Oranga Programme

Project Reflections on Outcomes and Impacts

National
SCIENCE
Challenges

NEW ZEALAND'S
BIOLOGICAL
HERITAGE

Ngā Koiora
Tuku Iho

TE TIRA
WHAKAMĀTAKI

May 2022

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Executive Summary

This report outlines the results of reflective conversations with each of the Oranga Programme mātauranga-based Project team leads. Specifically, these Projects include:

- RA1 – Te whakaora o ngā kauri: Rongoā solutions for kauri dieback
- RA2 – Te reo o te waonui a Tāne: The language of the domain of Tāne
- RA3 – Hapū Solutions for Myrtle Rust
- RA4 – Te Mana Motuhake a Ngā Kākano: The Sovereignty of Seeds
- RA5 – Critical Friend

The Projects all aim to restore the collective health of trees, forests and people, by connecting to and resourcing Māori communities and their environmental knowledge holders to help strengthen and sustain valuable knowledge constructs by exploring mātauranga Māori solutions to myrtle rust and kauri dieback. They show how mātauranga-led research can contribute to contemporary biosecurity issues while addressing the aspirations and cultural considerations of Māori and their communities. The Critical Friend Project has helped to put together this report to help inform the overall evaluation of the Oranga Programme.

Throughout 2021 and early 2022, conversations were held between Projects to explore what the collective impacts and progress had been. It was through this series of conversations, and the relationships we built by staying connected, that we created the measurement framework that provides a lens for interpreting our work together (contact Simon at simon@ttw.nz for more information). It also helped create this report that shows the significant impact the Oranga Programme has had while working with kauri ora and myrtle rust. Specifically, evidence suggests that the collective mahi of the Oranga Projects has led to:

▶ **An increased understanding of a healthy environment (impact: conceptual changes)**
  ○ Evidence suggested that the Projects' mahi helped iwi, hapū, individuals, organizations, and governments to better understand the deep relationship between kauri, myrtle rust, and the surrounding ecosystem (including pākehā individuals, organizations, and governments). This was led by kaumatua and included shifting how this relationship was described by focusing on positivity and life as opposed to death and dying (using kauri ora instead of kauri dieback). This led to a fundamental shift in understanding how the mahi is designed and carried out and better facilitated a Māori based understanding of how to approach the mahi. This provided real motivation and hope to the project leaders and those they were working with, which inevitably created buy-in for the research and facilitated other impacts.

▶ **An increased connections with and between iwi (impact: enduring connectivity)**
  ○ There have been a number of internal and external connections, relationships and partnerships uncovered by the critical friend evaluation process. Instead of counting the number of partnerships the mahi produced, we focused on how the relational approach the Projects took to carry out their work led to a foundational set of relationships that are propelling the work forward (due to the use of Kaupapa Māori principles). It is important that this happened despite the restrictions presented by COVID-19. Project leaders believe that the connections and relationships they are forming will extend

beyond the scope of Oranga, as evidenced by the increasing number of community referrals they are receiving (i.e., the ultimate indicator of good reputation and success of research). Funding through Oranga has provided the Projects with the opportunity and dedicated space to create relationships and evidence so far suggests that this will have positive impacts on kauri ora and Māori-led research in the future

▶ **An increased research and community kaitiakitanga capacity (impact: capacity building)**

- The extensive relational work done by the Projects has paid off in the sense of increased individual, iwi, and hapū capacities. Capacity increases has taken many different forms but includes increases in kauri ora and kaitiakitanga knowledge (broadly), professional development for Māori researchers, changes in how systems relate to kauri ora and Māori research and increases in the availability of needed equipment to carry out the work. Project leaders have identified personal and professional growth facilitated by the Māori-led approach the mahi took. Project teams have developed key skills in research administration, navigation of systems, and confidence using Māori approaches against a backdrop of largely wester scientific (colonial) paradigms. The teams felt that the true impact of this will continue to be felt well into the future. Increased capacity will not only contribute to the health of the kauri, but also help Māori researcher and kaumatua make significant differences in future Projects (environmental or otherwise).

▶ **Lifting (promotion) of Kaumatua, Tohunga, and Māori research (impact: cultural and attitude change)**

- It was clear that funding through the Oranga programme helped create the structure, capacity and spaces (physical and metaphorical) for those with pre-existing capabilities and knowledge to meaningfully work with kauri ora. This extended to both researchers and kaumatua. In other words, Oranga funding enabled existing capacity and promoted the knowledge necessary to work with kauri ora. Many pointed to the utu tuakana teina relationship as another facilitating factor for this outcome, as many were both a learner and teacher throughout the research. The benefit of this approach is that it creates space for co-learning between researchers, and iwi, hapū, and kaumatua.

▶ **An enhanced focus on and acceptance of the Māori worldview (impact: cultural and attitude change)**

- Another external impact Oranga facilitated was that the Project leads saw an increased acceptance of Māori approaches and paradigms. This was seen through descriptions of acceptance for Māori research in spaces where it has been continually and purposefully dismissed in the past. Concretely this was demonstrated through the ever-increasing amount of external interest in the mahi of the Projects from Pākehā media and organizations. While it was noted that Projects are protecting the mahi from the potential for misuse, many saw it was a sign of positive change. Project leads have always known this approach to research on kauri ora was the correct and valid way to do it, but according to them that validity is extending to Pākehā organizations and individuals.

Based on this, we believe that the Projects have made progress towards the following aspirations set out at the start of Oranga:

- **By 2024** – The Māori environmental worldview is an intrinsic part of restoring the ngahere from kauri dieback and myrtle rust.
- **By 2024** – Māori are leading positive system change in forest biosecurity leading to increased resilience to tree pests and diseases, especially as related to kauri dieback and myrtle rust.
- **By 2024** – Affected Māori communities are empowered to protect and restore their ngahere from kauri dieback and myrtle rust

These aspirations will hopefully lead to the 2075 goal of, "our mokopuna are accessing and engaging with the ngahere for cultural, physical and spiritual outcomes unencumbered by myrtle rust and kauri dieback". To determine this, we will continue to track our progress and use it to highlight the importance of this mahi not only for the kauri, but for the health of Aotearoa.

Introduction to the Oranga Programme

Aotearoa New Zealand faces unprecedented conservation and biosecurity pressure from a world that is becoming increasingly smaller and interconnected. Threats, such as kauri dieback and myrtle rust, are unparalleled and current approaches, and their underlying philosophies, have failed to produce the anticipated biodiversity and biosecurity gains needed to protect our taonga*. There is an urgent requirement for new methodologies that will augment existing conservation approaches, and in some instances, create new grassroot based solutions to address these and many other biosecurity issues.

In the fight against kauri dieback and myrtle rust, Māori have been calling for solutions that draw on their knowledge systems and understanding of the physical and meta-physical elements of the universe found in te ao Māori (the Māori world/worldview). This includes solutions embedded in the spiritual dimensions of this body of knowledge that are vital to the protection and enhancement of the natural environment and are often overlooked, or at worst subjugated, by conventional environmental management practices and western science knowledge that underpins its decision-making.

Five mātauranga-based Projects, known as mauri ora or the Oranga Programme, is comprised of five research areas:

- **RA1** - Te whakaora o ngā kauri: Rongoā solutions for kauri dieback
- **RA2** - Te reo o te waonui a Tāne: The language of the domain of Tāne
- **RA3** - Hapū Solutions for Myrtle Rust
- **RA4** - Te Mana Motuhake a Ngā Kākano: The Sovereignty of Seeds
- **RA5** - Critical Friend

The Projects all aim to restore the collective health of trees, forests and people, by connecting to and resourcing Māori communities and their environmental knowledge holders to help strengthen and sustain valuable knowledge constructs by exploring mātauranga Māori solutions to myrtle rust and kauri dieback. They show how mātauranga-led research can contribute to contemporary biosecurity issues while addressing the aspirations and cultural considerations of Māori and their communities. This suite of Projects is unashamedly Indigenous, its focus is the protection of te taiao (the environment).
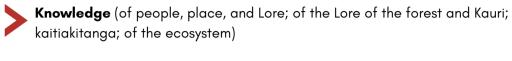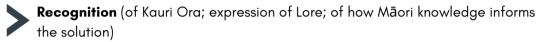
The aspirations of the Oranga Programme are:

- **By 2024** - The Māori environmental worldview is an intrinsic part of restoring the ngahere from kauri dieback and myrtle rust.
- **By 2024** - Māori are leading positive system change in forest biosecurity leading to increased resilience to tree pests and diseases, especially as related to kauri dieback and myrtle rust.
- **By 2024** - Affected Māori communities are empowered to protect and restore their ngahere from kauri dieback and myrtle rust
- **By 2075** - Our mokopuna are accessing and engaging with the ngahere for cultural, physical and spiritual outcomes unencumbered by myrtle rust and kauri dieback

*Treasured possession, including natural resource

Lens for This Report (Values)

As part of the ongoing measurement of the Oranga Programme, RA5 (Critical Friend) facilitated several conversations with each of the Projects between 2021 and early 2022. The purpose of these conversations were to provide a space to reflect on their accomplishments and challenges to date. Although these conversations were informal, the guiding questions we used to frame the conversation were based on the values we identified in the Oranga Programme Measurement Framework, including:

> **Knowledge** (of people, place, and Lore; of the Lore of the forest and Kauri; kaitiakitanga; of the ecosystem)

> **Recognition** (of Kauri Ora; expression of Lore; of how Māori knowledge informs the solution)

> **Relations** (engage and co-exist with Kauri Ora, partnerships, working together, creating and maintaining relationships)

> **Responsiveness** (to the needs of the community)

> **Mentorship** (capacity building, training, passing knowledge)

> **Renew** (valuing Māori processes and knowledge)

> **Transform** (shifts in systems and ways of doing; anti-racism)

> **Sustainability and Preservation** (of knowledge, including conservation)

> **Sovereignty** (of knowledge and processes)

> **Equity and Respect** (honouring and following protocols, responsibility, anti-racism, kaitiakitanga)

To view an explanation of how the values work together and how they informed the creation of this report, watch **this short video**. Where applicable, the outcomes outlined in this report are linked to one or multiple of these values and feed into the five types of impacts (see Meagher & Lyall. 2013. The invisible made visible… Evidence and Policy Vol 9 Issue 3: 409-18) that the Projects and programme are seeking to achieve namely:

- **Instrumental** (e.g. 'tangible 'outputs taken up by policy, companies or practitioners)
- **Conceptual** (e.g. generating new understanding or raising awareness amongst potential users of research findings)
- **Enduring Connectivity** (e.g. establishment of future long-lived relationships)
- **Capacity building** (e.g. through training or developing collaborative abilities)
- **Cultural/attitude change** (e.g. increased understanding of the value of different forms of knowledge)

The values and impact framework are our main lens to interpret the ongoing growth, reach, and impacts of the Oranga Programme through the Projects' work.

Methods Used

To form this interim report, we completed multiple interviews with each Project at key points in time. This was done strategically to gather data as the Projects progressed with their activities so we could facilitate reflections on creation of impacts. Importantly, these narratives also helped us to understand how and why impacts were occurring. In total, each project was visited twice (virtually) which produced 8 conversations from mid 2021 to early 2022. These conversations helped us to establish the Oranga Measurement Framework and the basis for this report. We want to acknowledge and thank Te Tira Whakamātaki (TTW) for organizing these conversations and fully supporting this work. For more information about the methods used, including viewing a list of questions, please contact simon@ttw.nz.

To begin, we outline two important factors influencing the design and delivery of the Oranga Programme.

Kaupapa Māori (and iwi, hapū-led approaches; Design)

Perhaps one of the most significant strengths project members saw in the Oranga Programme is that it's designed around the principles of Kaupapa Māori* and, therefore, is Māori-led at every level. While it may seem obvious to readers, Projects implicitly and explicitly described how this design choice continues to be the best way of doing research because it embodies the way in which Māori think, act, and live. This also means that it fits with the way the iwi, hapū, kaumatua, and partners interpret the world around them, implying that Projects could do kauri ora research in a fundamentally Māori way. This has allowed researchers to make progress where they might not have been able to if a western science (colonial) approach was used. Further, it has helped to break down existing research barriers (e.g., lack of trust for researchers, intentional devaluing of Māori knowledge and processes, etc.) and facilitated the connections necessary to advance the work. Once again, this is because it is a fundamentally community-led and relational approach to doing research. As the reader will see throughout this report, Kaupapa Māori not only enabled Projects to work effectively, but it also created tangible impacts for the Oranga Programme as highlighted in one conversation with a Project lead:

> "There is the element of trust from the outset when you have familiar people or faces presenting work that has traditionally been the domain of scientists. So that's helping break down those barriers and helping to spread the methods but get more people interested in the topic" – **Interview 1**

Projects believed that the freedom to employ a Kaupapa Māori approach in their research was largely due in thanks to the ongoing advocacy TTW that ensures Oranga would be genuinely led by Māori Peoples and the principles of Kaupapa Māori (without funder interference). It is evident that each project embodied Kaupapa Māori principles, as they often spoke about empowering community to lead the research process at all steps and generally believed this was a reason as to why they have been successful. Others also gave credit to the funder (New Zealand's Biological Heritage) for funding a Kaupapa Māori approach, for taking TTW's lead, and contributing to a paradigm shift:

*For more information on Kaupapa Māori principles, visit: http://www.rangahau.co.nz/research-idea/27

"I think not only Oranga but the concept of having co-leadership as well and having people in the right places, like at the beginning there was [name] there as a co-director, although not in that title, but essentially in that space. And then there was the introduction of Māori co-leads for every theme and then there was a Māori focused theme as well" – **Interview 1**

"I think I've mentioned before my gratitude to TTW in terms of its efforts to ensure the acknowledgement of Māori is who we are, and how we operate and how we do things, not just in terms of tikanga but the respectful way in terms of the way we do these things evolve…because without the support and the framework that TTW provides in this context, I don't think there would be too many kaumatua that would be bothered, to be honest. But because of that support and framework TTW and all of us provide, that does go towards the confidence building" – **Interview 2**

"Where we're seeing Māori focused research and one theme or group together, it's always been dispersed in amongst other pieces of research. So, some people are very, very reluctant to let go of the reins and let a horse run freely, which is what Bio Heritage has essentially done" – **Interview 1**

To explain further, the Projects believe that using Kaupapa Māori has provided relevancy, direction, and grounding principles to the Projects' research. Our conversations so far suggests that it has led to several significant outcomes including:

- Increased connections and relationships (internal and external to Projects) (Enduring connectivity)
- The lifting up of kaumatua and Māori community leaders as experts in the research process (Cultural & attitude change)
- Several avenues of personal and professional growth amongst team members (Capacity building).
- Increased pākehā acceptance of Kaupapa Māori, pedagogy, and methodologies (Conceptual change)

Supporting this finding, Projects spoke about the natural fit of this approach:

"That's our plan at the moment of how we're going to interpret the data, process the data and get outputs and outcomes from that. But again that could be evolving and a part of the fluidity of Kaupapa Māori is that it allows us to be fluid and responsive to different conversations as we move the project forward" – **Interview 3**

"We'll definitely be guided by [kaumatua]. The design and what's in our heads is not too far departed from the actual four pager [application for funds] that we've got but we understand when we actually get into a wānanga, there's going to be a whole new discovery of new different things and ways of doing things that'll really inform, not only what but how we do things. All we have to be is ready, to be able to be as responsive as possible to those different… to whatever the kaumatua tell us are ways of doing things" – **Interview 3**

"Again, anything with Māori research needs to be community led, needs to be whānau led and guided and be responsive appropriately to the whānau, and that's all we're trying to do here"– **Interview 3**

All four Projects attributed the adoption and implementation of a Kaupapa Māori approach appears to be the main contributing factor to the positive outcomes outlined in this report.

The Effects of COVID-19 on the Oranga Programme (Implementation)

According to the Projects, the ongoing effects of COVID-19 has been significant on the delivery of the Oranga Programme. All Projects spoke about how the COVID restrictions (i.e., not being able to meet face-to-face due to valid safety concerns) has slowed or changed their original plans. The move to an online setting has allowed some progress but this medium has not suited everyone, and Projects felt that they could have been further ahead on capacity-building had they been able to visit iwi and hapū. The following quotes are examples:

"So pre-Christmas we were in that lockdown phase, not able to get out and about and things have only really just started to loosen up now but there's a school of thought that, do we get Covid together the other way or do we still hibernate, and there's still people that don't want to be exposed to it and that is slowing the process" – **Interview 1**

"They are a source of information, a mātauranga for us, so we do everything we can to keep them safe in their environment. So, if we don't unnecessarily want to expose them to those risks that are out there. So, as I was saying before, it's a work on but it's not a hindrance" – **Interview 1**

"I think that side of the stuff has allowed us to continue to have a good sense of what we want to do, but allowed us to continue during this Covid time, because we haven't been able to face to face, so just really lucky we put that frontend effort into it and I think it's served us well during these unprecedented times" – **Interview 2**

"I guess that was our infrastructure part of the project because obviously we haven't been able to go anywhere to do the other part, which was on the ground training. So that's probably what's worked well, is doing that stuff because we could do it online and the stuff that has been delayed is on the ground seed conservation actual work and/or work with communities because we just haven't been able to go out" – **Interview 4**

"I remember when we went into lockdown in August, and [name] gave me a call saying don't come up, there's a roadblock and that was that. We turned around and came back home, after organising this wananga a couple of months beforehand and of course, we've been in lockdown since then" – **Interview 3**

With the context of COVID-19 creating barriers and the use of Kaupapa Māori as a guiding force to the work, the reader is now armed with the necessary knowledge to interpret the results. The remainder of this report will outline these outcomes according to our guiding measurement values.

Increased Understanding of a Healthy Environment (Values: Knowledge, Recognition. Impact: Conceptual Changes)

One of the outcomes occurring across Projects is a broad increase in understanding of what a 'healthy' environment is. It was noted by the Projects that those they were working with (iwi, hapū, individuals, organizations, and governments) started at different places in their understanding of the evolving relationship that myrtle rust generally has with the ecosystem and, more specifically, with kauri across Aotearoa. There was, however, relative consensus that the Projects' activities have helped to develop a better understanding of the deep relationship between kauri, myrtle rust, and the surrounding ecosystem (including interactions with plants and humans). For example:

"They're familiar with the topic and that amongst our people has been an increase in understanding of that disease, of kauri dieback but what else is on the horizon. So, there is an awareness now that these aren't the only diseases that will impact their native flora. So that has been really helpful in bringing them along on the journey of understanding biosecurity from a wider perspective rather than just focusing them on individual diseases" – **Interview 1**

"It's trying to identify the interactions of plants, so doing a stock take of plants that are present around one of the main species, and looking at the types of interactions that may occur, and what we're likening this to is the whānau system, so the family working together to create a positive outcome and with all of those trees working together, hopefully you can get an environment of health that protects those species that are more vulnerable than others. But also, it helps with the defence mechanisms to diseases like Myrtle Rust. They will become less susceptible, is the thinking behind that" – **Interview 1**

For some, this increase in understanding was helped by an intentional focus on the existing knowledge, wisdom, understanding and skill (mātauranga) that Māori employ to talk about the health of the kauri.

> "I suppose the increased awareness of the value of mātauranga, and I'm not just talking about external people as well, even within the hapū themselves. So, the framework and terms we provide is actually creating further awareness of the value of mātauranga and the shared mātauranga or the respect for mātauranga within each hapū or each iwi. So, to me, whilst it's always existed to a level but what I've seen in our engagement is, I suppose, the continued evolvement of the appreciation or the value of what mātauranga is, in a specific context" – **Interview 3**

More specifically, Projects spoke about how kaumatua advised them to shift their understanding of how they were approaching the entirety of the research program. Namely, they were asked to use a strength-based approach to talk and think about kauri and Projects noted that was far more effective than the deficit-based thinking they had originated with. Since then, Projects have begun to use kauri ora instead of kauri dieback to describe the health of the kauri and approach to the research. This fundamental shift in language and thinking has changed how the Projects' have been designed and talked about, and how they have implemented their activities (e.g., training, webinars). Project leaders found that, by thinking about their project through the lens of kauri ora, they could focus on what was important – the health and revitalization of the forest through a relevant Māori based understanding (sounds, vibrations, and energy of the forest). This shift in language provided a real sense of motivation and hope that, although may have existed within the hearts of project leads, has been allowed flourish:

> "It's sort of been picked up the Challenge and it came on the back of the term kauri ora, because of the connotation around not speaking in a negative way. So, this is positive, it's talking about positivity for the plants, the environment rather than myrtle rust or myrtle death or kauri death. It's trying to paint a different picture and trying to promote hope and health more than anything" – **Interview 1**

> "Kauri dieback is still the disease but we use kauri ora to say our focus is not eradicating the disease, it's not on kauri dieback necessarily, it's on ensuring that the kauri forest is healthy and it might end up being healthy forever with the phytophthora still present but what we're trying to do is minimise the impact of the phytophthora. The same with myrtles, we're trying to ensure that myrtle stands are healthy, even if they've got myrtle rust" – **Interview 4**

Increased Connections with and Between Iwi (Values: Relations, Mentorship. Impact: Enduring connectivity)

Yet another broad-reaching outcome facilitated by Projects is an increased number of internal and external connections, relationships, and partnerships. This was evidenced through internal meeting tracking at TTW and also outlined by team leads in our conversations. To each of the Projects, this was seen as a crucial and natural step to take to ensure the success and sustainability of each project (i.e., the Projects have taken a relational

approach to their implementation as per Kaupapa Māori principles). The connections were facilitated by Oranga funding and appear to be happening at every level, including:

- Between Projects and iwi
- Between the four Projects (researchers between Projects)
- Between project researchers and external Māori leaders (including kaumatua) and organizations
- Organizationally between TTW and institutions

This is an encouraging finding considering that Aotearoa was locked down due to the spread of COVID-19 for much of the Projects' lifespan to date. As was described earlier, many spoke about the difficulties they faced in trying to create connections and form relationships in an online environment. Despite this, there is clear evidence that the Projects have succeeded in forming foundational connections and relationships not only with one another, but with those they need to be interacting with to work on kauri ora. This may be due to the motivation and determination of project team embers, but could also be due to the embodiment of Kaupapa Māori principles:

> "For me it's at least at a regional level and for me the key is have you... I guess in our wider space and the Kauri Dieback, Myrtle Rust space, you kind of know who the key people are, the key leaders, and I expect our groups across Oranga to have touched based with the key people at any one stage...So for me, it's about having the right people informed as well, knowing that once they're involved and they're comfortable with the work, the rest of it's fairly easy" – **Interview 4**

> "I consider us [Oranga] community ready, so I consider us community" – Interview 4
> "We're leveraging our current relationships and that was also with the blessing of [name] in our hui at the beginning of last year. So since September, our SROs have come on board. Also, through a contact with [name], I've also had a dialogue with [organization] and they've also got some [knowledge] regarding the Kauri and the sound of Kauri as well. So just connecting those dots" – **Interview 3**

Projects also explained the importance of reputation to sustain the connections and relationships formed through their work. Specifically, they believe that a 'true' measure of success is how many times Māori individuals, iwi, and hapū refer them to their whānau. The Projects described how they were experiencing the referral process took that as an encouraging sign that they are going about their work the right way:

> "There's an ultimate indicator or marker from a cultural perspective is that notion of referral, that people are referring matua [name]'s work to other people. To me that's the gold standard when it comes to our communities is if people are referring, it's getting out there" – **Interview 3**

"That said, the stuff that's been in highest demand is on the ground stuff, so we've got lists and lists of groups that want us to work with them as soon as we can get back out" – **Interview 4**

"The other part is that we have a lot of private owners that have their own trees on their own land, which is a bit different to our hapū and iwi, which are now asking if we can do quite a lot of work on their area. That's part of the goals that I have, is for teaching and showing" – **Interview 2**

As another encouraging thought, the true impact of these connections, partnerships, and relationships may never be truly determined by this evaluation alone. Specifically, many believed that the connections and relationships they are forming will extend beyond the scope of Oranga. Funding through Oranga has provided the Projects with the opportunity and dedicated space to create relationships that will have positive impacts on kauri ora and Māori-led research for some time to come.

Increased Research and Community Kaitiakitanga Capacity (Values: Mentorship, Sustainability & Preservation. Impact: Capacity building)

Building on an increase in connections, relationships, and understanding of kauri ora, Projects also described that they have seen an overall increase in community research capacity. This was, and continues to be, one of the major aspirations of Oranga. To be specific, 'capacity' is being interpreted through many different lenses by the Projects. Depending on the project, capacity increases was experienced by individuals attending a hui, internally through experiences administering a program, getting additional equipment to carry out the work, and even extending to changes in how systems operate. Many Projects noted that COVID-19 limited their ability to be in-person which they believe limited their ability to foster capacity (i.e., being physically and spiritually present was seen as the primary way to meaningfully increase capacity but was difficult because of restrictions):

"Just to enforce the comment around having to be present to improve the capacity, to increase that capacity is a transfer of the knowledge from those that are capable and that can only occur under the true sense of value of mātauranga" – **Interview 2**

Despite this, evidence across the conversations suggested that capacity had generally increased and that it has been influencing individuals' relationship with kauri ora. This looked different according to the project but involved increases in knowledge and capacity of what kauri ora is and should be, an increase in funding to ensure the provision of tools and setting up the necessary infrastructure to work with kauri ora (e.g., seed banks). For example:

"From the early days when we first started to talk about myrtle rust with iwi, hapū and we had those interesting hui up in Kerikeri and the like, there was zero understanding of what myrtle rust is. They knew it was a disease that had an impact on some native species, some of them didn't even know what a mutace was. So

when we started talking about [myrtle rust] and the like, then they started to get an idea of the damage it potentially does. So we're a lot further along with that now and you only have to talk about myrtle rust or myrtle ora and they know what you're talking about" – **Interview 1**

"Part of that more recently has involved looking at getting some funding to scale up what he's doing and that requires both fit for purpose machinery, and also looking around that training and upskilling the training so we're creating some mini [name] that will go out across the kauri lands and hopefully take some of the knowledge, with a view to implementing it within their own rohe" – **Interview 2**

"I think in that same article they interviewed Biosecurity NZ and they gave a figure of something like, of the \$8 million that the Kauri Protection Agencies got now, more than half is going to go to Māori. So that's a real shift in funding. It's a shift in funding because they've actually seen through Projects like this one that Māori research can produce outcomes" – **Interview 2**

"So that was a really good process to start thinking about what kind of seed infrastructure we needed because the kinds of questions they were asking were, how many labs, what size labs, what equipment, where do things need to come from – getting us to really think about size and capacity" – **Interview 4**

To us, it is important to document not only the external-facing impacts of Oranga but also the internal outcomes experienced by project team members. Therefore, we asked those we interviewed how they saw themselves and their team members grow (personally or professionally) since the start of Oranga. Project leaders saw themselves develop key skills in research administration, navigation of systems (and people within them), and familiarity and confidence in using Māori understandings in colonial paradigms. Perhaps unsurprisingly, the fact that Oranga is Māori-led (Kaupapa Māori) appears to have facilitated this development of skills. For example:

"If you cast your mind back, say, 18 months, two years, these types of Projects were few and far between and we didn't push the barrow far enough to challenge the system in that space. Now we've got momentum because we have a group of researchers who are Māori pushing that barrier and pushing their learnings onto Western science, scientists" – **Interview 1**

"How the project and I've grown is understanding the depth and the complexities of exchanges with our kaumatua and myself being responsive to that" – Interview 3
"I suppose it's also reinforcing values that have always been a part of me and my whānau's life, of relationship building, of being respectful and while we might practice this in our normal life context, how we might transpose that and apply that to other contexts like Māori, like meeting with the kaupapa and kaumatua" – **Interview 3**

"I think one of the things I've noticed and this has been for a while now but [name]'s growing confidence in what we're trying to do here, that actually the system works and it's working for him first and foremost" – **Interview 2**

Our findings are significant, as this growth in capacity will not only contribute to the health and the sustainability of the Oranga Programme but will ultimately contribute to the health of the kauri in Aotearoa by doing so. Perhaps just as importantly, project members will also be able to use these developed skills across many other Māori-led Projects in the future (environmental or otherwise). In other words, Oranga appears to be helping Māori researchers and kaumatua realize the key skills needed to make significant impacts well into the future of Aotearoa New Zealand (mentorship through capacity and experience).

Lifting Up (Promotion) of Kaumatua, Tohunga, and Māori Research (Values: Renew, Transform, Sovereignty, Equity & Respect, Recognition. Impact: Cultural & attitude change)

Projects often described how the structure and Māori-led nature of Oranga has facilitated an environment where Māori research as been uplifted and promoted (including the teachings and practices of kaumatua and tohunga). To begin, many Projects spoke about how Oranga funding afforded them the capacity and spaces to lift up those with the pre-existing capabilities to work on kauri ora. For example, one project spoke at length of how two team members take on much of the project administration work so that the kaumatua they work with can focus on doing the field work necessary to improve kauri health. To them, the structure of Oranga has been instrumental in allowing this to happen as it provides the dedicated resources (financial and human) for someone to fill that role. In addition, many Projects believed that the valuing of shared mātauranga has helped them to promote their research across domains. For example:

"In terms of how [name] and I facilitate what needs to occur, without hindering [name] being able to do what he does, without being distracted or challenged at all with any of the project or administrative stuff, we definitely do our part to do that. So that works well because it allows him to just carry on doing what he does, unhindered by the stuff that [name] and I do" – **Interview 2**

"Within this kauri programme, the collaboration of hapū or the engagement of [name] with different people, it's reinforcing that value of mātauranga. So that's probably all part and parcel of the entire scope of this in terms of when you talk about capacity, capability, the roanga itself, all of that, that's where the significant change I see is that, is the increased value of what mātauranga really means" – **Interview 2**

"We try and do the best we can from our project side, but in the community and in the world sense, he's also walking a whole lot of tightropes which they don't create effective and efficient outcomes for him, because if he was just left to do his own thing, I'm sure he'd be having lots of impact in all sorts of places, COVID permitting"
– **Interview 2**

To explain how this was possible, many Projects pointed to the utu tuakana-teina relationship as the facilitating factor (reciprocal mentor and mentee relationship). This inherently Kaupapa Māori approach asks project team members to adopt both a learner and teacher role, meaning they can use their skills in research to promote those who are experts in kauri ora (e.g., kaumatua) whilst also learning about kauri ora, and how that should affect the research process, from the experts in community. The tuakana-teina relationship is likely facilitated by the structure of Oranga, and those who administer it, because of the emphasis on Māori-led solutions. To the Projects, a Māori-led solution is only possible when working together with kaumatua, iwi, and hapū. The benefit of this approach is that it creates space for co-learning between researchers and iwi/hapū which they felt wouldn't always be the case in a colonial research structure (but is through Kaupapa Māori). For example, Projects stated:

"I cast myself as the teina in that situation when working with our knowledge holders because obviously they're the ones that we're sourcing a lot of our information from and wanting to learn from…what I'm trying to do also is have others accompany me to learn from them as well. So up in [location] we've got a mature researcher that has been on a couple of visits with me but she's also familiar with the people in the region that I've been visiting. So, although she's mature, she's also a teina and I'm in that case a bit of a tuakana to her. So, it's not that in a particular project you may be a teina in one instance and a tuakana in another. So, you've got to be able to transfer yourself between those two roles but at the end of the day, we're all teina because we're all learning from each other" – **Interview 1**

"The other thing I suppose, and this is the question about my change, I'm also a teina, so learning as this project progresses. So, we're always learning and that has helped me to better understand some of the thinking that happens in different hui and that comes back to some of the protocols that they have in those places" – **Interview 1**

Enhanced focus on and acceptance of the Māori worldview (Values: Recognition, Transform, Sustainability & Preservation, Equity & Respect, Renew, Sovereignty. Impact: Conceptual change; Cultural & attitude change)

In addition to the lifting up of Māori research paradigms, methods, and approaches (e.g., Kaupapa Māori), many Projects spoke about how Oranga has helped them to increase acceptance of Māori approaches with pākehā leaders and organizations. Concretely, this was described as an overall increase in acceptance for Māori research in spaces where it has been dismissed in the past. Some Projects also spoke about how Māori protocols

were also now being followed on a more regular basis because of the research process they've been implementing (e.g., karakia at the start and end of a hui). For example:

> "There's a lot more acceptance of [Māori] research now. There was a lot of trepidation from the outset…especially from those in a hierarchical position and a lot of then couldn't understand why Māori wanted to do something slightly different to what was classed as being normal…there was so much toing and froing about what it was, how it was going to help the overall programme, what that meant to Māori, how we were going to organise Māori – that sort of thing… I know that there was a lot of hesitation about giving these Māori all this money and what were they going to do with it and how were they going to spend it, and were they just funding Projects for their friends, sort of thing. So, there were those types of questions and barriers and challenges that we had to overcome" – **Interview 1**

> "We're starting to see changes with the way we conduct meetings and people are volunteering now to do karakia, and that sort of thing is starting to occur within the science system. So being able to talk freely about some of these plant interactions or even atua is becoming a lot more common than what it was two years ago. So those types of things are a huge change in the way that we've been doing science" – **Interview 1**

One way in which this increased acceptance of Māori-led research has manifested through the Oranga Programme is in the sheer amount of external interest Projects are receiving from Pākehā organizations and media. For example:

> "On another front, we are still receiving external requests, so the latest one is from a journalist from the New York Times who's quite interested in understanding this…a New Zealand based reporter for the New York Times who heard about it and thinks it would be interesting" – **Interview 2**

> "There seems to be a real pulse of activity a few years back with the conference we had, that [name] picked it up and from there people just went crazy over it. So, there was a huge amount of interest generated there, but again we've been deliberately trying to pare it back because it felt like we were sprinting off down this road without really having the opportunity to really get into it ourselves" – **Interview 2**

> "So, by way of the support he gets and the way that we operate, people tend to have a better view or better value the true sense of what mātauranga can provide, and we've got the solutions, always had these solutions, and what this framework has provided for us to, in some way… well, actually to improve capacity and capability, just by us doing what we're doing" – **Interview 2**

Although Projects noted that they are being careful in this external engagement to avoid misuse of Māori knowledge, many also saw it as a sign of change. Project leads have always known this approach to research on kauri ora was the correct and valid way to do it, but now it appears that has extended to Pākehā organizations and individuals. As one project put it, the way in which Oranga is structured and implemented has helped this shift:

> "Maybe just one more thing to add to that but I think there's public growing awareness of this particular programme and how it's operating. I think it's starting to get out there. I think again, with all the Covid stuff but just in our recent interactions of KPA, the Kauri Protection Agency, they were very interested in this setup and how it was working and we actually had some direct feedback saying they're quite keen to demonstrate this, i.e. Māori have a safe pair of hands and I think a lot of that is really around how this programme's been structured" – **Interview 2**

Otinga (Conclusion)

The evidence presented in this report made it clear that the Projects, and mauri ora, have made progress towards their aspirations and impact goals despite the limitations of Covid-19. Through our conversations with team leads, we have documented evidence of impacts across the Projects that could also contribute towards the aspirations of the Oranga Programme. According to team leads, evidence suggested that the use of Kaupapa Māori led to many outcomes facilitated by the mahi, including:

- An increased understanding of a healthy environment (conceptual changes)
- Lifting (promotion) of Kaumatua, Tohunga, and Māori research (cultural and attitude change)
- Increased research and community kaitiakitanga capacity (capacity building)
- Increased connections with and between iwi (enduring connectivity)
- An enhanced focus on and acceptance of the Māori worldview

Within the descriptions of each of these outcomes are ways in which they contribute to the overall Oranga aspirations listed at the start of this report. This is encouraging, as it shows direct links between the collective mahi and what Oranga set out to do at the start of the funding. As a summary, here's how we believe the results in this report are linked to each aspiration (though it should be noted that they are not mutually exclusive, meaning results listed under one aspiration could easily apply under another):

- **By 2024 - The Māori environmental worldview is an intrinsic part of restoring the ngahere from kauri dieback and myrtle rust**
  - Another external impact Oranga facilitated was that the Project leads saw an increased acceptance of Māori approaches and paradigms. This was seen through descriptions of acceptance for Māori research in spaces where it has been continually and purposefully dismissed in the past. Concretely this was demonstrated through the ever-increasing amount of external interest in the mahi of the Projects from Pākehā media and organizations. While it was noted that Projects are protecting the mahi from the potential for misuse, many saw it was a sign of positive change. Project leads have

always known this approach to research on kauri ora was the correct and valid way to do it, but according to them that validity is extending to Pākehā organizations and individuals.

- It was clear that funding through the Oranga programme helped create the structure, capacity and spaces (physical and metaphorical) for those with pre-existing capabilities and knowledge to meaningfully work with kauri ora. This extended to both researchers and kaumatua. In other words, Oranga funding enabled existing capacity and promoted the knowledge necessary to work with kauri ora. Many pointed to the utu tuakana teina relationship as another facilitating factor for this outcome, as many were both a learner and teacher throughout the research. The benefit of this approach is that it creates space for co-learning between researchers, and iwi, hapū, and kaumatua.

- **By 2024 - Māori are leading positive system change in forest biosecurity leading to increased resilience to tree pests and diseases, especially as related to kauri dieback and myrtle rust.**
  - The extensive relational work done by the Projects has paid off in the sense of increased individual, iwi, and hapū capacities. Capacity increases has taken many different forms but includes increases in kauri ora and kaitiakitanga knowledge (broadly), professional development for Māori researchers, changes in how systems relate to kauri ora and Māori research and increases in the availability of needed equipment to carry out the work.
  - There have been a number of internal and external connections, relationships and partnerships uncovered by the critical friend evaluation process. Instead of counting the number of partnerships the mahi produced, we focused on how the relational approach the Projects took to carry out their work led to a foundational set of relationships that are propelling the work forward (due to the use of Kaupapa Māori principles). It is important that this happened despite the restrictions presented by COVID-19. Project leaders believe that the connections and relationships they are forming will extend beyond the scope of Oranga, as evidenced by the increasing number of community referrals they are receiving (i.e., the ultimate indicator of good reputation and success of research). Funding through Oranga has provided the Projects with the opportunity and dedicated space to create relationships and evidence so far suggests that this will have positive impacts on kauri ora and Māori-led research in the future

- **By 2024 - Affected Māori communities are empowered to protect and restore their ngahere from kauri dieback and myrtle rust.**
  - Evidence suggested that the Projects' mahi helped iwi, hapū, individuals, organizations, and governments to better understand the deep relationship between kauri, myrtle rust,

- and the surrounding ecosystem (including pākehā individuals, organizations, and governments). This was led by kaumatua and included shifting how this relationship was described by focusing on positivity and life as opposed to death and dying (using kauri ora instead of kauri dieback). This led to a fundamental shift in understanding how the mahi is designed and carried out and better facilitated a Māori based understanding of how to approach the mahi. This provided real motivation and hope to the project leaders and those they were working with, which inevitably created buy-in for the research and facilitated other impacts.
- Project leaders have identified personal and professional growth facilitated by the Māori-led approach the mahi took. Project teams have developed key skills in research administration, navigation of systems, and confidence using Māori approaches against a backdrop of largely wester scientific (colonial) paradigms. The teams felt that the true impact of this will continue to be felt well into the future. Increased capacity will not only contribute to the health of the kauri, but also help Māori researcher and kaumatua make significant differences in future Projects (environmental or otherwise).

These aspirations will ideally lead to the 2075 goal of, "our mokopuna are accessing and engaging with the ngahere for cultural, physical and spiritual outcomes unencumbered by myrtle rust and kauri dieback". To determine this, we will continue to track our progress and use it to highlight the importance of this mahi not only for the kauri, but for the health of Aotearoa.