

Who Has Ultimate Responsibility for Protected Areas?

Defining the Relationship Between Maori and the Crown

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Whakarongo te taringa ki te hau raki e pupuhi nei, I takea mai I Hawaiki nui... (Listen to the north wind blowing from the great Hawaiki ...)

The New Zealand Maori descend from South East Asian voyagers who peopled the Pacific some 3,500 years ago, spreading across as many miles of ocean until in the last millennium, Aotearoa (New Zealand) was settled too.

The Maori are an adventurous race whose penchant for history and genealogy has fashioned their strong sense of identity and destiny as a people. They recount the ancient voyages as though they happened yesterday, recalling to mind that it was the winds that brought the Maori to Aotearoa and made their country a part of the Polynesian homeland. Polynesia, or “many islands,” belies the customary view that conceptualises the islands as one home, Hawaiki, and the people as belonging to one family, the family of Hawaiki – or Hawaii, Savaii or Havaiki, as it is variously called.

Theirs is a developed sense of place and belonging, encapsulated in their description of themselves as *tangata whenua* (the people of the land). The concept pervades the Pacific, though “whenua” is “vanua” in Vanuatu, as “tangata” is “kanaka” for the Kanaks of New Caledonia. The feel for a historical belonging to the land of one’s birth is emphasised in the Maori metaphorical manner of speaking. *Whenua*, or land, means also “after-birth,” or that which one is born out of.

From this understanding of themselves as a people, Maori claim dual status in the modern state, now dominated by Europeans, as citizens on the one hand, and as a distinct group with inherent self-governing rights on the other.

The British annexation of New Zealand in 1840 was preceded by a treaty secured over several months with the leaders of the numerous tribes. It is called the Treaty of Waitangi, after the place where the first meeting was held.

By this treaty it was intended Maori would cede sovereignty, and in return, the Crown (then Queen Victoria but which now also includes the New Zealand Parliament and Government) would protect them in the ownership of those lands and fisheries they wished to keep, also ensuring full rights of citizenship.

The Treaty is remarkably brief, and quite sensibly so considering the cross-cultural circumstances. Its brevity indicates that it is directed to principle rather than detail, and that, like many Oriental transactions, it is founded not on legalism but on a philosophy of good faith.

Evidence shows the Crown was influenced by its own history and the humanitarian movement of the times. With or without annexation, the settlers were coming, and experience had shown deleterious impacts on native peoples in the absence of proper controls.

That same evidence fleshes out the Treaty's bare bones. It describes, for example, an intention to regulate land buying to ensure that each tribe retained a sufficient land endowment for its likely future needs.

Accordingly the Treaty was, theoretically at least, a covenant of equals. It is why so much of the language used by Maori and the Crown is couched in terms of partnership, principles and acting in utmost good faith.

The Courts in New Zealand have found that in governing for the good of the people as a whole, the state may bear a legal burden from the legacy of history to have particular regard for the interests of Maori as indigenous people. The question for this Conference, as we see it, is how that obligation is to be categorised and managed in relation to Maori-owned protected areas, as well as protected areas owned by the Crown in which Maori claim a special, customary interest.

In New Zealand, Maori place great weight on the Treaty of Waitangi. The historical importance of the treaty, as we see it, is that Maori and the Crown made a commitment to acknowledging and respecting one another. Adopting a Maori point of view, the essence of the treaty is that, having undertaken to enter into a relationship, the primary obligation is then on both parties to renew and strengthen that relationship over time.

This is simply the Maori way of thinking about relationships, not as finite contracts, but as an ongoing commitment to working together for some common goal. In customary terms it is easier to think of it as a compact, or an alliance between two powers.

New Zealand (or *Aotearoa* – land of the long white cloud) is the last large island stop-over before the South Pole. New Zealand's geographic isolation means that many species of plants and animals are found only in New Zealand. It has also meant that New Zealand is more susceptible than most nations to the dangers posed by introduced plants and animals. It is a land of geographic contrasts with glaciers and volcanoes vying for space with beaches and mudpools. New Zealand comprises two islands that are roughly the same size as the British Isles.

The debate on protected areas falls into two distinct categories for Maori:

1. where Maori still retain ownership of the land or resource in question; and
2. where Maori claim an interest in certain conservation estates, like the Urewera National Park, because they belong to the land (*tangata whenua*) that the park is situated upon. Invariably these Maori will have claims of breach of the Treaty of Waitangi, in regard to the way the land was alienated.

This paper will describe two examples of partnership between Maori and the Crown involving protected areas still owned by Maori. To preserve these *taonga* (treasures), Maori owners and the Crown must work at maintaining an on-going, dynamic relationship across the next 40 years. If this can be achieved then there is every chance that the lands in question will be safeguarded for future generations.

Case Study 1: Mokoia Island – *Te Motutapu a Tinirau*

Introduction

Mokoia Island is a circular volcanic island located in Aotearoa, New Zealand. It sits in the middle of Lake Rotorua. Lake Rotorua is situated in the Central Volcanic Plateau of the North Island of New Zealand.



Figure 1: Mokoia Island from the north looking toward Rotorua City.

Mokoia Island is 135 hectares of Maori Freehold Land that is Maori “multi-owned” customary land. In 1982, 128 hectares of the island was gazetted as a Maori Reservation to be kept as a wildlife sanctuary and protected from any form of commercial development. The island’s height peaks at 170 metres above lake level, which means that it dominates the lake-scape. The easternmost point of the island is the closest part to the mainland, two kilometres away. Ninety percent of Mokoia Island is covered in dense and diverse

flora, composed largely of species such as five-finger, *kawakawa*, *mahoe* and *rangiora*. The only open areas remaining are on the eastern flats, which are grassland.

As a Maori Reservation, the wildlife sanctuary lands are exempt from the payment of rates. Ownership is vested in trustees for the common use and benefit of four *Hapu* (tribes) of *Te Arawa Iwi* (super tribe): Ngati Whakaue, Ngati Uenukukopako, Ngati Rangiwewehi and Ngati Rangiteaorere.

The remaining 7.5 hectares, which are excluded from the Maori Reservation, is set aside for commercial development purposes. These lands are subject to local authority rates. Mokoia Island is administered under the Mokoia Island Trust Board (Mokoia Island Trust) by twelve Trustees, three nominated by each of the land-owning *Hapu* (tribes).

Territorial authorities with statutory interests affecting Mokoia Island include the Department of Conservation, the Rotorua District Council and the Bay of Plenty Regional Council. At this time, Mokoia Island is subject to general planning regulations, but these are subject to challenge before the Treaty of Waitangi Tribunal. The Maori owners of Mokoia Island

consider their rights of ownership to mean that they hold *tinorangatiratanga* (absolute authority) over Mokoia Island. They base this claim upon the fact that they have had an unbroken occupation and use of the island for hundreds of years.

Mokoia Island owners believe that only they have authority to make decisions affecting Mokoia Island, so long as their decisions do not impact adversely on third parties. For these reasons, the payment of rates, requesting local authority consents for building purposes and the payment of boat landing charges are all questioned. The Mokoia Island Trust is in negotiation with the Rotorua District Council to secure a permanent landing site on the mainland for the island's ferry.

The owners wish to plan the future for Mokoia Island and this is evident in their current strategies. The Mokoia Island Trust has a 40-year vision in mind that spans from the years 2000 to 2040. The year 2040 will be a significant year for Maori people specifically and all New Zealanders in general because it will mark the 200th year of the signing of the Treaty of Waitangi. The owners plan for Mokoia Island to be:

- noted for its retention in its natural state;
- a crèche for kiwi to be kept safe in the wild;
- a haven for other endangered species of flora and fauna;
- a spiritual refuge;
- a place of happiness and fun experiences for children;
- a living *taonga* (treasure) of Te Arawa.

History of Mokoia Island

Many centuries ago, Ihenga, the grandson of Tamatekapua, captain of the Arawa canoe, journeyed inland from Maketu (Te Arawa's coastal port) to come upon Lake Rotorua. He first named the island *Te Motu Tapu a Tinirau* (the sacred island of Tinirau). Ihenga's name for the island refers, we think, to the Hawaiiki origin of the Arawa people, as Tinirau is a whale and the Polynesian god of the ocean and fish.

The island's modern name of Mokoia originates from Uenukukopako, one of the Hapu with ownership interests in Mokoia Island. It was Uenukukopako who killed a chief called Arorangi with a *ko* (digging stick), piercing the chief's face through his *moko* (tattoo). The name of Mokoia Island reflects how jealously it has been fought over by the tribes of Te Arawa. It is viewed as the jewel in the crown of the Te Arawa Confederation of Tribes.

Not surprisingly, Mokoia has also been a cause for intertribal warfare. A neighbouring tribe from Tainui Iwi took occupation of the island in the late 1700's and held it until a young warrior chief named Rangiteaorere regained control in the early 1800's. Mokoia fell into outside hands again in 1823, to the Hongi Hika of Ngapuhi (a northern North Island tribe). Many Te Arawa were killed and some were taken back to the north as captives.

In the 1830's Thomas Chapman, an Anglican missionary, arrived to bring Christianity to the Te Arawa people, and as a consequence mission stations were established at Te Koutu on Mokoia Island and at Te Ngae. During this period Chapman engaged a Ngapuhi man, Ihaia Te Ahu, to assist him in spreading the gospel.

Ihaia Te Atu spent part of his time on Mokoia with Chapman, converting the “natives” to the ways of Christianity. A memorial window in St. Peter’s Church at Hinemoa Point commemorates these two early missionaries. A chant that is recanted daily by Te Arawa people was composed at this time by Enoke Te Kanawa of Uenukukopako, Te Roro o te Rangi and Rangiteaorere, and it is called “*Kaore te atua ki te kokoria*” (“The Coming of Christianity”). The chant was conceived for a sick child who was taken to Mokoia Island for the missionaries to heal. Unfortunately the child died, but the chant and Te Arawa’s commitment to Christianity remain active to the present day.

From 1840 onwards, Te Arawa experienced the rapid changes consistent with colonization globally. Despite significant alienation of Maori-owned land under aggressive colonial systems of land acquisition, Mokoia Island has always remained under the authority and ownership of Te Arawa, reflecting the special place of the island to its people.

With its fertile soil and comparatively frost-free climate, Mokoia Island was ideal for the cultivation of *kumara* (sweet potato), the staple diet for Te Arawa. Competition for control of the island was a part of life. Such competition led to the construction of a number of *pa* (fortified villages), the remains of which can be seen on the island today. Continuous Te Arawa occupation of Mokoia Island has led to many legends and customs that underpin a continuous customary use and association between Mokoia Island and its inhabitants.

Waikimihia Geothermal Hot-pool

An example of this customary association is provided in the legend that explains the coming of the geothermal resource to Te Arawa. Waikimihia is a geothermal hot-pool located on Mokoia Island. Its origin is linked to the illustrious Te Arawa ancestor Ngaitoroirangi (the navigator of the Arawa canoe) who was close to death after climbing Mount Tongariro in Tongariro National Park.

Ngaitoroirangi called out to his sisters from his Pacific homeland, Hawaiiiki, to bring him warmth so that he might not perish from the bitter winds and cold. The rescue party comprised his sisters, Kuiu and Haungaroa, and his younger brother Tanewhakaraka, as well as some fire deities. They travelled underground from Hawaiiiki to Tongariro and every so often they would come to the earth’s surface to rest. Wherever they rested, they would leave warmth in the form of hot geothermal pools. While exploring the new land, Tanewhakaraka became lost in the many mountain ranges of Rotorua. The sisters named the place where they lost him Whakapoungakau – the place where their hearts became sorrowful. As a final act of love for their brother, the sisters left warmth and heat for him on Mokoia Island, in the form of Waikimihia pool. Tribal traditions claim that Tanewhakaraka saw the steam rise from Mokoia Island, and made his way there and thus survived the cold. His descendants are members of two of the tribes which own Mokoia Island, namely Ngati Rangiteaorere and Ngati Uenukukopako.

A second legend regarding the Waikimihia geothermal pool is the love-story of Hinemoa and Tutanekei. It is told to Te Arawa descendants at an early age in childhood bedtime stories or played as a love song in adulthood. It is also sung as a farewell chant at *tangi* (burial ceremonies).

“At one time there lived a young Maori woman of high-ranking birth called Hinemoa. She lived at Owhata on the eastern shores of Lake Rotorua. Because of her rank, Hinemoa was declared puhī (tapu or sacred). Many men came to marry Hinemoa. However, none of the suitors gained the approval of the tribe.

On Mokoia lived a family of several brothers. Tutanekai was the youngest. Each of the elder brothers had declared their love for Hinemoa and set out to marry her. None of them won approval from Hinemoa's people.

As was customary, hui (meetings) were convened to discuss matters of state regarding the tribe. It was at one such hui that Tutanekai and Hinemoa met and fell in love, but they knew that because of Tutanekai's lowly birth he would never win approval from her people to marry her.

Neither could see any way their love would ever be requited. Tutanekai would sit on the shores of Mokoia Island and play sad music on his flute. The music would waft across the lake to where Hinemoa sat. She was filled with sadness and knew she could never marry anyone but Tutanekai. Her people began to suspect this was the case, and in order to prevent Hinemoa from sneaking away to Tutanekai, they pulled all the canoes up on to the shore, where they would be too heavy for her to move alone. One night she decided she must swim to Tutanekai. She rested at the rock Iri iri kapua (which can still be seen at Owhata) while she made her preparations.

She slipped into the water and swam for Mokoia. Because it was very dark, she was reliant upon the strains of the flute played by Tutanekai. She finally made it to Mokoia Island, but she had become so cold during her swim that she headed straight for the hot pool Waikimihia, near Tutanekai's house. Once she had warmed herself, Hinemoa became conscious she was naked and was too shy to approach Tutanekai's house without clothes.

It so happened at this time Tutanekai became thirsty, so he sent his slave down to fetch water. As he passed the pool, a gruff voice called out to him, 'Mo wai te wai?' ('For whom is the water?')

The slave answered 'Mo Tutanekai' ('For Tutanekai').

'Give it to me,' demanded Hinemoa, and as soon as the slave did so she smashed the gourd on the side of the pool.

When the slave returned to Tutanekai and told him what had happened, Tutanekai made him go again. Again Hinemoa challenged the slave and once again smashed the gourd. This time Tutanekai became angry and decided to go down to the pool himself. He dressed himself and took his mere (a weapon fashioned from jade - pounamu) and headed for the pool.

Once there, he challenged whoever was in the pool to show themselves. No one moved. Hinemoa had moved under a hanging rock that provided some protection for her naked body. Then, Tutanekai felt around the edge of the rock and came to where Hinemoa hid. He grabbed her by her hair and pulled her clear. 'Who are you?' he cried. 'Who dares annoy me!'

She answered, 'It is I, Hinemoa, who has come to you.'

Tutanekai couldn't believe his ears. And when she stepped out of the water, he was sure he had never seen such a beautiful woman. Tutanekai took off his cloak and wrapped it about Hinemoa and they returned to his house.

The next morning the slave recognised Hinemoa. Such was his surprise, he began to call out 'It is Hinemoa. It is Hinemoa who lies with Tutanekai.' The people noticed canoes heading toward the island, and knowing it would be Hinemoa's family, they feared war and anticipated Hinemoa would be taken from Tutanekai forever. However, upon arrival there was much rejoicing between the two tribes, and lasting peace was forged between the two tribes."

Waikimihia geothermal hot-pool is still very much the same today as it was centuries ago. Hot water springs up from the ground and is contained in a bathing pool before it naturally flows into Lake Rotorua. The geothermal hot-pool adds to the cultural significance of Mokoia Island and is one of the reasons for the island's recognition and status.

The Kiwi Recovery Plan and Threats to Mokoia Island's Wildlife

In recent years, the Trust has embarked on a coordinated program to eradicate noxious plants and animals on the island for the purpose of restoring the island to its natural state and developing a kiwi sanctuary in the wild. The Mokoia Island Trust has formed a partnership with the Department of Conservation (DOC) to keep the island free of rodents, rats and other predators dangerous to kiwis and other wildlife in the sanctuary.

This partnership has set the basis for the establishment of a regeneration programme for kiwi birds. Over the next forty years, the Trustees intend to actively populate the island with North Island brown kiwi, allowing children and future generations to see kiwi in the wild. It is part of a wider DOC and Bank of New Zealand Kiwi Recovery Trust-sponsored programme entitled Operation Nest Egg (ONE), which is actively recovering kiwi populations throughout New Zealand. The operation involves rearing juvenile kiwis from eggs that have been lifted out of their nests in areas such as the Whirinaki Forest Park and Tongariro National Park. The chicks are incubated until they hatch and then reared in captivity. Their weight is carefully monitored until they reach 1.2kg, which may take between 6 to 9 months to achieve. At this weight the kiwi chick can be returned to the wild, as its chances of surviving to adulthood have improved from less than 5% as a newly born chick to almost 65% as a young adolescent. This is almost totally due to the young kiwi now having both the size and weight to fight off two of its biggest predators - stoats and cats.

The placement of the first North Island brown kiwi onto Mokoia Island took place on 6 February 2003. The kiwi was rowed over to Mokoia Island in a *waka* (canoe) by tribal paddlers from the Ngati Whare tribe (where the kiwi eggs were lifted from), accompanied by the Minister of Conservation, the Hon. Chris Carter, Ms. Donna Awatere Huata (a member of Parliament), New Zealand High Court Justice Eddie Durie, and Deputy Chief Justice of South Africa Pius Langa. A further placing of two kiwis took place in late July 2003. With the island being pest free and with quarantine measures in place to reduce any chances of pest reintroduction, all parties can be confident that the kiwi placement program will be a success. The test will be one of quarantine vigilance and public education about the risks posed by pests.



Figure 2. Transferring “Moana” the kiwi to Mokoia Island 6 February 2003. Those on board include: Deputy Chief Justice of South Africa Pius Langa, Hon. Awatere Huata, and Hon. Chris Carter.

Although Mokoia Island is relatively close to the mainland (2 kilometres), it is well beyond the swimming capabilities of the rodent and mustelid species (e.g., stoat, ferret and weasel) present in New Zealand. These animals pose the most significant and dangerous threat to kiwi wildlife populations. Because of the distance from the mainland, it is considered very unlikely that these species could reach Mokoia unaided.

It is more likely that rodents will reach Mokoia Island as a result of human activities. Mokoia Island is open to the public, which can access the island either through a 10-20 minute commercial boat trip from the Rotorua Lakefront or by private boats launched from a number of locations around Lake Rotorua. Until recently, there were few guidelines for visitors and little enforcement of landing times or sites. With the introduction of the North Island brown kiwi onto Mokoia Island, this casual approach has ceased because rats and mice are capable of stowing away undetected on boats. Consequently, there is a risk of invasion by these pests onboard private boats, commercial boats and possibly even kayaks.

There is also a risk of rodents arriving on Mokoia Island in badly packed food stores and bulk supplies. Two major training camps teaching *taiaha* and *tikanga Maori* (traditional weaponry use) are run every year on Mokoia Island. These training camps cater for up to 100 students at a time and subsequently require a large quantity of food, tents, bedding and other supplies. University researchers, Department of Conservation staff and other groups travelling to the island also require large amounts of food and equipment for extended trips. Consequently, the potential for rodent reinvasion via stores and provisions brought onto the island by groups staying overnight is high.

Mokoia Island’s proximity to a large urban area means weeds will always be able to arrive through bird and wind dispersal. Shoreline weeds, such as willow and old man’s beard, can also continue to arrive by drifting across Lake Rotorua. However, their establishment and

growth on Mokoia Island are countered by regular surveys and removal, wherever they are found. A number of weeds are unlikely to arrive on Mokoia Island by natural means. Seeds or other plant material may reach the island on visitors' footwear, clothes or supplies, or in other materials transported to the island.

Ecological Management Goal

To meet the ecological threats facing the island, a strategy has been developed by the Mokoia Island Trust and DOC. The ecological management goal for Mokoia Island is to restore the ecology of Mokoia Island, using the best available knowledge and expertise, so that it will be:

- i. The most intact and functional island habitat in New Zealand;
- ii. Able to provide a secure home for kiwi and other populations of threatened plants and wildlife; and
- iii. Recognised as a best example of partnership between Maori owners and the Department of Conservation to achieve the agreed purpose of preserving the island in its natural state.

In order to maintain Mokoia Island as a secure location for threatened plants and animals, it is necessary to keep out any pests. Mokoia Island Trust and DOC have been working closely toward an agreed quarantine and contingency plan for Mokoia Island. Below are the main aspects of the plan.

Quarantine Plan

Rodents and Mustelids

A. Preventative techniques

1. A brochure called '*Help to Protect New Zealand's Islands from Problem Animals and Plants*' will be made available to all visitors to Mokoia Island. Visitors traveling to the island with a commercial operator will have access to the brochure both at the operator's office and on board the boat/s. People requesting permission to travel to Mokoia Island via private boat will be directed to obtain a brochure before departing the mainland.
2. All daytime and overnight visitors to Mokoia Island will be briefed on the risks involved, possibly via audiotape, and will be asked to check their bags prior to embarking on the boat carrying them to the island.
3. All boats used to take visitors to Mokoia Island will display permanent signs requiring passengers to check their bags for animal pests and their clothing and footwear for seeds and other plant material.
4. Prominent signs will be erected on the island at popular landing sites and at boat ramps around Lake Rotorua advising people of Mokoia Island's pest-free status and high value. Signs will state that landings must be authorised and are only to occur on the southeastern side of the island within 100m of the island jetty.

5. Regular press releases will be issued by the Mokoia Island Trust Board promoting Mokoia Island and pest prevention. These will highlight the island's dog-free status.
6. Open days for Rotorua residents will be considered to reinforce these messages.
7. Effective enforcement of landing sites and entry conditions to Mokoia Island is particularly important. No unpermitted access to Mokoia Island should be accepted. Permits issued by the Mokoia Trust Board provide an early opportunity to advocate pest prevention methods.
8. Permanent signs will be erected on Mokoia Island (see above) stating that landing is only permitted at the front of the island within 100m of the jetty and permission must be gained before landing.
9. The presence of a permanent caretaker on Mokoia Island to enforce landing restrictions is desired. The caretaker would need to be fine-tuned to the ecology of the island, allowing early detection of any pest invasion. The caretaker would also act as a focus for any reports of pests on the island from visitors. There are funding issues to be worked out to achieve this position.
10. Rubbish provides an attraction for pests, especially rodents, and the presence of rubbish on the island could increase the risk of these species establishing.

B. Specific Techniques

Objective 1: Minimise the threat of rodents arriving by swimming or rafting to the island.

1. Rodent Detection On Island: Non-toxic indicator baits (e.g., chew sticks soaked in peanut oil) will be set out at a range of potential landing sites to monitor the presence of rodents. Indicators will be established at least every six months and checked within one week of establishing. Additionally, 100 rodent tracking tunnels will be set up on the island.
2. Permanent Trapping Grid On Island: Implement and maintain a trapping grid on Mokoia Island covering the jetty area and surrounding landing sites. Traps will be cleaned and rewaxed once a year.
3. Permanent Bait Stations On Island: Implement and maintain poison bait stations at likely points of reinvasion. This will include most of the sheltered bays and coves around the island.

Objective 2: Minimise the risk of rats reinvading from boats landing on or mooring near Mokoia.

1. Permanent Bait Stations On Mainland Jetties: Any commercial operator or island concessionaire running trips to Mokoia will maintain rodent bait stations on the jetty or in the boat shed where boats are kept.

2. Permanent Bait Stations On Commercial Boats: Commercial boats and other boats that regularly visit Mokoia will be required to maintain poison bait stations on board. The Department of Conservation will again supply bait.
3. Rodent Proof Containers: All stores and supplies being transported to the island will be packaged in rodent proof containers, which can be tightly sealed.
4. Rodent Proof Rooms: Ideally all stores and supplies being transported to Mokoia should be unpacked within the Quarantine Hut.

Noxious Weeds and Plants

1. Advocacy will play a major role in making visitors aware of preventative measures. Such measures will be included in the information provided to visitors. This would include actions such as making sure boots and clothing (especially socks and trousers) are free of seeds and of mud, etc., that may carry seeds.
2. Further plant introductions to Mokoia should be carried out with caution. Weeds, plant pathogens and parasites can easily be transported on plants and in the soil that they were propagated in. Plantings should be monitored for the presence of invasive weeds for several years following introduction.

Contingency Plan – General implementation

All proposed contingency plans require immediate notification to the Mokoia Island Trust Board, Department of Conservation (Rotorua Lakes Area Office) and island operator of likely invasion.

Plans for Mokoia Island

Mokoia Island is making good progress toward fulfilling its vision of the year 2040. The Mokoia Island Trust has a number of initiatives planned in unison with the kiwi recovery and the quarantine and eradication programmes. One proposed project is the building of a low impact accommodation facility on the island. This would allow local schools to bring children onto the island for up to 5 days, allowing children to experience life on the island firsthand. An essential part of their experience would be lessons on the importance of keeping Mokoia Island untouched and treasured for future generations. At other times the on-site facility is to be available for use by the island's owners and their children.

A successful predator eradication program has already led to the establishment of a significant number of bird species. These include: *tui*, *tieke*, long-tailed cuckoo, shining cuckoo, grey warbler, morepork, kingfisher, *pukeko*, North Island fantail, North Island robin, Australian harrier, silveryeye, North Island tomtit, blackbird, magpie, and several waterfowl species.

The Mokoia Island Trust is keen to re-establish a thriving native wildlife population, but is wary of the costs of implementing and enforcing such a program. As the island is a Maori Reservation, its ability to use the land and generate revenue is restricted. Tourism represents



Figure 3. Release of kiwi onto Mokoia Island, July 2003.

the main revenue stream for Mokoia Island. This activity competes with the implementation of certain conservation programs.

The Mokoia Trust is wary of the capacity of tourism to negatively impact the island and to disturb its ecosystem. The Trustees have the unenviable task of balancing the invasiveness of tourism with the desire to protect the wildlife of the island, without annual income. They have a legal and moral duty to protect Mokoia Island today and for the future, but how is this to be done without guaranteed income? Further work is necessary to increase the Trust's knowledge of conservation management and practice and also to secure guaranteed funding so Mokoia Island can be left in its untouched and natural state.

Case Study 2: Ngati Rangiteaorere Kahikatea Stand - Te Ngae, Rotorua

Ngati Rangiteaorere are the *tangata whenua* (people of the land) of lands situated on the eastern shore of Lake Rotorua. Included in these lands at Te Ngae is one of the last remaining stands of *kahikatea* trees (white pine) around the shores of Lake Rotorua. It is a reminder of what the lakeside looked like before European colonization, circa 1840. The Kahikatea are so entwined with Ngati Rangiteaorere that the *tangata whenua* believe that the trees hold their *mauri* (life force, spirit).

In 1935, the government of the day sought to compulsorily acquire lands for a new airport for the fast growing city of Rotorua. The acquisition was opposed by two neighbouring tribes that were affected by the proposal. Resistance was most vigorous over the lands on which the kahikatea trees grew. *Kaumatu*a (tribal elders) spoke fiercely against any incursion on the trees:

'Mataikotare is the Pa and stronghold of Ngati Rangiteaorere – Te Ngae is its food pit.' This saying is significant of the place this land held in the economic organization of the tribe. In the days before native bush was molested by the hands of progress, Te Ngae supplied its full quota of nature's bounty to the food stores of the tribe in the form of bird, forest and green foods. Cultivation to this day contributes a goodly share to the supplies. Timber, an important resource, was available for homes and canoes. There is an old saying complimentary to the physical attributes of the members of these tribes when seen in battle array or even in parties paying tribal courtesies:

'Tenei iwi a Ngati Rangiteaorere Mete mea ko nga Kahikatea o Te Ngae.'
(Ha, these lordly Rangiteaorere, how like your stately Kahikatea of Te Ngae).

It should be apparent to the government ... that Te Ngae bush has been and always will be an integral part of the lives of the members of Rangiteaorere and Uenukukopako ... and that Maori lands in similar circumstances containing as it were the Mauri of a tribe or nation is sacred to these tribes and nations and their sanctity should be respected. There have been wise and astute men in the public life of this country, remarkable for their understanding of Maori mentalities and Maori values: we hope and pray that there is no paucity of that type of Pakeha Rangitira (literally translated as “chieftanship”) in the public life of today. If there are none our cause is already lost; if they exist we should have cause to rejoice.

Land belonging to Ngati Uenukukopako was taken for the construction of the airport. The kahikatea stand remained intact and in the ownership of Ngati Rangiteaorere. Like neighbouring Mokoia Island, the kahikatea stand is managed by a Reservation Trust on behalf of its beneficial Maori owners.



Figure 4. Juvenile Kahikatea trees and scrubland due to be planted in native species.

Biologically, the stand is a remnant forest of approximately six hectares, irregular in shape and largely comprised of kahikatea (*Dacrycarpus dacrydioides*). Additional dominant tree species are located in the stand, including a mixture of pukatea (*Laurelia novaezelandiae*) and tawa (*Beilschmiedia tawa*). In addition to the cultural significance of the stand to local tangatawhenua, the stand has a Botanical Conservation ranking of

“very high.” In addition, the Te Ngae kahikatea stand is listed in the Natural and Cultural Heritage Inventory of the proposed Rotorua District Plan.

The age range of the stand is estimated at 200 years. The typical life span of a kahikatea tree is between 450 years to 800 years of age. The trees at Te Ngae are considered adolescent trees that have yet to reach their maximum potential. The stand is the largest and highest quality example of this forest type remaining in the ecological district, presenting opportunities for preservation, conservation, and education.

In 1997, it was realised that the growth of the kahikatea stand was impeding the ability of adjoining Rotorua Airport to operate effectively. The airport was built on the land compulsorily purchased by the government in the 1930’s, land that lies immediately to the south of the kahikatea stand. The International Civil Aviation Organisation has standards for development and operation of airports. Broadly speaking, those standards prescribe that

surfaces in the airspace above and adjacent to an aerodrome be free of obstacles and penetrations above a 2% (1:50) gradient from the edge of the runway.

Some of the trees in the stand are now penetrating the 2% gradient and this has led to the loss of the use of the northern end of the runway. Practically speaking, a shorter runway means only smaller planes are able to land in Rotorua. Rotorua is one of New Zealand's premier tourist destinations and hosts the second largest number of international tourists in the country behind Auckland. As such, tourism is vital to the future economic prosperity of the city. The owners of the airport are the Rotorua District Council. They are determined to attract international flights and have embarked on a plan to increase the length of the runway to allow larger Boeing 737 planes to use the airport.

Rotorua District Council and Rotorua Airport Company approached the Ngati Rangiteaorere Kahikatea Trust and initiated discussion about the problems facing the airport. The desire of the Maori owners to preserve the kahikatea trees in an untouched state was met with an equal desire on the part of the wider Rotorua business community to have an efficient and safe airport.

Although the respective positions were at first diametrically opposed, consultation between the parties resulted in a number of proposals coming forward. The Rotorua District Council was ultimately faced with three options to ensure Rotorua had a safe airport:

1. The construction of a new airport at another location some distance from Rotorua;
2. Realignment of the runway, which would involve land reclamation into Lake Rotorua and which would also affect Mokoia Island;
3. The formulation of a solution regarding the kahikatea trees.

The third course of action was really the only feasible one available as there was a scarcity of land suitable for option 1, and option 2 would have involved significant infilling of Lake Rotorua with associated environmental impacts. A solution between the parties was therefore seen as the only real option available. In the meantime, the Airport Company lodged an appeal in the Environment Court to safeguard their position and to try and obtain the power to fell any trees without the permission of the Trust. The Maori owners in turn engaged senior Queen's Counsel to represent their interests in law.

An agreement had to be achieved that had regard for the wishes of all parties. It became apparent that if the kahikatea stand and the airport were to remain, then the growth of individual trees would have to be managed. This would involve assessing how the kahikatea trees would respond to measures designed to limit and reduce their height. Expert advice was sought.

Te Ngae Kahikatea Management Plan

In 2002, the Ngati Rangiteaorere Trust and the Rotorua District Council commissioned Dr. Bruce Clarkson of the University of Waikato to draft a management plan for the stand. After a survey and investigation of the land, Dr. Clarkson found that management of the stand remained ecologically viable but that active management was necessary to counteract the loss of natural disturbance and regeneration. The management plan proposed the following measures:

Main Elements of the Kahikatea Management Plan

Te Ngae Kahikatea Stand – Management and Restoration

1. Weed management

Eradication of individual weed species including ivy, hawthorn and gorse. This would involve labour-intensive clearing and spot chemical spraying.

2. Pest control

Largely relating to possum, wallaby and rats that eat plant life and disturb bird nesting.

3. Buffering and stand protection

Restoration planting of native species other than kahikatea on weed-dominated land surrounding the main stand would increase connections between main stand and outlying groups of trees. Artificial and natural wind buffers.

4. Restoration planting of Kahikatea and other species

- Extension of native vegetation in order to unify trees into one large stand. Cultural heritage requirements would need to be taken into account when selecting new trees – species for weaving, carving and medicinal needs.
- Restoration to be done in stages in order to create a framework of native species, followed by successional species which require assistance to establish themselves (e.g., ferns can be planted to provide the necessary conditions for Manuka, which presages the planting of species such as kahikatea.)
- Suitable species for initial restoration were included, e.g.,
 - Harakeke (flax)
 - Manuka
 - Totara
 - Kahikatea
 - Ponga (silver fern)

Each species planted would have a minimum height of 30cm.

5. Continuous management

Weed removal would need to be conducted on an annual basis until a closed canopy of native species is achieved, which would deprive such weeds of light and the necessary conditions to grow.

6. Management of tree height

This would involve arboricultural techniques of **crown reduction** and **selective tree removal**. **Crowning** involves the pruning of stems back to appropriate growing points. This encourages the trees to develop a more co-dominant growth form by replacement of the central branch by lateral branches. Where a tree has already exceeded the 2% gradient and it is impractical to manage to a defined height, **removal** may be necessary.

7. Monitoring

On an annual basis. Success to be measured by:

- An increase in the numbers of specified plant species;
- A decrease in significant weeds;
- An increase in semi-swamp habitat;
- Increased frequency of visitation by native wildlife; and
- The numbers of trees that survive crown reduction.

8. Eco-tourism

Because of the high aesthetic value of the stand and its proximity to the airport and city, there is the potential for tourism. The option of constructing a raised boardwalk to cater to tourists is viable. This would encourage the public to help support and protect the trees.

Summary

The plan envisaged an expanded and well-preserved stand as a result of plantings and careful management that could incorporate tourism to help build up support for the management of the stand.

After a protracted six-year period punctuated by dozens of meetings, a number of court cases and heated debate, a compromise was finally reached when the Trustees, the Rotorua District Council and Rotorua Airport signed an agreement on 14 February 2003.

The agreement provides for the long-term protection of the kahikatea stand and for the continued commercial viability of the airport and of the tourist industry in Rotorua. Many of the principles and measures contained within the management plan are incorporated into the agreement. The main tenants of the agreement are:

February 2003 Agreement Between RDC, Rotorua Airport and the Ngati Rangiteaorere Kahikatea Trust

1. Each party affirms the principle of maintaining the trees as a long-lasting stand and developing the land into a premier natural stand for the enjoyment of Ngati Rangiteaorere and the wider community.
2. If a tree penetrates the 2% gradient, then the tree will be crowned (topped) to a level that would avoid penetration in the foreseeable future but that also is likely to maintain the health of the tree.
3. If, after July 2007, crowning is detrimental to 15% or more of the trees crowned then the agreement will terminate at five years notice.
4. A weed and pest control scheme will protect existing trees and there will be new plantings of kahikatea.
5. A consultative group will be established to be responsible for setting work priorities according to the management plan and implementation of the agreement. It is to meet bi-annually.
6. A boardwalk will be constructed.
7. An aim is to establish a viable and perpetually renewable natural indigenous wetland forest.
8. The RDC undertakes to research and develop alternative solutions to crowning, including an alternative airport site.
9. The RDC has agreed to make four payments annually to the Trust to cover the costs of effectively implementing the management plan.
10. The agreement also disposed the Airport Company's appeal to the Environment Court.

The Ngati Rangiteaorere Kahikatea Trust agreed to participate in the kahikatea management plan after years of rigorous questioning and debate. The resulting negotiated outcome provides for a kahikatea stand of unique quality. Significant levels of co-operation will need to take place between the Kahikatea Trust, Waikato University, the Rotorua District Council and Rotorua Airport to ensure that the kahikatea stand is effectively managed to minimize damage and risk to the trees and to ensure their survival both biologically and politically. This will require the existing scientific and customary knowledge of the trees to be exchanged between the Trust and the University, while the RDC and RRAL must keep the Trust regularly informed of the operational requirements of the airport.

The successful resolution of the issue regarding the future of the kahikatea stand is yet to be tested. What has been achieved is an agreement between Maori owners and local authorities that allows the integrity of the kahikatea stand to remain intact and for Rotorua to have a safe and viable airport. A forty-year partnership plan has yet to unfold. All parties will need to

work together co-operatively and in utmost good faith for the agreement to succeed. It will also require flexibility. Ngati Rangiteaorere has a *whakatauki* (proverb) it lives by that says:

*Kaore i hangaia te kupenga
hei hopu ika anake, engari I hangaia
kia oioi i roto i te nekeneke o te tai.*

The net is fashioned not only to be strong to catch fish but also to be flexible, so that it may flow with the tide.

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