



B3 project update: Assessing the risk of rapid 'ōhi'a death to Aotearoa New Zealand and the South Pacific

Rapid 'ōhi'a death (ROD), caused by two recently described *Ceratocystis* species, *C. lukuohia* and *C. huliohia*, has resulted in widespread death of 'ōhi'a lehua (*Metrosideros polymorpha*) in Hawai'i. Aotearoa New Zealand *Metrosideros* species, such as the iconic pōhutukawa and rātā, are closely related to *M. polymorpha*. The pathogens are not present in Aotearoa New Zealand, but should either of these pathogens establish in the country, they have the potential to affect endemic and indigenous *Metrosideros* species and possibly expand their host range to other native and exotic plants. In 2021, a project team from across the Crown Research Institutes in Aotearoa

New Zealand, in conjunction with mana whenua, forestry and horticulture end-user organisations, identified the need to better understand the risk that ROD poses to Aotearoa New Zealand and South Pacific nations. During the first year, a literature review was conducted to bring together all recent information, including research not yet published. A lot of work has also happened behind the scenes in preparation for the next stage of the project. This newsletter aims to provide an update on the project's activities and to keep the science team, end users and collaborators connected. So welcome/haere mai to the first edition of "Te Haere huihui tahi" (journey gathering together).

Metrosideros seed collection: engagement and consultation with hapū

One important aspect of the project is to obtain *Metrosideros* seeds to be tested for susceptibility to the ROD pathogens through collaborators in Hawai'i. A process of engagement started in 2022 to connect with regional iwi. In one of these opportunities, Teresa Waiariki from Plant & Food Research (PFR) visited the local Ahipara hapū in Tai Tokerau, Northland, and kōrero with some key hapū members took place. Teresa explained the objectives of the project and the importance of assessing the risk of ROD for Aotearoa New Zealand's rātā and pōhutukawa and consulted on seed collection for testing in Hawai'i. They were pleased with being approached directly and were happy to be involved. It was also essential to communicate directly with the hapū as they will be responsible for the seed collection on their land. Only a few people will know the specific location of the trees. A unique code with relevant information, including the region and species sampled, will be used to follow up on the seed samples throughout the testing process. This will allow individual trees to be identified through the hapū if needed.

There are also logistical challenges associated with the seed collection. Some of the northern rātā (*Metrosideros robusta*) are huge trees that can reach up to 30 metres high and

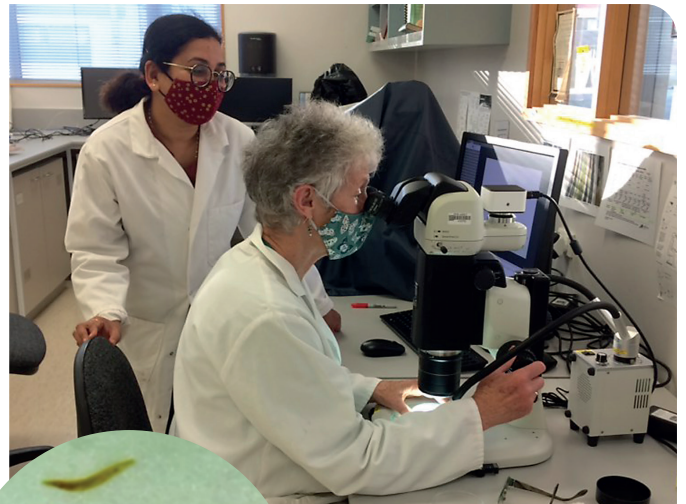


Ahipara Hapū Tai Tokerau. Left to right: Benjai Gregory and mokopuna, Dion Snowden, Nadia Rupapera, Teresa Waiariki, Viki Murray, Harley Caruther, Rueben Taipari.

sometimes walking in and out of the dense ngahere (bush) can take up to a day to reach them. Collecting seeds from such trees will be difficult and may restrict the number of individuals that can be sampled. Over the next few months the project team will continue to engage with iwi and local hapū over seed collection of specific species.

Visit to Auckland Botanic Gardens

Members of the Māori engagement team, Waipaina Awarau-Morris and Teresa Waiariki, and project leader Virginia Marroni, visited Auckland Botanic Gardens on 25 May 2022 and met with Botanical Records and Conservation Specialist Emma Simpkins (nee Bodley). Emma was part of the myrtle rust response team from the day myrtle rust arrived in Aotearoa New Zealand. Since then, she has been involved in decisions regarding threatened species conservation, seed banking revegetation and day-to-day management of infected plants. There are many shared aspects of the myrtle rust response with the ROD project and the developed expertise will be of benefit. The engagement team saw the collection of Aotearoa New Zealand *Metrosideros* species at the Botanic Gardens, including some of the more endangered species. Aspects of plant phenology were discussed, such as flowering time and particular features that will assist with identifying species. The information shared will assist the engagement team to guide seed collection activities.



Metrosideros seed processing and conditioning

Once *Metrosideros* seed is received, it needs to go through a series of processes before it can be shipped to Hawai'i for testing. It may seem simple but there is a lot to consider to maximise seed viability and meet the phytosanitary requirements to enter Hawai'i. On 4 and 5 April, Shirley Thompson and Virginia Marroni visited Dr Jayanthi Nadarajan at PFR in Palmerston North to learn more about these processes. Before joining PFR in 2017, Jayanthi was a seed conservation scientist at the Royal Botanical Gardens Kew in the UK. She is now the Science Team Leader of Germplasm Conservation at PFR and was responsible for the conditioning of Aotearoa New Zealand Myrtaceae seed for the myrtle rust research that was sent to Australia. On 1 and 2 June, Jayanthi visited PFR Lincoln (where the seed processing for the ROD project will take place) and provided hands-on training to local staff. Jayanthi showed Shirley practical skills for working with such tiny seed, including techniques for moisture content calculations and variations of the seed sterilisation and germination processes.

Pictures above: Shirley Thompson looks at pohutukawa seeds under the stereomicroscope with close guidance from Jayanthi Nadarajan (top). Pohutukawa seeds under magnification (bottom).



From left to right: Teresa Waiariki, Waipaina Awarau-Morris, Virginia Marroni (ROD team) and Emma Simpkins (Auckland Botanic Gardens).



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