



RONGOĀ (TRADITIONAL MEDICINE PRACTICES) IMPROVING THE HEALTH OF KAURI FORESTS

ABSTRACT

This report explores the potential for improving the health of kauri forests by using Rongoā (traditional medicine) principles and methodologies.

Tui Shortland

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*Ko te Pu
Te More
Te Weu
Te Aka
Te Rea
Ko te waonui
Te Kune
Te Kore
Te Po*

*Ki nga tangata Māori na Rangi raua ko Papa
Ko tenei te timatanga o te Ao!*

*The origin & beginning of everything
The Male & Female elements
The Descendants, genealogy
The Life, articulated sound
The Growth
The Expansion
The Knowledge Content
The Potential
The Darkness
To People
Of Sky father and Earth mother
This is the beginning of the world*

Introduction

The health of kauri forests is being impacted upon by invasive alien species including kauri dieback. Kauri dieback is caused by the pathogen *Phytophthora agathidicida*, which was first discovered in 2006 and confirmed as a new species in 2008.

Two cultural impact assessments (Ngakuru *et. al.* 2010; Shortland & Wood, 2011) were carried out to demonstrate the potential negative impacts of the disease on tangata whenua. A Monitoring Framework (Shortland & Chetham 2013) was confirmed utilising cultural indicators to assess forest health. The indigenous network of the Kauri Dieback Management Programme, the Tangata Whenua Roopu, also established a Mataurangā Māori Fund to support indigenous knowledge, innovations and practices in the response to kauri dieback, from which funding was secured to support this project.

This report explores the potential for improving the health of kauri forests by using Rongoā (traditional medicine) principles and methodologies. To gain insights for this report several wananga were held to consider a holistic spiritually based approach to kauri forest health, including the macro and micro life of the forest, kauri and the disease.

It was agreed that there are many modalities of healing but for the purposes of this report, the best choices would be proposed to be tested as pilot interventions for improving forest health. Best choice would be made based upon the level of interest in uptake by the local communities; proven outcomes within previous parameters and the ability to share information around the interventions while also respecting the intellectual property of the knowledge holders and experts.

Mataurangā Māori

The United Nations Convention on Biological Diversity, Article 8j, states that...*'Each contracting Party shall, as far as possible and as appropriate: Subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices'*.

The Kauri Dieback Management Programme has a policy within its Charter which ensures that all intellectual property derived from indigenous communities shall remain the property of those indigenous peoples.

There has also been experiences of indigenous communities establishing Bio-cultural Community Protocols with research institutions to ensure the appropriate access and benefit sharing of any new knowledge and innovations derived from research around kauri dieback.

It is important to ensure that any work in relation to traditional knowledge, innovations and practices aligns to the above principles by empowering and respecting traditional knowledge holders and experts.

Methodology

The following is the methodology for the production of this report;

1. A call for expressions of interest was circulated to Rongoā practitioners via social media, emails and at various Rongoā meetings in Northland and Auckland. Rongoā practitioners were asked to provide their name, experience/expertise, hapu/iwi and contact details.
2. A desktop review was carried out to assess whether similar research has been carried out in the past for similar diseases. It was found that according to the literature available, not many other projects of a similar nature

had been established. This may have been due to difficulties in accessing traditional knowledge research online. However, there were some good indications of other indigenous methods of disease management in horticulture and shifting cultivation that were of interest to this project.

3. A two day wananga was held at Waikare Marae. The Wananga Agenda is outlined in Appendix 1.

The wananga also included a visit to the local forest, Ngaiotonga. This was an important component of the wananga to hold rituals within the forest and ensure that those present at the wananga from outside of the territories were able to see the health of the local forests. It was noted that although there were healthy kauri, some could do well with interventions to improve their health and that the biodiversity and new growth in the forest could also be improved through community Rongoā interventions.

4. A draft report was circulated to wananga participants for their feedback.
5. Following on from the wananga several meetings were held with Ngatiwai and Ngati Hine kaumatua. Particularly those who had been planning the wananga for several years since becoming aware of kauri dieback. These meetings were attended by Te Warihi Hetaraka, Hori Parata, Tohe Ashby, Tui Shortland and Dolly Baker. These discussions focused heavily on the need to protect the knowledge and the knowledge holders and experts and to ensure the spiritual integrity of the relationship between tangata whenua and their forests is supported.
6. The final report was produced.

Overall Findings

Some of the overall findings of the discussions included generic ideas which can be applied across kauri lands in the planning of projects to improve the health of forests.

As the youngest born of the forest we are responsible to look after the forest.¹ We must within that context consider what our role is and return to a spiritual and physical relationship to ensure the health of our forest returns and, in terms of the role of people within our communities, it is important that this type of work is led by tohunga, traditional healers and spiritual leaders. Interventions would need to be dispensed and/or overseen by tohunga and specially selected teams including local people.

It is also important that we have the freedom to take modern and introduced concepts to complement our traditional knowledge². This project is another opportunity to demonstrate that traditional knowledge is a living aspect of tangata whenua today; it is not just something that existed 150 years ago before it was outlawed by the Tohunga Suppression Act in the 1800s. Tangata whenua therefore have the right to develop our innovations as we walk in two worlds.

The validation of the methodologies agreed upon would be done so through customary validation processes. These processes include, confirmation through rituals and feasts, uptake by the community, endorsement by traditional healers and spiritual leaders and interest in implementation by tangata whenua from various forests.

As discussed above, there are many modalities of healing. To ensure an appropriate cross section is in place, it was agreed to consider three types of interventions to be combined into a holistic response:

1. Boost the immunity of the forest/trees
2. Carry out remedial and physical interventions on at risk/diseased trees
3. Perform spiritual interventions

¹ Tohe Ashby

² Fred Allen

In considering carrying out remedial and physical interventions on at risk/diseased trees, a similar process of assessment and treatment by Rongoā practitioners on people was recommended. Rongoā treatment plans for specific forests and trees could be developed after a cultural indicator assessment has taken place. This will also include records of (1) all interventions, substances and methodologies to be used, (2) calibration rates, (3) dates of preparation and application, and (4) what the remedy was prescribed for etc.

It must also be noted that any Rongoā regime needs to follow the traditional lunar calendar (the maramataka), to keep within the rhythms of Mother Nature (Papatuanuku), especially during times of high and low energy. Furthermore, seasonality and the celestial aspects would need to be included in the planning.

In addition, given moisture is a key component in the disease lifecycle, climate change may exacerbate the situation and therefore we must be vigilant during the wetter months of the year.

And finally, due to the visit to Ngaiotonga, which showed poor regeneration of new growth due to animal pests, it is recommended that a pest eradication programme is in place, if there are any Rongoā interventions to be made in the forest.

There is a need to carry out a cultural indicator assessment before and during to measure process (Shortland & Chetham 2013).

Spiritual remedies

To ensure a successful Rongoā programme there is a need to tune into the vibrations of the forest. That the personal and intimate bond between tangata whenua and the forest is strengthened. The following are aspects of the spiritual interventions discussed during this project.

Rāhui

Rāhui, or temporary prohibitions, will be established according to the tapu, sacredness, of the forest and the Rongoā interventions to take place. The boundary will be established during the placement of the rāhui. The rāhui will be designated by tohunga and established at the beginning of the programme.

For the purposes of widespread community understanding, the rāhui may receive a type of scientific reservation designation, for example, a Matauranga Māori Reserve.

Mauri stones

Mauri stones are traditionally used to embody the life force of waka, whare, pa, etc. For example, every waka that came to Aotearoa during the great migrations had a mauri stone, known as the heart of the waka. The mauri came from Hawaiki and were either a stone or bones of a common ancestor.³

To add to the vitality of the Rongoā interventions, mauri stones may be buried within the rāhui area. The mauri stones will be sourced from special places and will be placed within the forest with appropriate rituals.

Global Karakia

A suggestion by a wananga participant, was to send out a call to the world asking communities to hold special ceremony on behalf of kauri. This could be held on a specific day and time. Similar events have been held to acknowledge international solidarity, for example for Mauna Kea in Hawaii.⁴

This idea was supported by the elders who suggested that we invite the world to Aotearoa to join us in prayer and ceremony in the initiation of our future Rongoā interventions.

Aroha, karakia, waiata

As mentioned above the rituals are an essential component of Rongoā healing. The tones of traditional chants are known to open chakra and the forest responds to these vibrations.

Noho wahangu, whakarongo,

Not only do we need to communicate to the forest but also we need to listen. Through listening and traditional meditation in the forest, will assist those to align to the cellular frequency of the forest and to become more enlightened in the work of looking after the forest.

“Piripono ana ki era ahuatanga, Na nga tupuna I waiho mai”⁵

Another idea was the use of crushed quartz, however given the inability to source within kauri lands and the potential to use other substances in similar ways to boost immunity we have parked this idea for now.

Boost Immunity

As expressed in the wananga agenda (Appendix 1), we asked specific questions in relation to Rongoā responses. Those listed below were considered to be good initial modalities to test which are considered non-pollutants and non-harmful according to the Māori world view. Again, these would be utilised in combination with the above holistic methods.

The questions asked were:

Discuss and list all potential options (rongoā) that may potentially have merit and for each rongoā outline the following;

- Anticipated direct benefit e.g. cure infected kauri or, be a barrier to infection, or increase health/resistance to infection, etc.
- Anticipated scale of impact/ improvement – does it target single trees, the ngahere, or other?
- Anticipated timeframe to become effective – weeks, months, seasons, years, etc.
- Anticipated duration of effectiveness e.g. permanent, needs to be ‘reapplied’ annually, etc.
- Identify if this is an existing rongoā, new rongoā or a variation to existing rongoā – e.g. if existing
 - state existing, if new - state new, if a combination of existing - state which rongoā, if a variation - then state which rongoā it is derived from and what the variation is etc.
- Identify any evidence which suggests that the rongoā is likely to be successful – if it has been used, or if a variation has been used, how and why it is altered/improved
- Identify any ecological criteria required for the rongoā to be successfully trialed, and/or limitations of anticipated benefits e.g. requires a mix of healthy and diseased mature kauri or, requires kauri with specified naturally occurring companion plants/ creatures or, requires current absence of specific companions, etc.
- Identify any human skillset/criteria required if the rongoā was to be trialed
- Identify any potential risks or ‘side-effects’ of performing a trial
- Describe the method of preparation and/or ‘application’ for each rongoā as appropriate.

³ Hirini Henare

⁴ Moana Louisi Skipworth

⁵ Tohe Ashby

The kauri & paraoa, the sperm whale

- The relationship between the sperm whale and the kauri is significant to Māori. The sperm whale once walked on land until he decided to go out to the ocean. At that time, Tangaroa, the god of the ocean, decided to put the boundary down between the ocean and land. And such, the sperm whale has been isolated to the ocean and disconnected from his brother the kauri. You can see the same similarities between the two in their skin, and gum/ambergris. Their close relationship is why the sperm whale beaches itself.
- Ingredient to be used – High grade whale oil
- Direct benefit will be that it has healing properties. Used for beauty treatments, replicates skin cells, will smother spore filament stage during life cycle of the zoospore
- This is an innovation
- Targets diseased kauri
- Apply oil directly, use high grade newly sourced oil with other holistic methods
- Must be reapplied weekly
- May see changes within a month

Seaweed

- Following on from the deep connection between the forest and the sea, the use of seaweed to boost the immunity of trees is another example of the ocean healing the land.
- Used as a Māori super food and in Māori organic horticulture
- Can be used on diseased and non-diseased forests – all kauri in proximity to diseased kauri or those needing boosting
- Can be used as mulch or dried and applied within the soil
- Immediate action
- Re-applied on threatened trees at 6 monthly intervals

Ash

- Ash used similarly to seaweed helps with disease resistance. The ash of different types of products was suggested including wood, whale, and plant. The actual ingredients would need to be confirmed and quantity etc. during treatment plan development.
- Target diseased forests
- Immediate plant immune booster action
- All kauri in proximity of diseased kauri
- Apply directly

Others

- Another idea which may be of interest is the use of rahurahu ash mixed with harakeke hupei for its healing properties and its potential to be applied. However a prioritisation process identified those above as being the first which should be trialed.

Physical & remedial interventions

Considerations – The drip line can be estimated by the tohunga whakairo who are experienced in felling logs for waka etc. This will inform how far the roots grow and the volume. The action of zoospores is like pneumonia, when we get ‘all gunked up’ we need to think about a decongestant.⁶

Aeration

- Compaction in the soil is ideal habitat for zoospores.⁷
- Therefore it is considered that aerating the soil would be good to release moisture and encourage natural processes.
- Target diseased kauri and footpaths/tracks
- Immediate action by rotation 6 monthly
- Used within Māori organic horticultural practices to manage disease
- All kauri in proximity to diseased kauri
- Technique - Forking/core plugging of compacted soils

Trial

- Project participants also showed an interest in testing native bio-controls on spores in the laboratory to see what effect they have on zoospores. This would further the interest and knowledge of tangata whenua about kauri dieback.
- Several potential remedies including Manuka spray⁸, could be prepared and tested on the disease for any effects.

Plant new seedlings

- As noted by the field visit during the Rongoā wananga and by forest health practitioners, in many forests there are very few new seedlings growing and seedlings are low in diversity. If there is no new growth coming through, then there is a need to intervene and plant using seed or seedlings from existing flora and eco source those species which once existed in the forest.
- This process can be included in detail in the treatment plan and based on similar principles to shifting cultivation of Thailand (Shortland, 2016).

A list of rongoā options along with research considerations for each rongoā is listed in Appendix 2.

^{6,7} Fred Allen

⁸ Hori Parata and other prominent Rongoā practitioners suggested the use of Manuka spray

Conclusion

To conclude, this wananga was a success in that it was the first of its kind to respect the knowledge of Rongoā practitioners in their ability to respond to problems in forest health and their willingness to share their knowledge.

The intellectual property of traditional knowledge holders and experts must be protected and respected in any projects of this nature.

This project is intended to gain further support from partners in exploring Rongoā responses to kauri forest health and act as a stepping stone to a pilot forest research project which will test some of the remedies suggested.

This project is seen by tangata whenua as another step towards the support for a national Rongoā Māori programme to manage kauri dieback.

Recommendations

The following rongoā are recommended for testing:

1. Sperm whale products – particularly as we have a newly dead stranded sperm whale.
2. Seaweed & Ash.
3. Bio-controls such as Manuka, rahurahu, harakeke, extracts.

It is recommended that a holistic programme be carried out on a minimum of three forest sites considering community capacity, accessibility, etc.

It is also recommended that this research be for five years considering the need to assess trends and the potential for climatic variations to be a key factor in assessing outcomes.

References

Ngakuru, Marsden & Nuttall (2010). Te Roroa Effects Assessment. Kauri Dieback Disease (Phytophthora taxon Agathis - PA) (June 2010). Report prepared for Te Roroa and the Kauri Dieback Joint Agency Response by Wakawhenua. MPI Contract 12074.

Shortland, T; Wood, W (2011). Kia Toitu He Kauri. Kauri Dieback Tangata Whenua Roopu Cultural Impact Assessment. Repo Consultancy Ltd.

Shortland, T; Chetham, J (2013). Kauri Cultural Health Indicators - Monitoring Framework. Repo Consultancy Ltd.

Shortland, T (2016). KD Rongoa Desktop Review. Nga Tirairaka o Ngati Hine. Unpublished.

Appendix 1: Wananga Agenda

Venue: Waikare Marae

Date: 19/08/2016 – 20/08/2016

PROGRAM: DAY 1 - 19/08/16

10am	Powhiri
10:30	Morning Tea
11am	Whakawhanaungatanga
12pm	Wananga Overview Update on Kauri Dieback program Summary of known areas of disease and areas not known to be diseased,
12:30pm	Lunch
1pm	Summarise relevant results of research to date including what is known of the organism responsible including; suspected vectors, life cycle, symptoms, etc.
1.30pm	Summarise learnings from desktop review
2pm	Discuss and list all potential options (rongoā) that may potentially have merit and, <ul style="list-style-type: none">▪ Anticipated direct benefit e.g. cure infected kauri or, be a barrier to infection, or increase health/resistance to infection, etc.▪ Anticipated scale of impact/ improvement – does it target single trees, the ngahere, or other?▪ Anticipated timeframe to become effective – weeks, months, seasons, years, etc.▪ Anticipated duration of effectiveness e.g. permanent, needs to be ‘reapplied’ annually, etc.▪ Identify if this is an existing rongoā, new rongoā or a variation to existing rongoā – e.g. if existing - state existing, if new - state new, if a combination of existing - state w h i c h rongoā, if a variation - then state which rongoā it is derived from and what the variation is etc.▪ Identify any evidence which suggests that the rongoā is likely to be successful – if it has been used, or if a variation has been used, how and why it is altered/improved▪ Identify any ecological criteria required for the rongoā to be successfully trialed, and/or limitations of anticipated benefits e.g. requires a mix of healthy and diseased mature kauri or, requires kauri with specified naturally occurring companion plants/ creatures or, requires current absence of specific companions, etc.▪ Identify any human skillset/criteria required if the rongoā was to be trialed▪ Identify any potential risks or ‘side-effects’ of performing a trial▪ Describe the method of preparation and/or ‘application’ for each rongoā as appropriate.
3:30pm	Afternoon tea
4pm	Discuss and list all potential options (rongoā) that may potentially have merit 6pm

Hakari Dinner

7:00pm Decide which are most likely to be useful

10pm Karakia mo te po
Haere tonu te wananga

PROGRAM: DAY 2 - 20/08/16

7:30am Breakfast and tidy wharehui 9am

Summary of Day 1 discussions

9.30am Recommend 1-3* options as the most likely to be useful for the Kauri Dieback Programme.

10:30am Morning Tea

11am For each shortlisted rongoa confirm;

- Anticipated direct benefit e.g. cure infected kauri or, be a barrier to infection, or increase health/resistance to infection, etc.
- Anticipated scale of impact/ improvement – does it target single trees, the ngahere, or other?
- Anticipated timeframe to become effective – weeks, months, seasons, years, etc.
- Anticipated duration of effectiveness e.g. permanent, needs to be ‘reapplied’ annually, etc.
- Identify if this is an existing rongoā, new rongoā or a variation to existing rongoā – e.g. if existing - state existing, if new - state new, if a combination of existing - state w h i c h rongoā, if a variation - then state which rongoā it is derived from and what the variation is etc.

12:30pm Lunch

1:30pm Continued discussions

- Identify any evidence which suggests that the rongoā is likely to be successful – if it has been used, or if a variation has been used, how and why it is altered/improved
- Identify any ecological criteria required for the rongoā to be successfully trialed, and/or limitations of anticipated benefits. E.g. requires a mix of healthy and diseased mature kauri or, requires kauri with specified naturally occurring companion plants/ creatures or, requires current absence of specific companions, etc.
- Identify any human skillset/criteria required if the rongoā was to be trialed
- Identify any potential risks or ‘side-effects’ of performing a trial
- Describe the method of preparation and/or ‘application’ for each rongoā as appropriate.

4pm Whakawatea

Appendix 2: List of Rongoā assessed and research considerations.

Rongoā	Direct benefit	Scale of Impact	Timeframe for effectiveness	Duration e.g. permanent or re applied	Existing, new or a variation to existing rongoā	Evidence	Ecological criteria to be successfully trialed. E.g. requires a mix of kauri or, companion plants	Identify any human skillset/criteria required	Identify any potential risks	Describe the method of preparation and/or 'application'
Paraoa oil – spermaceti	Siblings Healing properties	Targets diseased kauri	Changes in a month	Reapplied...	Used on humans, now to use on trees	Used for beauty treatments, replicates skin cells Will smother spore filament stage during life cycle	Diseased kauri Try smaller ones	Tohunga	Mercury?	Apply oil directly Get high grade New oil
Rahurahu & harakeke *not a priority	Healing properties	Target diseased kauri	2 weeks	Reapplied...	Used on humans, now to use on trees	Used for burns Harakeke (tenax) very powerful medicine	Diseased kauri Try smaller ones	Tohunga	None	Use dry rahurahu Burnt into ash and mixed with hupe of the harakeke
Rimurimu	Boost forest immunity	Diseased and non-diseased forests	Immediate action	Permanent for threatened trees at 6 monthly intervals	Used as a Māori super food and in Māori organic horticulture	Horticultural practice to manage disease	All kauri in proximity to diseased kauri or those needing boost	Tohunga	none	Mulch dried
Wood ash Or potash Or crushed whale	Boost forest immunity	Diseased forests	Immediate plant immune booster action	Applied in solution or broadcast from hand held spinning disk applicator 3-6 times per year	New	Potassium action is for disease resistance (booster)	All kauri in proximity to diseased kauri	Tohunga	None	Apply directly 30g per m2
Dandelion	Kills heavy metals									spray
Aeration	Removes moisture from/through compacted layers	Target diseased kauri and footpaths/tracks	Immediate action	Immediate action by rotation 6 monthly		Horticultural practice to manage disease	All kauri in proximity to diseased kauri	Forking/core plugging of compacted soils	none	
Litter	Kaitiaki – worms, frogs									
Plant new seedlings										
Te ha o te kauri										
Rāhui										Place a tapu over the area according to research
Mauri stones	Add to vitality	Feel vibrations between the mauri stone and the tree								Sourced from a special place depending on the
Ground clear quartz *not a priority	Hardens and dries									Sit on windowsill, Mix with water, hour hand stirring,