

# Connecting science and technical research with Māori interests in forestry: Ka tangi hoki ahau

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## Māori interests in forestry

With \$2 billion in forestry assets that include land, trees and energy options, Māori are set to become major stakeholders in the future of forestry. The fundamental aspirations of Māori are to protect and enhance their assets, and to ensure they are being used in the best possible way. In the context of these assets:

- Māori currently control 520,000 hectares (30 per cent) of New Zealand's exotic forest land and this could increase to 785,000 hectares within the next 10 years as other Treaty settlements are completed
- Māori have commercial (stumpage) and/or management interests in 10 to 15 per cent of their exotic forest lands
- Māori own or control, fully or in part, over 600,000 hectares of indigenous forests
- An estimated 500,000 hectares of Māori land is currently non-productive and forestry could be a value proposition for some of this land
- There are geothermal assets underneath forests, particularly in the central North Island, and these can be used for bioenergy options that can be integrated with forest processing options.

The ability of Māori to sustain and realise the potential of their assets is significant to New Zealand. A forestry strategy that fosters action and innovation can help their success. To underpin these processes will be technical research, economic models and quality science that will come from research organisations such as Scion. This article describes some of the challenges and opportunities of connecting science and research with Māori interests in forestry. In this paper we also summarise the feedback from the capacity (200 plus) attendees at a recent Māori forestry forum on priorities for Māori forestry and we explore how this could influence future forestry research.

## Challenges and opportunities

In forestry the relationship between the land and the forest has some distinct challenges and opportunities. This is largely driven by the level of investment and the scale of land required for sustained commercial forest management, for example, forestry can require a minimum of 10,000 to 15,000 hectares while a commercial farming unit can be on a 100 hectare block. These factors exclude many of the numerous smaller Māori land blocks from establishing forests and setting up ongoing management of the forests on their land.

As a result, the land is leased to investment or forestry companies who plant and manage the forests and who pay rent to the landowners. This situation has created a huge opportunity cost for Māori in terms of their participation in forestry and in the financial return they receive from the land.

To realise more of the benefits of owning and managing the forests Māori face many challenges. For example, those who want to own trees need to determine a forestry vision and fund the establishment or purchase of this investment. Those who want to manage forests need to resolve mana whenua issues and unite land blocks to get critical mass, and to agree on the value processes and get the skilled people and the investment to set up a forest management company.

## Two forest trusts

Some Māori have strived to address these challenges, for instance the Lake Taupo Forest Trust and Lake Rotoaira Forest Trust:

- The Lake Taupo Forest Trust, with 68 blocks and 11,000 owners, has altogether 23,000 of 32,000 hectares in commercial forests that they will fully own by around 2021
- The Lake Rotoaira Forest Trust, with 85 blocks and 10,000 owners, has altogether 9,300 of 23,000 hectares in commercial forests that they will fully own by around 2026.

Together these trusts are shareholders in the Lake Taupo Forests Management Limited company that oversees the contract management of these forests.



Lake Taupo and Lake Rotoaira Forests

## Structure of land ownership

Another distinct challenge in forestry relates to the structure of land ownership. For example, agricultural land tends to be in a trust or incorporation with a strong focus on the land use. These structures are fewer in forestry, occurring mainly where there are interests in the trees, such as with the two trusts mentioned above.

Predominantly, however, forested land is owned by rūnanga and iwi organisations that have broader administrative, social and cultural focuses in addition to their role as kaitiaki (guardian) of the land. This creates the challenge for Māori to continuously develop their knowledge and vision for forestry commensurate with their other preoccupations. This is necessary because it will most likely be through innovative land use that Māori will protect and enhance their land assets.

## Multiple use forestry

Multiple use forestry – management of the forest for more than one purpose – can provide many opportunities for Māori to increase the productivity of their land. With a modern Māori preference for food, energy and natural medicines and an appreciation of forests beyond timber, Māori innovative efforts have already led to eco-tourism ventures, co-cropping ginseng with commercial pine forests, and a growing interest to produce more manuka honey on the land.

This type of forestry requires the identification of suitable crops and forest lands. For crops, a challenge has been put to scientists to create ‘trees that you can eat’. For land, there is a rudimentary opportunity to identify the unproductive Māori land and to assess



Ginseng grown under radiata (left) and hives located near manuka (right)

whether forestry (for timber, carbon, tourism or other purposes) could be viable on these lands.

Commercially forested land returns a rental income while the indigenous forests provide cultural identity and ecosystem services that also benefit New Zealand. The ecosystem services of the forests are important to Māori and both indigenous and exotic forest types are subjected to similar Māori tikanga (cultural regulation). For example, giving access to the landowners to hunt for food or gather rongoā (native plants used for medicinal purposes).

Although exotic forests provide timber returns and a range of ecosystem services, a single species exotic pine forest grown primarily for timber purposes is an antithesis to the Māori view of a forest. This raises questions around the suitability of conventional forestry

Table 1: Science and Innovation Plan for NZ forestry – the research priorities

Strategic objective	Ranking	Priority projects
Improved productivity and consistency	1	<p>1.1 <i>Foliar disease solutions</i></p> <ul style="list-style-type: none"> <li>• Endophytes, induced resistance, genetic tolerance + other technologies</li> </ul> <p>1.2 <i>Genetics and varietal forestry</i></p> <ul style="list-style-type: none"> <li>• Better and consistent wood quality, faster growth, disease resistance</li> <li>• Rapid identification/introduction of superior genotypes</li> </ul> <p>1.3 <i>Long-term market trends</i></p> <p>1.4 <i>Silviculture</i></p>
Sustainability	2	<p>2.1 <i>Resource measurement</i></p> <ul style="list-style-type: none"> <li>• Remote sensing for forest, stand, and log assessment, biosecurity, environmental and growth monitoring</li> </ul> <p>2.2 <i>Alternative species</i></p> <ul style="list-style-type: none"> <li>• Selection/breeding – Douglas fir, cypresses, <i>E. fastigata</i>, <i>E. regnans</i>, redwoods</li> </ul> <p>2.3 <i>Licence to operate</i></p> <ul style="list-style-type: none"> <li>• Verification of sustainability for market access</li> <li>• Natural hazard management, floods, landslips</li> </ul> <p>2.4 <i>Rural fire</i></p> <ul style="list-style-type: none"> <li>• Mitigating hazards and climate change</li> </ul>
Operational performance	3	<p><i>Operational</i></p> <p>3.1 Harvesting steep ground</p> <p>3.2 Supply chain cost – smarter/cheaper</p>

Table 2: Federation of Māori Authorities Forestry Cluster 2007 – priority technical objectives

Programme	Ranking	Objectives
Wood quality & differentiation	1	To capitalise on the inherent quality features of wood fibre from both Māori forests and their supply chain
Energy supply and use	2	To ensure the security of supply and cost of energy
Alternative species	3	To maintain and enhance values of indigenous forests
Industry development	4	To develop Māori science capability to meet the future requirements of Māori forestry
Environmental & social sustainability	5	To have technically and commercially robust systems for the management of carbon issues and opportunities for Māori forestry
Industry development	6	To facilitate the adoption of appropriate information technology to optimise business operation for Māori forestry
Governance & market intelligence	7	To ensure that research and development is based on robust information on market trends

Source: Foundation for Research Science & Technology paper: Scoping RS&T Priorities for Māori in the Fishing, Farming and Forestry Sector (2007)

economic models for Māori. The challenge for Māori is that most of New Zealand's forest growing research is about increasing the value proposition of radiata plantation forests. This shows some disconnection with current forestry research and what the research priorities for Māori forestry might be.

Current forestry research is guided and co-funded by major forest industry stakeholders. In January 2012 a New Zealand Forestry Science and Innovation Plan was published by the NZ Forest Owners Association. This plan has a vision for this country's plantation forestry and it describes 'research to transform plantation forestry from a log production business to the starting point of a market led and automated, capital-intensive manufacturing industry.' The research priorities identified in this plan are summarised in Table 1, rank 1 being the highest priority.

Māori have also identified forestry research priorities. In 2007 the forestry cluster of the Federation of Māori Authorities (FOMA) developed a forestry research and development strategy that included the prioritisation of 'technical' objectives. This strategy was based on the premise that Māori forestry estates were typically small and diffuse and they were not vertically integrated. Table 2 shows the priority of these technical objectives, rank 1 being the highest priority.

There is clearly a difference between the current research priorities of New Zealand forestry and the priorities of Māori forestry back in 2007. However what is important is whether these differences are still valid in 2014, particularly given the growth that has occurred in Māori forestry assets. The challenge for Māori is to develop a national Māori forestry strategy for 2013–2019 and to identify and prioritise the most relevant research.

Commendably some Māori already have their own forestry strategy and research plan, and some subscribe to FOMA and/or the NZ Forest Owners Association or

other such organisations. Nevertheless, there is a place for a national approach as this could open a huge opportunity for Māori to increase their influence on the nation's forestry research efforts. Central to this will be researchers and Māori working together to identify the comprehensive research projects, and for Māori to adopt a united approach to their research efforts.

## Engagement

How will Māori shape New Zealand forestry? This is an underlying key question, and as the answer evolves it is important for research organisations to work alongside Māori, building solid relationships that will strengthen the aspirations of both parties. Scion's engagement with Māori is broad and it encompasses rūnanga, iwi and Māori forestry organisations, the use of targeted and strategic panels, and collaborations with other Māori support organisations such as Te Tumu Paeroa, Te Puni Kōkiri and FOMA.

With highly complex or controversial research there can be extraordinary challenges in communicating between scientists and Māori. Te Aroturuki was a pan-tribal group set up in 2002 to specifically advise, monitor and interact with scientists working on controversial genetic modification research. In this case the science had to be appropriately communicated, using the right language and cultural context, so that the potential benefits and risks of the technology could be evaluated. This led to the development of a value-based method for dialogue between scientists and Māori, and the recommendation for a Māori intermediary who could coordinate between the scientists and the Māori community.

Over the past eight years some of the coordination between Scion and Māori has been undertaken by the individual in the role of Māori business development. Recently this role was restructured with a view to creating a cultural shift of taking Māori engagement





Māori forestry forum pōwhiri, Tangatarua Marae, 16 August 2013

into the mainstream thinking of Scion rather than it being a separate activity. Currently at Scion there are two projects where the scientists work together with iwi coordinators who reside in the iwi rohe (boundary).

The iwi coordinators are responsible for directing and coordinating the research activity within the land blocks and communicating with the haukāinga (home people). In Te Tai Tokerau (Northland) skopia technology, which involves computer video links, is used so that the coordinator can communicate regularly with the scientists in Rotorua. A similar arrangement is in place in Tairāwhiti (East Coast) where the iwi coordinator is responsible for the cultural and social discussions and in directing the research in an iwi-focused manner.

Scion also has two Māori strategic advisory panels:

- Te Rangatira Rōpū talk directly with the Scion board of directors and this 'chief to chief' approach signifies that Scion is serious about working with Māori
- Te Hangarau Rōpū work with the scientists to inform them on the current challenges for Māori. At the last meeting the Hangarau Rōpū recommended that the Māori community needed to know and understand the innovative projects that were being developed at Scion. In August 2013, the Māori forestry forum was arranged where over 200 Māori from throughout the country were informed about the innovative science and the aspirations of other Māori forestry entities.

## Benefits and costs

To the Māori community, research has both benefits and costs. As research outcomes can be largely unknown, research can be viewed by Māori as a risky investment, particularly when compared to other



Māori forestry forum in session at the Waiariki Institute of Technology

investments such as commercial property. An alternate approach is to consider the cost of research as an educational investment.

Science and research is about providing choice, confidence, solving problems and supporting innovation. For example, forest research infrastructure such as trials, monitoring studies and sample plots can be used to develop the value proposition of forests on Māori land. Forestry consultants, training providers and research organisations can assist Māori to understand the forestry science, management and wood processing options, as well as the forestry technologies that are currently available. Importantly, scientists can help to develop the methods, systems and technologies for the future forests and forest industry of Māori.

There is an obvious cost for research in co-funding and in-kind (non-monetary) contributions, and there are various funds available to support Māori-based research projects. For example, the Ministry for Primary Industries has a Māori Agribusiness Fund and a Sustainable Farm/Forest Fund, and the Ministry of Business, Innovation and Employment has a new funding initiative called Vision Mātauranga. The project will need to fit the criteria of the fund, and it will be interesting to see how well suited the priority Māori research projects will be to these criteria.

With the Vision Mātauranga placement fund a scientist is encouraged to work with Māori on a project, or a person from a Māori organisation is encouraged to work with a research organisation. With most funds a research project worth \$200,000 can require minimum co-funding of \$25,000. The funding application will require a description of the project and some technical information and the science partner can provide assistance to write this. For Māori keen to be more involved in directing the research, ideally they should

have skills in project management to coordinate with the scientists and other stakeholders and to report back to the science funder. Māori should be aware that with joint funding the science funder will likely expect to share the resultant research with the wider community.

In 2014 a commodity levy of 27 cents per tonne will be introduced on plantation logs and other products. This levy will fund the research priorities for forestry (refer back to Table 1) as well as other industry good activities such as communication, industry representation and biosecurity activities. There will be direct costs to Māori with full or part stumpage interests, and there will be largely indirect benefits. Māori should note that the levy will apply to both exotic and indigenous plantation forests. Any production from natural indigenous forests will not be levied.

### Priorities for Māori forestry

The Māori interests in forestry are wide-ranging in terms of scale, knowledge and resources, and currently there is no single voice for all of these interests. Earlier this year a group called Te Ngahere Oranga Rōpū – involving FOMA, Te Puni Kōkiri, Te Arawa Primary Sector, Waiariki Institute of Technology and Scion – met and organised a Māori forestry forum that would bring together the various interests in Māori forestry. The theme for the forum was ‘Unlocking the Potential of Māori Forestry – Innovations and Aspirations’. One of the objectives was to get input on Māori forestry priorities with a view to the future development of a national strategy to support Māori forestry.

The 285 people who attended the forum came from many regions, mainly from across the North Island. These people represented over 135 Māori organisations in a shareholder, trustee, governance, management and contractor capacity or other. A pre-registration questionnaire asked the attendees what their expectations of the forum were and what they thought were the priorities for Māori forestry.

The forum expectations could be summarised into: 1) knowledge development; and 2) networking with a view towards forming future collaborations. The priorities for Māori forestry were more wide-ranging

and we have summarised these into the following six broad categories:

- *Action priorities* relate to forestry land use activities – this also encapsulates opportunities for collectives, forest management and wood processing
- *Outcome priorities* focus on the outcomes of an activity such as employment
- *Fundamental priorities* relate to kaitiaki
- *Governance priorities* relate to governance issues
- *Other priorities* are other activities that were specifically mentioned such as training
- *Resourcing priorities* are essentially about funding the various activities.

A summary of these priorities is shown in Table 3, listed by the percentage level of response.

Doing nothing in forestry is clearly not an option for Māori. This was further endorsed by a forum resolution to support initiatives that would increase the participation of Māori in forestry in five key areas. These key areas were later prioritised from 1 to 5, with 1 being the most important and 5 the least:

1. Enhance unity of purpose and effectiveness through the development of cooperative structures and systems that build economies of scale
2. Enhance greater and more effective use of Māori-owned land
3. Enhance greater Māori ownership and control within the forestry industry – by Māori for Māori
4. Enhance Māori capability within the industry at all levels
5. Enhance and revitalise an industry that meets the socio-economic and cultural aspirations of Māori.

There is currently a collective of iwi organisations that are working with Scion to develop a project that encapsulates a case study in the priority one area, and there are also many other Māori initiatives with the potential to be developed. The next steps are to hold focus and rohe-based hui with a view to prioritising

Table 3: Forum registration survey feedback – the priorities for Māori forestry

Category	Description
Action (51%)	Collectives, forest ownership and management, processing, value-added product, carbon forestry, under-utilised land, return on investment, productivity, diversify tree species, information sharing
Outcomes (17%)	Employment, economic development
Fundamental (11%)	Kaitiaki, land, mana whenua, cultural vs commercial tensions, self-determination
Governance (11%)	Capacity and capability, decision-making
Other (6%)	Training, eco-tourism, scholarships
Resourcing (4%)	Forest investment company, fund first rotation

and progressing these initiatives, including the development of a national strategy that will support Māori forestry over the next five years. In the meantime we can only speculate on how Māori will shape New Zealand forestry and the implications that this will have on forestry research:

- Selection and breeding for indigenous species?
- Methods to identify land for multiple use using remote sensing technologies?
- Silviculture regime options integrated with co-cropping and associated economic models?
- Timber processing technologies for indigenous species?
- Developing 'trees that you can eat'?

Nevertheless, there is a wider research perspective. Internationally Māori forestry are in a unique position to demonstrate to other indigenous people how they will protect and enhance their lands, and use forestry to sustain their cultural identity and to benefit their people and the community in the 21st century.

## **Ka tangi te tī tī**

*The migratory bird that searches the globe for economic opportunities, it is connected to the home, but with a global view.\**

## **Ka tangi te kākā**

*The bird of the forest resources the domestic market.\**

## **Ka tangi hoki ahau**

*Māori will develop their entrepreneurial, managerial and governance capabilities through connecting with science and technical research.*

\* Sourced from He kai kei aku ringa, Māori Economic Strategy

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