

# Discovery 12

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**MĀORI PARTNERSHIPS**



Landcare Research  
Manaaki Whenua



# TĒNĀ KOUTOU TĒNĀ KOUTOU

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Welcome to this edition of Discovery, which we have devoted to kōrero from our work with iwi and Māori organisations. Since the formation of Manaaki Whenua as a Crown Research Institute (CRI) 20 years ago we have valued highly our collaborations and friendships in the Māori community. Many of the stories of recent projects in this edition have long histories. I especially acknowledge the work of Manaaki Whenua leaders Dr Andrew Pearce and Dr Oliver Sutherland who, guided by Rau Kirikiri through the 1990s, gave momentum to those relationships at the heart of this organisation. Now, in 2012, I am delighted to welcome back Rau to our Senior Leadership Team, albeit in a part-time role fitting in with his other responsibilities, in the role of Māori kaihautū (steersman/guide). Rau has written his own welcome on the next page.

Māori industry and organisations are increasingly dealing with complex multi-dimensional environmental issues that threaten Māori relationships with the natural environment (e.g. water pollution, water allocation, climate change, biodiversity, competition for land resources). These issues impact on the social and cultural well-being and economic prosperity of Māori. Strong drivers for Māori are to manage their resources sustainably and to protect cultural assets for future generations while at the same time achieving economic prosperity, especially following Treaty settlements.

Vision Mātauranga has emerged increasingly within policy frameworks since 2007 and was incorporated into the CRI's Statements of Core Purpose (SCP) during late 2010. CRIs are now required, as part of their operating principles, to enable the innovation potential of Māori knowledge, resources and people for the benefit of all New Zealanders.

Manaaki Whenua is committed to sustaining responsive relationships with iwi and Māori organisations that enable collaborative projects and investment to develop new knowledge, services and innovative environmental solutions that support sustainable economic development.

Māori are intergenerational guardians of significant natural resources and indigenous knowledge as well as being owners and managers of commercial assets. As such, Māori are important partners in science and innovation and increasingly appreciate the role that science can play in economic development. Manaaki Whenua is committed to exploring the interface between traditional knowledge, Māori world views and science. We seek to develop those links in a way that increases society's appreciation of Māori relationships between the natural world, the economy and people.

Māori perspectives, practices, values and knowledge, obtained from systematic and intergenerational observation and experience, can contribute to our knowledge of biodiversity,

land resources and ecosystems. The concept of kaitiakitanga offers a distinctive approach to understanding and managing New Zealand's natural resources. As such, there are opportunities for Māori–CRI partnerships for mutual advantage, as demonstrated in our relationships with Tūhoe, Ngāti Awa, Ngāti Wai and Ngā Uri o Whakakii.

Manaaki Whenua is also committed to building the bicultural capability of our staff, particularly those that come from overseas, to ensure that they understand the cultural context, dynamics, and environment when engaging and working with Māori communities in their fieldwork. Over the past four years, we have undertaken Te Reo and waiata sessions with staff at our Lincoln, Auckland, Hamilton and Palmerston North sites. Recently, we have reintroduced tikanga sessions and Treaty of Waitangi appreciation courses.

Manaaki Whenua is also committed to building our Māori research capability. Over the past four years we have employed a number of strategies, including recruiting new Māori scientists/researchers, integrating more of our non-Māori staff with an active interest in Māori research into more of our Māori research projects, partnering with Māori research institutions, and working collaboratively with iwi/hapū-based researchers. The challenges include the low participation rates of Māori in science, very low Māori capacity, and current low Māori educational attainment rates in science, engineering and technology. Finding Māori talent is one challenge, but keeping them in a CRI environment when their skills are needed so much in the Māori community is the next challenge, and it requires new strategies and innovative thinking. But we embrace the challenge and continue to seek to grow our Māori staff in science.

I hope you enjoy the stories in this edition of Discovery and appreciate the wealth of opportunities that emerge from them.

**Dr Richard Gordon**  
Chief Executive

## Message from Rau Kirikiri, Māori Kaihautū, Manaaki Whenua

E ngā karangatanga maha puta noa, tēnei te tangi a te mōkai kua hoki mai ki tōna ūkaipō. Inā i wehe atu kia tirohia te ao, ā, kua tatū mai anō hei pou ārahi mo te hunga nei. I puta mai te karanga kia hau mai anō ki te manaaki i a rātou e whakapau kaha ana ki te whakapakari i te iwi Māori. Kua huri anō te kei o tēnei waka ki te tautoko i ngā hiahia, i ngā moemoea o tāua te Māori. Na, ko te aronui kia haere ngātahi a Manaaki Whenua me ngā iwi katoa o te motu i runga i te huarahi kotahi, i runga i te huarahi tika mo te katoa.

It is a pleasure for me, yet again, to be a part of the exciting research that Manaaki Whenua undertakes, albeit on a part-time basis only. The last five or so years as an independent consultant have opened my eyes to even more opportunities for Māori in the field of science research that hitherto were not so obvious. Treaty claims settlements, amongst others, have increased the ability of iwi to pursue long-term development options with vigour. I am encouraged that Manaaki Whenua will be a dedicated partner in that effort, as it always has been.



# INDIGENOUS GOVERNANCE AND PROTECTED AREAS: LESSONS FROM AUSTRALIAN JOINTLY MANAGED PARKS FOR SETTLEMENT OF THE TUHOE CLAIM TO TE UREWERA NATIONAL PARK

Joint management of protected areas, which is often portrayed as a ‘win-win’ solution for conservation and indigenous peoples, has been used in Australia as a mechanism to return ownership of land to indigenous peoples and facilitate their involvement in governance and management of those protected areas.

Similar arrangements have been proposed for Te Urewera National Park, which is located at the heart of Tūhoe’s homeland, in an endeavour to settle Tūhoe’s Treaty of Waitangi claim.

The Tūhoe claim for Te Urewera involves a significant portion of the country’s indigenous forests – for which the iwi has developed culturally distinctive criteria grounded in the concept of Mana Motuhake (autonomy, interdependence, and nationhood) and a desire to improve the quality of life for its people. National level conservation outcomes and public use of the National Park are a central part of the aspirations of Tūhoe. The challenge confronting such iwi is how to progress claims through the settlement process while developing the knowledge necessary to implement distinctive natural resource management options in relation to environmental, cultural and economic goals.

Between 2009 and 2010, research by Manaaki Whenua (Phil Lyver and Rob Allen) and CSIRO (Jocelyn Davies) scientists used three forms of investigation in order to understand how effectively a joint management arrangement might settle the Tūhoe claim to Te Urewera.

First, we established Tūhoe criteria for claim settlement as understood by members of Te Kotahi a Tūhoe (TKAT)—the organisation mandated by the Tūhoe people to negotiate settlement of their claim.

Secondly, we analysed the extent to which governance and management arrangements of three Australian jointly managed protected areas met these Tūhoe criteria.

And thirdly, in 2010 Drs Lyver, Allen and Davies accompanied a number of representatives from Tūhoe, Ngātiwai, and Ngā Uri o Whakakii including a Ngāti Kahu student intern to examine how arrangements and outcomes from three long established jointly managed Australian protected areas fitted criteria articulated by Tūhoe negotiators as appropriate and fair for settlement of their claim.

Tūhoe representatives were interested in experiencing first-hand what these joint management arrangements “looked, heard, smelt and felt like,” in order to understand, how the various governance and management arrangements operated in practice.

Our research shows that arrangements for three long established Australian joint managed parks vary in their fit to Tūhoe criteria and aspirations for settlement of their claim. Some key findings from the study include:

- The overall governance authority that Tūhoe seek to have recognised as part of their claim settlement is not provided for in the Australian parks structure. Aboriginal ownership of land and resources and decision-making remains encumbered through the current arrangements. Park directors and government ministers still hold power of veto over aboriginal owned land;
- Traditional owners in each of the park’s management structure filled lower graded employment positions where they have little influence on management decisions;
- Our Māori study tour participants had expected to see after 20-30 years of joint management greater empowerment of traditional owners and greater evidence of aboriginal worldviews and ideology guiding management;
- In one example, Nitmiluk National Park, the traditional owners had established a number

of successful tourism enterprises within the park with both the traditional owner and wider community experiencing benefit;

- The institutions that established joint management in the Australian parks do not specifically provide for maintenance of public access, in contrast to what Tūhoe specify.

Additionally, the researchers found that the terminology of ‘joint management’ and the manner it is interpreted and implemented clouds distinctions between governance and management that are important to clarity and transparency in power-sharing arrangements.

In contrast the NZ Treaty of Waitangi claims process provides for negotiations for settlement of Māori claims that encompass a broad suite of issues and redress historic and on-going grievances. They offer opportunities for reform that can address a lack of fit between institutions, cultural practices and ecological regions.

Overall, the study predicted that Tūhoe criteria, which include both conservation and livelihood outcomes, could be best met by re-establishing indigenous governance for Te Urewera. Transitional arrangements over time (potentially 30 years) including government and other stakeholders will be important to build capacity and cooperative working relationships that are important to management of the area. This arrangement holds most promise of settling the Tūhoe claim and for development of adaptive co-management and opportunities for conservation and livelihood outcomes at a landscape scale.

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# MANAAKI WHENUA SCIENCE SUPPORTS

## THE RE-ESTABLISHMENT OF A CUSTOMARY HARVEST OF KUIA (GREY-FACED PETRELS) BY NGĀTI AWA, BAY OF PLENTY

Manaaki Whenua scientists are offering new insights into the re-establishment of a traditional seabird harvest by Ngāti Awa from Moutohorā (Whale Island) that has been subject to a rāhui (self-imposed ban) since the late 1950s because of concerns over declining population numbers.

Although the exact cause of the decline in kuia (grey-faced petrel) isn't known, the introductions of rats and rabbits to the island are believed to have had significant impacts, to the extent that few chicks fledged at all between 1972 and 1977.

Both pests were eradicated from Moutohorā by 1987, which resulted in increases in the birds' breeding success rates, but the rāhui has remained in place until now because of

uncertainties about what constitutes a "safe" level of harvest.

However, researchers from Manaaki Whenua, in collaboration with Te Rūnanga o Ngāti Awa, are studying kuia to determine adult survival and breeding rates and what an annual customary harvest of pre-fledging chicks would mean for the population co-managed by a joint management committee (Te Tapatoru a Toi) and the Department of Conservation (DOC).

Researcher Phil Lyver says that one of the initial goals of the research was to estimate the current size of the kuia breeding population on Moutohorā. To do this, researchers measured breeding burrow density and carried out occupancy surveys, which coincided with

the peak laying period and late chick-rearing periods, over three breeding seasons. These data, together with a range of environmental data, including information about soil, topography and vegetation, were analysed to estimate breeding pair density and breeding success, and to calculate the total number of breeding pairs for the island.



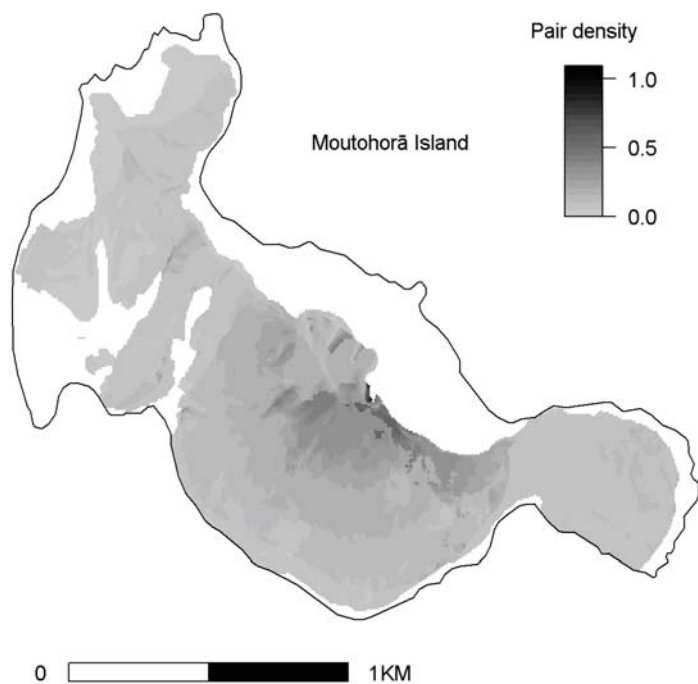


Fig 1. The predicted density distribution of breeding pairs of kuia on Moutohorā (Whale Island). Darker colours indicate areas of higher predicted pair density, with density values per square metre. White areas represent regions of the island where density predictions were not made due to unsuitable habitat (i.e. steep cliffs, or rocky or sandy substrate).

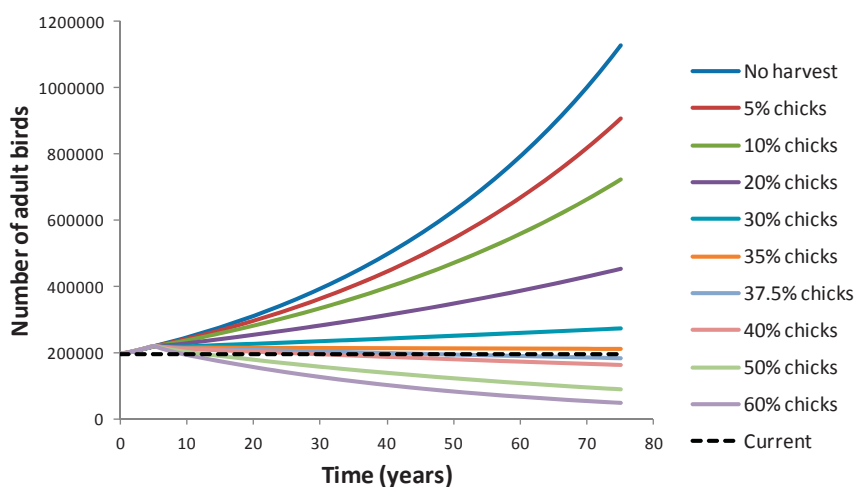


Fig 2. The relative effects on the number of breeding adult kuia of removing a range of fixed percentages of pre-fledging chicks per year over 80 years from Moutohorā. The black dashed line indicates the current estimated number of adult birds in the population.

It was estimated that Moutohorā had about 0.02 burrows per square metre, of which around 55% were occupied by breeding kuia. Approximately 48% of the eggs resulted in chicks. Soil type, altitude, topography, canopy and ground cover were important for predicting burrow density. When incorporated into a predictive habitat model, these data translated into a population estimate of approximately 84,000 breeding pairs on the island (Figure 1).

Using this information, the second goal of the study was to determine what would be a safe customary harvest, and to compare the relative effects of a range of harvest rates and strategies. To estimate these, a mathematical population modelling approach was used to assess the relative effects of removing from 5 to 60% of pre-fledging chicks each year from the island.

Researcher Chris Jones says without harvest the kuia population was estimated to grow at just over 2% per year, which is within the range of published estimates for long-lived, slow-reproducing petrel species.

With harvest intensities of up to 30% of chicks, the modelled population continued to grow, albeit at reduced rates (Figure 2).

The study reports that, in general, harvesting a fixed proportion of chicks is 'safer' for sustaining the harvested population than a fixed quota strategy based on taking some set number of chicks each year. This is because with a fixed-proportion harvest strategy, if the population declines for some other reason, the number of animals harvested declines proportionately.

However, in practical terms, a fixed-quota harvest is easier to manage because it is easier to count the number of chicks harvested than to estimate the total population size every year (which would be required to guide a fixed-proportion harvest).

There are therefore two general options for managing harvest of kuia chicks on Moutohorā:

1. Set a very conservative fixed-quota harvest limit that would be sustainable under most circumstances outside of some unpredictable catastrophic impact on the breeding population.
2. Develop a robust index of population size (such as a harvester "strike rate") and use this to detect changes in the breeding population over time. This would then allow a fixed-proportion harvest strategy to be used.

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# MĀORI LAND

>> MANAAKI WHENUA IS LOOKING TO FURTHER DEVELOP A TOOL THAT ALLOWS MĀORI LAND OWNERS AND MANAGERS TO LOOK AT THEIR LAND AND ACCESS INFORMATION TO HELP THEM BETTER UNDERSTAND THE RESOURCES AND POTENTIAL.

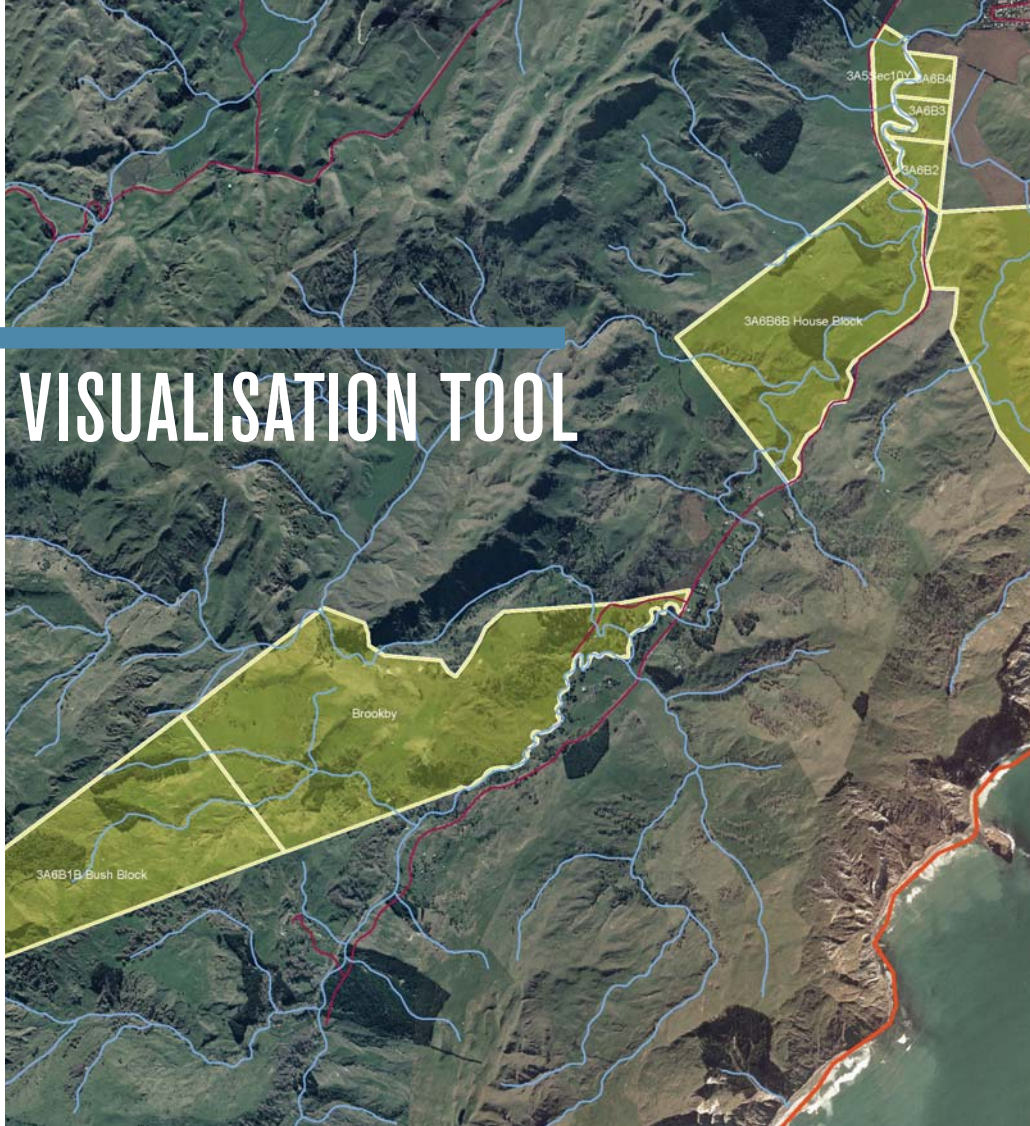
The prototype land visualisation tool (<http://whenuaviz.landcareresearch.co.nz>) was launched last year and is available to everyone who has an interest in Māori Land. It combines updated block (property and legal) data from the Ministry of Justice (Māori Land Online: <http://www.maorilandonline.govt.nz/gis/>) with environmental and land resource data from Manaaki Whenua.

This year, with further support from Te Puni Kōkiri (Ministry of Māori Development), the options to extend the tool and develop a sustainable platform for its ongoing availability and development are being considered.

The prototype provides landowners with a “broad brush” land assessment by showing areas at national scale suitable for horticulture, cropping, pastoral farming, forestry and areas needing long-term protection. However, the aim of new research is to improve the level of information available and enable the tool to be used as the basis for land use decision-making and development of the Māori economy.

The work will include engagement of Maori Land owners and organisations to build a picture of the information that will help them – individually or collectively – to determine the best land-use options for their land.

The technical development that enables the apparently simple delivery of multiple underlying



## VISUALISATION TOOL

layers of complex information calls on the skill of the Informatics science team at Manaaki Whenua. They essentially translate GIS layers into a visual format similar to Google Earth – this makes it intuitive for end-users, who do not need special software or skills to be able to access and explore the land information of interest to them. The future in this type of information delivery is exciting and Manaaki Whenua is adding this accessibility to a range of the online products and services it provides that are used to help understand, monitor and manage New Zealand’s land resources.

The prototype tool remains available at <http://whenuaviz.landcareresearch.co.nz> and here users can already:

- create a customised report of the environmental characteristics for any Māori Land block, with land located by using either an interactive map or by searching for a block name or place name
- generate a series of resource maps, statistics, and descriptive information detailing land

resources and it presents this information to the user as an interactive webpage. The data is displayed over topographic maps, satellite imagery and aerial photographs.

“There has been huge interest in the tool when we have demonstrated it at conferences and workshops around the country, especially from owners of Māori Land and Māori organisations such as trusts and incorporations, and many government departments,” says Garth Harnsworth of the Manaaki Whenua development team.

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# CATCHMENT STABILISATION TO PROTECT CORAL REEFS IN THE PACIFIC



## >> A NEW COMMUNITY-BASED MODEL TO BETTER PROTECT CORAL REEFS AROUND PACIFIC ISLANDS THROUGH BETTER LAND MANAGEMENT COULD EASILY BE ADAPTED TO AOTEAROA'S COASTLINE, RESEARCHERS SAY.

Sedimentation of near-shore coral is a visible impact for Pacific Island communities who rely on coral reefs for fishing, tourism and maintaining traditional cultural values.

Landcare Research scientists Andrew Fenemor, Colin Meurk and Grant Hunter led the compilation of a Best Practice Guide for community action and revegetation in Pacific Island hill lands, to

support community initiatives to protect coastal resources. The guide was developed for the French-funded Coral Reef InitiativeS for the Pacific (CRISP) and co-authored with experts from the University of the South Pacific (USP), Secretariat of the Pacific Community (SPC), Vanuatu Farm Support Association (FSA) and Fiji Department of Forestry.

The Pacific project empowered communities to undertake sustainable management decisions in the protection and restoration of their catchment areas. It applied an Integrated Catchment Management (ICM) “ridge to reef” approach highlighting the connectivity of land-use practices in the upper catchment and their impacts in the marine environment. The guide particularly draws on USP and FSA work with

communities in the Naroko and Nakorotubu catchments of north-east Viti Levu (Fiji) and Epau and Aneityum in Vanuatu, but the principles apply to any Pacific hill lands.

And Mr Fenemor says because Māori and Islanders in the Pacific have some similar cultural traditions for managing natural resources, the same principles could easily be applied in Aotearoa.

“Marine resources such as kaimoana are susceptible to catchment runoff of sediment and contaminants, so knowledge about how to manage these catchment areas is vital. Catchment management is also made easier if communities have responsibility for the coastal resources adjacent to their villages and catchments upstream, as was the case in the two Fiji case studies in this project – and active management across those two domains is an aspiration for many iwi in New Zealand as well.”

The guide offers a step-wise process for agencies and local communities to manage their sediment loss:

1. Engaging communities and raising awareness
2. Identifying problems and vision as part of a planning process
3. Identifying erosion risk according to simple, easily applied field criteria, recognising where in the landscape these risk classes occur (based on land units on maps and oblique aerial photographs), and ecologically characterising these land units
4. Providing a palette of (safe) species suitable for each named land unit, and providing choices among these palettes according to use value (timber, building, crafts, fibre, medicine, pasture, crop/food, and biodiversity) and propagation process
5. Applying planting and maintenance techniques that ensure best results for effort and resources, and



6. Carrying out a monitoring regime and learning from the process through an adaptive management cycle.

“I think the ICM management process, the tools for identifying areas of greatest risk of sediment loss, and the revegetation methods identified in the Pacific Islands guide could also be a useful source of information for Māori seeking to resolve similar problems at home,” Mr Fenemor says.

“The simple community-led erosion risk characterisation needs some refinement and

testing, so we (the authors) would be happy to hear from anyone wanting to try it out.”

The Pacific guide and four summary pamphlets derived from it can be downloaded from <http://www.crisponline.info/Portals/0/New%20reports/ENG%202010%20Best%20practice%20guide%20watershed%20management.pdf>

More information on the Motueka River ICM iwi video featuring the Tiakina Te Taiao coalition of Māori tribes is available at <http://icm.landcareresearch.co.nz/knowledgebase/video.asp>

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# KAITIAKI ENVIRONMENTAL IMPACT ASSESSMENT AND REPORTING (KEIA-R)

A new framework aims to assist kaitiaki practitioners facing growing workloads to respond to day-to-day resource management issues. Māori organisations increasingly have to address complex and interconnected cultural, social, environmental and economic issues and interact and engage with many agency, industry and community groups.

Frameworks and tools are important ways of organising and applying knowledge to address complex and multi-dimensional issues and the KEIA-R framework developed by Manaaki Whenua could help identify issues of cultural connection to landscape-use and cultural values within a Māori community.

Environmental planning and Environmental Impact Assessments (EIA) generally lack significant Māori participation and involvement, which results in a paucity of qualitative and quantitative data about cultural impacts to community health and well-being from activities such as roading, mining, contaminants, agricultural, industrial and urban development.

Māori are also increasingly asserting their rights to effectively manage natural and cultural resources through governance mechanisms that achieve greater participation, ownership,

and co-management. However, effective management requires meaningful ways to connect to, articulate, monitor and report on impacts to specific tangible and spiritual values that support kaitiaki and kaitiakitanga (environmental guardianship, mana whenua, rangatiratanga).

Increasing Māori community capability to effectively engage in these processes through the use of a ‘tool-box’ approach was the focus of this research. We worked with kaitiaki end-users, who identified their issues and concerns and requirements for a framework that can scope the issues, identify appropriate tools, and help with responses and decision-making.

A case study approach has been used to develop the KEIA-R framework, driven by local issues to identify a Māori community’s aspirations, values, needs, and expected outcomes for their hapū and representative marae. The framework was developed collaboratively with Māori organisations under the umbrella of the Waahi Whaanui Trust (an established Māori Trust within the tribe of Waikato-Tainui) and with six marae that have a strong genealogical connection to their ancestral river and lands. We provide examples of the use of this framework

particularly in response to increasing pressures (e.g. degradation, exploitation, and privatisation) on both natural and cultural resources.

The KEIA-R framework addresses cultural-environmental issues and required actions and is designed to scope the needs of kaitiaki and offers a step-by-step guide and process for kaitiaki practitioners in specific regions or districts. It is designed to help kaitiaki respond to day-to-day cultural-environmental issues (e.g. processing resource consents) based on their needs, goals, aspirations and desired outcomes. The KEIA-R is based on elements that are relevant to defining cultural connection to landscape-use and cultural values as it relates to environmental issues.

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# WHAT'S IN A NAME – IDENTICAL HARAKEKE VARIETIES IN THE ORCHISTON COLLECTION

**>> MANAAKI WHENUA IS  
KAITIAKI OF A COLLECTION OF  
TRADITIONAL WEAVING VARIETIES  
OF HARAKEKE (NZ FLAX,  
PHORMIUM SPP.) DONATED BY  
RENE ORCHISTON OF GISBORNE.**

The 50 harakeke were selected long ago from natural stands and cultivated by Māori weavers for their special leaf and fibre properties. There are varieties specially suited to making kete, whāriki, piupiu and cloaks and divisions of the harakeke are distributed on request to marae, schools, weavers and community groups wishing to establish a weaving resource.

As part of the assessment of harakeke in the National Collection, and to enable screening for yellow-leaf disease, Manaaki Whenua staff have carried out DNA fingerprinting of all the varieties. Most of the plants in the Orchiston Collection are unique varieties, but several groups with identical genetic makeup were identified. These plants are either close kin (originally from the same geographical area or wild population) or vegetative clones (divisions) of the same parent plant.

Researcher Sue Scheele says Manaaki Whenua staff have long been aware that several of the harakeke within the Orchiston Collection are very similar to each other. The leaves and bushes have the same colourings and form, and the special qualities are consistent, whether for raranga or muka/whītau. They do, however, have different names and have been collected from different places.

It's interesting reading the old accounts of harakeke cultivation, such as the 1870s reports of the Flax Commissioners, who travelled New Zealand collecting any information about harakeke that could help in establishing a commercial flax



industry. Many of the cultivars listed in these early accounts are not described in detail, making it mostly unfeasible to reliably match the name with existing cultivars, even though many of the names are still in use.

Information on where Rene Orchiston collected the 50 cultivars in her collection is mostly limited to region, rather than to a specific person or hapū. And because weavers have always exchanged desirable harakeke selections, we cannot be sure of the original provenance of the plants.

This raises interesting questions on just when and how the flaxes were spread throughout New Zealand in times gone by.

Meanwhile, modern technology is making it easier for weavers and other people interested in harakeke to keep up to date with research and other happenings. The establishment of a Facebook web page offers a platform for people living in Polynesia to share their knowledge

of textile plants. It is a place where weavers, artists, teachers, scientists, film makers and all enthusiasts of Māori and Polynesian textiles can meet and connect.

<http://www.facebook.com/pages/Māori-Polynesian-Textile-Plants/139129029497327>

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# BUILDING MANA WHENUA PARTNERSHIPS FOR URBAN DESIGN

Māori and local authorities have made huge strides in developing and fostering positive working relationships, particularly since the passing of the Resource Management Act in 1991. However, 20 years later there still remains a high degree of frustration at the lack of Māori perspectives and knowledge in planning and policy. This lack of incorporation of Māori knowledge (mātauranga Māori), values, and active involvement is particularly evident in urban environments where 85% of Māori now live.

The Kaitiakitanga of Urban Settlements research programme addresses knowledge gaps in the urban planning environment by producing mātauranga-Māori-based frameworks, methods and tools to facilitate the inclusion of mātauranga Māori in planning practice and to build Māori and iwi/hapū capacity.

It has also established a national network of talented Māori researchers and practitioners that are making a significant contribution around Aotearoa New Zealand in mātauranga-Māori-based planning and urban design. It has developed a pātaka (storehouse of tools and processes) that can be used by planners and iwi/hapū resource managers to increase the use of and evaluate the incorporation of mātauranga Māori in decision-making, policy and plans.

An assessment framework (and processes) that can be used by planners, developers and iwi/hapū resource managers to plan and evaluate the incorporation of mātauranga Māori within decision-making, policy, planning and development has also been developed by the research programme.

Researcher Shaun Awatere says the following key findings emerged from the project:

- The key to successful implementation of kaitiakitanga in urban settlements is positive relationships between iwi/hapū/whānau, property developers, community groups, and local government that have beneficial outcomes for all agents involved.



- Urban development projects need working groups that include a skilled iwi/hapū representative who is continuously active in the project, well-resourced and involved in monitoring the implementation of mātauranga-Māori-based design solutions.

- Mātauranga Māori is context specific and needs to be tailored to solving specific issues within specific geographic areas, under the guidance of mana whenua. Through this research, however, we have found certain elements and processes that, if adhered to, can lead to the effective incorporation of mātauranga Māori into urban planning. A genuine attempt at recognising kaitiakitanga in urban development will consider the worldview of iwi/hapū together with the sustainability goals of local government.

Note: This guide is extracted from a paper 'Kaitiakitanga o ngā ngahere pōhātu' (Kaitiakitanga of urban settlements) published in December 2011.

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