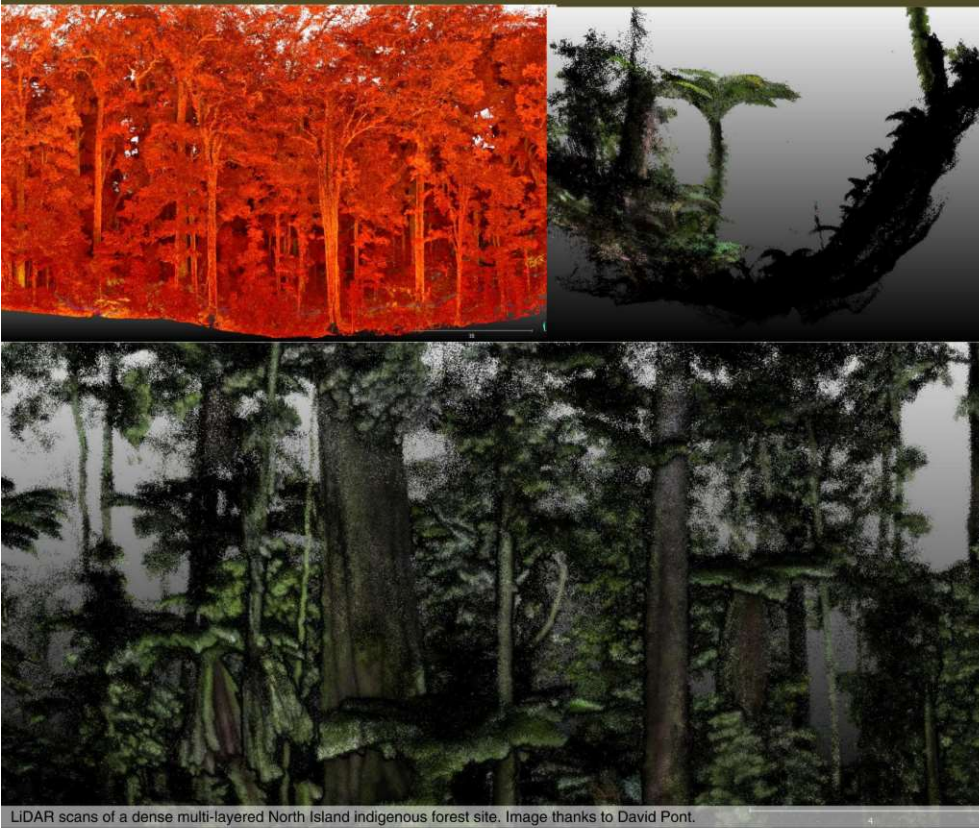


# Risk Assessment & Ecosystem Impacts

Developing standardised measures to quantify the impact both kauri dieback and myrtle rust are having on the wider ecosystem.

## Key People

Luitgard Schwendenmann, *University of Auckland*  
Simon Wegner, *Scion*



## Background

Our overarching goal is to understand which species and ecosystems are most at risk from kauri dieback and myrtle rust, and what the impacts of the diseases are. Then we can prioritise efforts and inform better management decisions.

With a Te Ao Māori-inspired holistic approach, the impact measures are also examining broader ecological impacts on ecosystem functions and on human cultural, social and economic relationships. We are considering the effects of both the pathogens themselves and the tools used to manage them.

## Highlights:

- We have conducted an ecosystem characterisation in established long-term monitoring plots in the Waitākere Ranges Regional Park, with the permission of Te Kawerau ā Maki.
- 30 early career researchers
- PhD and Master's students are working on kauri demography and a values-based biosecurity risk assessment framework; the effects of kauri health on leaf and organic layer nutrient chemistry, canopy and soil microbial communities, litter decomposition, and root productivity.
- Novel technologies are used to assess the forest structure (mobile LiDAR scanning) and avian soundscape
- We completed the scoping of existing economic values and impacts.
- Mana whenua are using the tea bag index approach (indicator of soil health) across five biological management areas (BMAs)
- We completed reports on The state of Myrtaceae biomass within natural forest of New Zealand; Effect of kauris disease intensity on soil extracellular enzymes; Myrtle rust disease effects on *Lophomyrtus* spp. reproductive capability The functional vulnerability of Aotearoa's woody plant communities to the loss of Myrtaceae species and kauri
- Research findings have been presented at national (NZ Ecological Society conference, NZ Microbiological Society conference) and international conferences (Global Soil Biodiversity conference; Australasian and New Zealand Environmental DNA conference)
- Zoe King (Does kauri dieback disease change soil bacterial community structure?) won the Best Poster Award at the Australasian and New Zealand Environmental DNA conference.

E tū Kauri  
Toha ra o peka  
Awhi mai Awhi atu  
Tātou tātou e

Stand tall Kauri  
Stretch forth your branches  
We'll exchange embraces  
And live in harmony

Robin Taua-Gordon  
Te Kawerau ā Maki