surveyed Myrtaceae species. The map includes regional labels: Northern North Island, Auckland, Central North Island, Lower North Island, Hauraki-Waikato-Taranaki, Northern South Island, Western South Island, and Southern South Island. The bar chart has a logarithmic y-axis labeled 'Count of Surveyed Myrtaceae' ranging from 1 to 10,000. The x-axis is labeled 'Distance to Coastline (km)' and ranges from 0 to 1500. The bars are color-coded: pink for 'Likely positive', green for 'Negative', and red for 'Positive'. A legend in the bottom right corner provides details for specific species: *Kurusa* spp. (pink), *Leptospermum* (green), *Homorhiza* (green), *Metrosideros* (red), *Podocarpus* (pink), *Myrtus* spp. (pink), *Acacia* (pink), and *Callitris* (pink). A small inset map shows the Auckland Islands. The text 'New Zealand Government' and 'Department of Conservation Te Papa Atua' are visible at the bottom.

Distance to Coastline (km)	Count of Surveyed Myrtaceae	Status
0	524	Negative
100	2	Likely positive
200	1356	Negative
300	1411	Negative
400	1410	Negative
500	1340	Negative
600	1315	Negative
700	814	Negative
800	704	Negative
900	1028	Negative
1000	854	Negative
1100	921	Negative
1200	741	Negative
1300	775	Negative
1400	594	Negative
1500	603	Negative
1600	613	Negative

- [illegible]

# Mature Processes

- Mobile data capture apps always used
- Apps instead of maps
- Better analysis with better data
- Automated workflows
- Automated reporting



# Key Learnings

## Worked Well

- Good acceptance of GIS for the response
- Business decisions made based on GIS data/analysis
- Uptake of GIS tools by field staff
- Helpfulness of MPI and Asure Quality with GIS
- GIS support and willingness of the team to help out was A+

## Need to Improve

- No prior GIS response plan/tools in place
- Workload high with manual data processing
- Field staff aren't tech heads
- Poor datasets of Myrtaceae species distribution
- Comms disconnect between project team and GIS



# Acknowledgments



Many thanks to the GIS Staff:

Quenten Higgan – Asure Quality

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Alice van der Bruggen

Andrew Evans

James Read

Martin Slimin

Others



# Questions?

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