HE PUNA I RAWAKE, HE PUNA WHAKATŌTŌ

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association with Tūwharetoa and Wairākei itself and multiple accounts exist of their journeys (see Figure 1).

ABSTRACT

In December 1880, a claim seeking an investigation of the land described as lying between Wairākei Stream in the North and Waikato River in the east, the Waipuwerawera Stream in the south and the boundary of the Oruanui Block in the west, was confirmed as the Wairākei Block. This land has passed through three significant occupation stages. The Manawhenua Landscape was the early settlement of the Taupō environs by Māori voyagers and explorers. Descendants of those early arrivals are reflected in the whakapapa of the hapū who thrived in the area. They were the kaitiaki, living alongside and utilising the natural resources abundant across their whenua. In the 1870's the Tourism Landscape was imposed; Victorian tourists arrived to experience the natural wonders of gevsers, hot pools and fumaroles. Kaitiaki no longer had unfettered access to the whenua and its taonga. The third stage, the Energy Landscape, was ushered in with the construction of the geothermal power project. Understanding how these stages have impacted on the whenua and its kaitiaki is important for the restoration and rehabilitation of their mana i te whenua.

1. EARLY SETTLEMENT OF WAIRĀKEI

1.1 Māori Landscape

The people who first occupied Taupō and the surrounding country in the first phase of settlement were Ngāti Hotu and Ngāti Ruakopiri. They were the descendants of Toi known commonly as Tini-o-Toi. Many battles were fought, lost, and won with these early settlers.

It is the second phase of exploration, circa 1400 AD, that led to permanent settlement and occupation of the Taupō area. Te Arawa was one of several large waka (ocean going vessel) associated with Polynesian migration to New Zealand, and it was from Te Arawa that the ancestors of most iwi (tribe) and hapū (subtribe) of the Rotorua and Taupō districts first came ashore on the Bay of Plenty coast. From Maketū, the descendants of these migrants spread out across the region and their influence soon stretched across the central North Island. As reflected in the words of a well-known saying; 'mai i Maketū ki Tongariro' (from Maketū to Tongariro), and beyond. Ngātoroirangi and Tia both arrived on the Te Arawa waka and are regarded as the earliest explorers of the central plateau region (Tūwharetoa Settlement Trust, 2014). These great tūpuna (ancestors) made significant history with their





1.2 Ngātoroirangi and the origin of Geothermal Resources.

As recounted in whakapapa (geneology) and tikanga (customary practices or behaviors) origins of volcanic fire or heat were in the separation of Ranginui (Sky Father) and Papatūānuku (Earth Mother). As Papatūānuku and Ranginui pined for each other, producing clouds, rain, mist, frost and snow, their children turned their mother's face away from Ranginui towards Rarohenga (the underworld).

It was his atua, that Ngātoroirangi sought heat from, during his challenging journey to ascend the maunga Tongariro. The trail of geothermal activity from Whakaari to Tongariro is often referred to as "Ngātoroirangi's legacy". A summary of the ascent is described in the following: Ngātoroirangi reached the summit of Tongariro and was overcome by a snow blizzard. Knowing that he would most certainly perish in the storm, he invoked his ancestors, Te Pupū and Te Hōata, the elders of the fire clan of Hinetapeka, to come to his aid. He implored Kautetetū to produce the fire born of friction that he needed to save his life. He called to his sisters Kuiwai and Haungaroa, who were still in the homeland Hawaiiki, and they sent their fire ancestors to help their brother. Te Pupū and Te Hōata travelled underground with their precious gift and at different places along their route emerged to ensure they were traveling in the right direction. These places became geothermal or volcanic spots and include Whakaari [White Island], Tarawera, Paeroa, Ōrakei-kōrako, Wairākei, Taupō, Tūaropaki and Tokaanu. The fire emerged at the summit of Tongariro and the old priest was saved (Severne & Leaf, Cultural Impact Assessment; Wairakei-Tauhara Geothermal System - Client Reports, 1994, 2003, 2007); (Severne, Cultural Impact Assessment Tauhara II., 2010).

1.3 Tūwharetoa

In Ngātoroirangi travels he formally claimed the "Stomach of The Fish Region (Central Plateau)", including Taupō, for his descendants. However, he did not leave offspring and it would be several generations after Ngātoroirangi before a direct descendant of his would return to the Central Plateau. Ngātoroirangi foretold this time in history in his words:

"Tahi ki te whitu, mau pūangaanga, ko te waru ka noia mai ki te rangi!

The first to the seventh hold fast to the head, the eighth will hang to the sky!"

This prophecy means that in the eighth generation following Ngātoroirangi, a direct descendant would be born who would return the land claimed and bequeathed by Ngātoroirangi to his offspring. Ngātoroirangi used his great grandfather, Muturangi's pet octopus. The octopus has eight arms. The first to the seventh remain with the head (pūangaanga) but the eighth is free. This was his way of describing how long it would take his descendants to gain enough strength to take back his bequeathed lands-Taupō.

In 1600, eight generations after Ngātoroirangi's prophecy, Manaia, later known as Tūwharetoa, was born at Pūtauaki in the Bay of Plenty. Within two generations, by the early 1700s, Tūwharetoa had cemented itself in the Central Plateau from Taupō to Tongariro (Tūwharetoa Settlement Trust, 2014).

2. WHENUA

Whenua (land) and its connection to tangata (people) is important to understanding how the dislocation of the whenua, the Wairākei, from its people had impact overtime.

Mana tangata (leadership and authority) is established through whakapapa and an individual's knowledge of his or her connections to a particular hapū or iwi. Mana whenua however is an authority that is carefully nurtured and maintained so that the fires of the hearth and home continue to burn strongly. If mana tangata was established, he or she could lay claim to the mana whenua. The complex nature of ancestral rights to whenua has been waged through time, through whakapapa, battles, marriages, occupation, and death. Table 1, lists the different terms used to categorise ancestral rights to land and resources.

Wairākei Geothermal	Tūwharetoa Settlement Trust (2014) TŪWHARETOA
Area - Some Historical Perspectives	TeKaingaroa a Haungaroa
(Stokes, 1991).	
Ahi kaa -	Take whenua – the basis upon
continuous	which mana whenua (authority
occupation	and control) over the land was
Take taunaha,	
take whenua	Take kitenga – mana whenua
kite hou -	acquired by discovery and naming
right of discovery	rights.
Take tipuna -	Take tipuna – mana whenua by succession, land bequeath and/or
right of	by specific events carried out by a
ancestry	Tipuna.
Take raupatu -	Take pakihiwi kaha – mana whenua
right of	by conquest, generally through
conquest	warfare.
_	Take tuku ibo _ mana whenua
Take tuku - right by gift	gifted by way of an exchange, marriage, tatau pounamu or treaty.
	Take taunaha – mana whenua right thorough naming.
	Take raupatu – mana whenua by conquest.
	Ahi kā roa – undisturbed occupation with fires always burning.
	Ahi tahutahu – temporary occupation with fires sometimes burning.
	Ahi mātaotao – neutered occupation with fires not burning.
	Whenua roharohai – frontier land bordered by many tribes, a buffer zone, a no-mans zone, mutually accepted, consensually agreed, historically bonafide, traditionally templated, naturally blueprinted, interdependence, relational, natural, nature.

Table 1: Stokes (1991) and Tūwharetoa Settlement Trust (2014) process categories of ancestral rights to land and resources.

Whakapapa is the overriding principle for ordering your connections to the whenua. In the Ngā Rauru a Toi lectures in 1944, Sir Apirana Ngata stated that 'whakapapa tūpuna' is the act of laying one ancestor upon another. One aspect then of the term 'whakapapa', is the vast number of layers that have been laid one upon the other by our ancestors over the years, the centuries and millennia. Such are the multitude of connections – connections to the people, connections to the environment, connections to the divine, to the atua. It may seem to be an entangled mess to an unaccustomed eye, but it was deliberately set out and laid down by our ancestors to strengthen relationships, to hold onto the land, and to maintain peace (Ellison, 2005, p. 4). The Manawhenua hapū who prevail today over the Wairākei area are: Ngāti Te Rangiita, Ngāti Rauhoto, Ruingārangi and Te Urunga.

2.1 Wairākei Block

Taupō prior to settlement was distinctive with large areas of tussock, fern, mānuka scrub dispersed with patches of productive bush along streams that provided hunting and foraging grounds, springs and geothermal areas.

As described in Table 1, the relationship of whanau and hapū to the land Wāirakei before colonisation was not interpreted through contemporary ownership structures such as cadastral surveys or native land court block decisions. Those hapū and whānau expressed their rights through whakapapa, tikanga, occupation and use.

Whānau utilized seasonal migrations, birding, fishing, planting and digging kōkōwai and harvesting aruhe (the root of rārahu or rauaruhe - bracken fern). The areas of geothermal activity provided warmth, heat for cooking, rongoā and treatment of mild through to serious illness through utilising the heat and mineral/biological therapeutic qualities of the puia, ngāwhā and waiariki. Kokoi, kōkōwai or red ochre was also found across the Wairākei area and was used as a dye and treatment for materials.

Whānau built temporary kāinga (homes) while others had more permanent dwellings that they returned to frequently overtime; they were often the kaitiaki (caretakers or stewards at that time).

Early explorers passed through the area including John Carne Bidwill in 1839, on an expedition to Mount Ngauruhoe. He described the processing of kōkōwai in the Wairākei area: "The natives are fond of daubing their heads with a sort of

red paint which they call "cocoi"; I saw a large manufactory of it on the banks of the Waikato; a double circle of matwork was formed around a large spring of rusty water, and the curdy carbonate of iron was by this means strained off. After this preparation, it is burned and mixed with oil (Bidwell, 1841, pp. 35-36). Ferdinand von Hochstetter, visited Wairākei in 1859 as he journeyed north from Taupō to Oruanui. His accounts are the first "scientific" observations to be published on the area in Hochstetter (1867), he was followed by explorers who published excerpts on Wāirakei (Chapman, 1881, p. 136) (Pennefather, 1893, p. 34)."

2.1.2 The Native Land Court

The major dislocation of this customary occupation occurred through the establishment of the Native Land Court. The 1865 Native Lands Act turned the 1862 Act into a British Style Court. The tension that existed between most of Tūwharetoa after the Waikato Wars heavily impacted on the willingness of either party to resolve and respectfully build a future of peace. It was one of the legislative instruments the Crown utilised to facilitate the purchase of Māori land. The role that the Native Land Court played in the isolation of Wairākei from the hapū was significant.

The geothermal features we associate with the Wairākei area fell across a number of Native land Court applications. Valuable hot springs and features were located on ~2000 acres of the Oruanui Block (34,000 acre), on Rangatira No. 3 (789 acres), but the majority of the geysers and springs of the Karapiti, Waiora and Wairākei Geyser Valleys were located on the Wairākei Block (4203 acres). Figure 2, shows roughly the Native Land Court Blocks in relation to the thermal areas of the Wairākei and Tauhara Geothermal Areas.

Detailed court minute analysis was undertaken by Evelyn Stokes, in her historical perspectives of the Wairākei Geothermal Area 1991. There were many inconsistencies with the applications and the rehearings on the Wairakei Block. The voluntary arrangements and the objections to the sale complicated the pathway to rehearing. Māori owners were required to pay survey costs; Graham had already paid out money and goods to certain individuals. Such issues were complex, especially when the mana of several hapū were involved. This was further complicated by the illness of the original applicant for the Wairākei Block, Pohipi Tukairangi, who was not present at the rehearing and died soon after. The rehearing for the Wairākei Block would begin in Taupō on 21 January 1882. Meantime, Graham was already living on the Block without a legal title.

If the Crown had implemented the Thermal Springs Districts Act 1881, private dealers like Graham would not have been able to purchase the Block and its geothermal areas. Crown Officials failed to perform basic duties with integrity, and the best intents of tīpuna, and Māori and Pākehā of Aotearoa were compromised (Williams, 2014, p. 242). Most notably the Wairākei Block final sale was clearly rushed through and not compliant with the intention of the Act.

3. THE TOURISM LANDSCAPE

The final sale and transfer of the Wairākei block was advertised in New Zealand Herald, Volume XXV, Issue 9117, 27 July 1888:

"Lake House Properties: By reference to our advertisement column it will be noted that Wednesday next, August 1, is the day appointed for the sale by auction......and Wairākei Estate, comprising 4203 acres, is situated near Taupō, and is the only freehold property in the Hot Lake District, and, as Government have proclaimed the whole district a National Park, there will be no opportunity now afforded for acquiring freeholds. There is an accommodation house on the estate and innumerable hot water springs, waterfalls, geysers, fumaroles, etc., on the land, and the celebrated Huka Falls of the Waikato River."



Figure 2: The Native Land Court Blocks associated with Wairākei and Tauhara Geothermal Areas (from (Stirling, 2005, p. 4).

Veterans of the New Zealand Wars, were among the first Pākehā settlers to establish themselves on Taupō from 1867 to 1869 (when renewed fighting, this time with Te Kooti, forced the settlers and the Native Land Court to flee Taupō). Other settlers in the area had military connections, including the reviled Captains Holt (Oruanui) and Young (Tatua). They drove many of early land transgressions which defied the Native Land Court decisions discussed earlier.

In the late 1870s and early 1880s the thermal activity around Taupō began to attract numbers of tourists. The new roads opened the Taupō area to renewed settlement, with an initial focus on the geothermal attractions, particularly Wairākei. Speculators and hoteliers arrived, looking to develop hot springs for the tourist traffic.

There are references in the literature to a small number of features with their original Māori names: Wairakei (see Figures 2 and 3), Tuhua-tahi, Wairākei, Te Korowhiti, Te Rekereke Pirorirori, Kiri-o-hine-kai, Okurawai and Karapiti ((Bullock, 1899) (Allen, 1894) (AnonA, 1919) (Stokes E., 1991)). However, there are significant differences in the names presented by authors - very few of the old Māori names have survived. The features are named for the era of the Victorian tourist's perception of horror and wonder, e.g. Devils Ink Pot, Prince of Wales Feathers.

In 1915 the property was sold to Wairākei Ltd and in the 1930's significant upgrades were made to the facilities including a small hydropower station. Wairākei Ltd., continue to market the property as a health resort. Essentially the Second World War and the Depression that followed reduced the demand on tourism and visitors to the Taupō District.

But the Second World War saw, to a great extent, the end of Wairākei as a Spa. From September 1942 to September 1946 the hotel was taken over by the Mental Hospitals. During this period the buildings became shabby and fire damaged. Wairākei was bought by the Tourist Department in 1946 and the renovated hotel was reopened in 1946 (Rockel, 1986, p. 90).

4. THE ENERGY LANDSCAPE

Following the Second World War, the poor state of the electricity supply system resulted in Government, among other measures, agreeing to investigate the potential of the geothermal resources of the country. The first investigation wells were drilled in May 1950. Waiora Valley became Bore Valley and drilling began near the Wairākei Resort Hotel. Many of the geothermal features were bulldozed out of existence; the Blue Lake, Pirorirori, was drained and altered. By December 1958, 69 prospecting holes had been drilled and test discharged. Production drilling to support the first two power stations was largely complete by 1965. A number of the Wairākei hapū, whānau and wider Tūwharetoa were part of the drilling and power station programme. A memorial has been set up to remember these people, the Eddie Aubrey Memorial (Figure 3).



Figure 3: Is a figure showing the Wairākei Block, some of the taonga, the old river valleys, māunga, and power stations drawn (Dr Abdul Nasher 2018).

As the withdrawal of geothermal fluids increased from exploration to generation the geothermal taonga features changed due to fluid draw down and pressure changes. Within two years of commissioning there were signs of diminishing geyser activity (Keam, 1965). The chloride and heat flux entering the Wairākei Stream (draining Geyser Valley) declined and had virtually ceased by 1964 and 1966, respectively. It is over 80 years since the Great Wairākei Geyser ceased playing. There has been enormous alteration at the surface and subsurface The feature clearly is unrecognizable as the taonga it once was (see Figure 4).

The Geyser Valley features mainly discharged deep chloride water with a small dilution by surface water. The Waiora Valley features originally had a much smaller deep-water component (<50%), and being near to an upflow zone and the hot dilute chloride sulphate water at relatively high elevation in the Waiora Valley slowly drained away. In Geyser Valley, when pressures decreased, the flow of the deep chloride component was reduced and the features were invaded by groundwater, the acid chloride-sulphate water being absent. Thus the chloride springs were rapidly quenched and the chloride water replaced (Glover & Mroczek, 2009, p. 124). What

was happening in simple terms was that the Wairākei fluids from chloride springs and geysers were diluted and cooled as their deep-water component decreased and the pressure causing the eruptive and geyser-like activity dropped rapidly as result of these changes.

As more and more wells came online deep reservoir pressures declined along with water levels in the reservoir, which resulted in increased vertical and horizontal steam zones. This meant that Karapiti, for example, increased in size with greater discharge. The heat, and probably also the gas flow, peaked about 1965, however, in 1997 the heat flow was still about five times the 1951 value. (Bromley & Graham, 1997).



Figure 4: Upper View of the Great Wairākei Geyser. Kent, Thelma Rene, 1899-1946: Prints and negatives of New Zealand wildlife and scenery. Ref: 1/4-003289-F. Alexander Turnbull Library, Wellington, lower left looking down from true right bank onto the area where the Wairākei Geyser played, there is evidence of remnant sinter (geyserite deposits on the pathway close to the river). The lower right is looking across at the remnant ridge area behind the Geyser. The rest of the area is extremely altered from the acid features including mud pools dominating the once neutral chloride features of this upper Wairākei Valley Area (Photograph credit Matahi Pott 2018).

5. CONCLUSION

The Wairākei Block has passed through three significant occupation stages. First there was the Māori as Manawhenua Landscape, the hapū were kaitiaki, they lived alongside and utilised the natural resources abundant across the whenua. They considered themselves to be linked through toto (blood) and whakapapa to the whenua and its taonga.

In the 1880s the Tourist Landscape was imposed, a health resort, natural wonders of geysers, hot pools and fumaroles, rapids and waterfalls in the Waikato River, a place to delight the Victorian visitor. This image persisted into the 1930s, but Wairākei was always too isolated to become a major center of tourism as Rotorua evolved. The 1940s saw a major shift in attitudes toward Wairākei. The tourist hotel survived financial struggles, downturns, sale, and its term as a psychiatric hospital, and became part of the Tourist Hotel

Corporation chain and the main focus became the golf course.

The third stage, the Energy Landscape, of Wairākei was ushered in with the construction of the geothermal power project. Another unique and distinctive Landscape evolved, of pipelines, well heads, flash plants and silencers, and plumes of steam rising from the engineering works.

The geysers and hot pools of Geyser Valley have all gone, relicts of the taonga sit within steam heated areas and vegetation characteristic geothermal areas. Waiora Valley, the place of health-giving waters, was bulldozed into Bore Valley. A small number of features including Pirorirori (Alum Lakes) the source of Kiri-o-Hine Kai have persisted but are highly altered both physically and chemically. The fumarole at Karapiti altered completely. New areas of surface activity have appeared. There are still geothermal tourist attractions at Wairākei but the general loss is a geyser field, possibly unique in the world. In pioneering geothermal energy development at Wairākei, it was assumed that the most steam would be in areas with the most obvious surface activity. A new thermal attraction appeared at Karapiti and someone gave it the name Craters of the Moon. The fumarole Karapiti has died, but there are other fumaroles and the occasional hydrothermal eruption to titillate the tourist and entice the scientists.

Wairākei has made a real contribution to the development of the Taupō region, the creation of job opportunities, and as a cheap, reliable source of indigenous energy; it has contributed to the New Zealand economy, enhanced our national prestige, and saved overseas funds. It has however, caused significant damage to the well-being not only of tangata whenua, their lands and taonga at Wairākei but also wider Tūwharetoa including Ngāti Hine at Korohe. The Waimarino River was used as a source for aggregate for the construction of Wairākei Power station, all through the 1950's and 60's the crusher and trucks worked 24 hours a day to keep up with demand. The cost was significant to Ngāti Hine of Korohe.

There have been benefits and costs in the development of the Wairākei Geothermal Power Station. The environmental costs have included years of discharge of chemical pollutants into the Waikato Awa. The Environment Waikato through the Resource Management Act (1991) requirement of reconsenting for Contact Energy are now addressing this matter with reinjection techniques and chemical treatments. Some of the losses/costs to the fishery and bed of the Awa are not recoverable.

Whether Wairākei would have been developed if we knew in the 1940s what we know now about geothermal fields is a hypothetical question. If Wairākei had not been developed, we would not know as much as we now know in terms of engineering, generation and science. With the current attitudes toward protection and preservation of natural

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environments, would the loss of the geysers in Geyser Valley and the fumarole at Karapiti been permitted? The energy crisis was clearly the motivation factor for hydroelectric and geothermal development in the 1950s. In the early 1960s, a hydro lake formed by the Ohakuri Power Scheme flooded two-thirds of the Orakei Korako geysers. It was clearly not considered to be in the national interest to protect and preserve surface geothermal phenomena. Did the scientists and engineers of the 1950s fully appreciate that the activity of geysers and hot pools would cease when steam is extracted in larger quantities?

Hapū, isolation from their whenua and taonga, altered the evolution of whakapapa mō te whenua; not only practices aligned with kōkōwai, but other treatments of wood, harakeke, and the therapeutic properties of the puia, ngāwhā and waiariki have been lost. One of the old names for the valley of the Kiri-O-Hine-Kai Stream is Waiora, which survives now in geological reports as the Waiora Fault and Waiora Formation. In Māori terms, Waiora refers to waters that have ritual significance, reinforcing the health giving qualities of these waters.

Few Māori names have survived outside of the hapū korero (discussion) and transmission. There are and have been Treaty of Waitangi Claims relating to geothermal resources before the Waitangi Tribunal including Tūwharetoa Historical Te Tiriti Waitangi Claim Wai 1200. There are provisions requiring Government and its administering agencies to act in accordance with the principles of the Te Tiriti o Waitangi in the Environment, Conservation and Resource Management Acts. In addition there is an increasing awareness that the Māori landscapes of the past are part of the present and future, and can no longer be conveniently ignored. Through leadership shown by the original Waitangi Tribunal Claimants (Wai 1200), Wairākei-Tauhara Hapū Working Party and the Wairākei Charitable Trust (which now governs the mitigation funds pursuant of the activities that utilise geothermal fluids at Wairākei); a fourth stage in the Wairākei landscape has emerged, whereby hapū are actively acknowledged and respected.

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