

*Taihape Inquiry District:*

*Environmental Impacts, Resource Management and  
Wahi Tapu and Portable Taonga*

A Report Commissioned by the Crown Forestry Rentals Trust for the Waitangi  
Tribunal's Taihape District Inquiry



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# THE TAIHAPE ENVIRONMENTAL SCOPING REPORT

1. This scoping report is a multi-disciplinary report which provides a geological and historical overview of the change of the physical environment within the inquiry district since the beginning of colonisation and more particularly since the arrival of European colonists in the district. Since that time the district has experienced a very substantial transformation due to the widespread introduction of pastoral agriculture, and in particular the introduction of sheep farming. The report looks at the impact of this transformation on claimant communities within the district, through their experience of the Crown's environmental management. The report also explores the impact of the Crown's management on wahi tapu and the claimants' portable taonga.
2. As a scoping report, the primary objective is to provide sufficient background material on the district to assess its research needs and to recommend a brief for a more substantive research programme.
3. Large areas of the district's indigenous forests have been felled or burnt to allow for agriculture and to a much lesser extent forestry. This transformation has had a very significant impact on the biodiversity of the district, with a significant impact on flora and fauna which were a key part of the pre European Maori economy and which remain highly valued by tangata whenua. Given the very difficult terrain, extreme steepness of much of the land within the district, poor soils and susceptibility to erosion, the transformation of the landscape for European agriculture has had extremely damaging environmental impacts, that include not only high levels of erosion but significant damage to the region's rivers.
4. Since the 1940s, both central and local government have been attempting to remediate many of these problems. Maori landowners have been particularly affected by these damaging environmental changes. At a time when the land was being used as part of New Zealand's pastoral economy, Maori owners were little able to benefit, and their lands suffered environmental degradation disproportionately. In recent decades, owners have sought to benefit from forestry and tourism and take greater control over the

management of their lands, at the very time when environmental protection issues resulted in greater restriction over land use.

5. This was one of three related scoping reports undertaken over a similar time period. Separate research was undertaken by David Alexander into issues relating to rivers, a report that also took into account an area larger than that encompassed by the Taihape District Inquiry [Rangitikei River, its Tributary Waterways and other Taihape waterways scoping report]. In addition, Heather Basset completed a short report into issues relating to local government and into the one native township within the district [Local Government, Rating, and Native Townships scoping report]. Both of these reports were completed in draft prior to this report into wahi tapu, environmental and portable taonga issues. While the separation of these issues into three different studies was a manageable way to provide a preliminary exploration of the research needs in the district, we note that common issues between the three need to be recognised, and the research programme that emerges from these scoping reports should not necessarily be seen as fitting into the same topic areas as those covered in the scoping inquiries. This is already acknowledged in the recommendations coming out of both reports.
  
6. Claimants expressed their holistic understandings of the relationship between water, the environment and wahi tapu. The extent to which all of these were integrated within a spiritual landscape, linked by whakapapa and by the interconnectedness of these resources and the regime for managing them was amply demonstrated by claimants. It was particularly useful to be able to combine with David Alexander and with Heather Basset in two hui with both of the clusters within the inquiry district. We have used unidentified quotations from these discussions because better than any other source they provide claimant perspectives on environmental and wahi tapu issues, in a way that is rarely available from archival sources. This is particularly true in the investigation of environmental claims, where for most of the period between 1840 and the 1970s, the Crown's *laissez-faire* policy with regard to environment issues did not consider any responsibility to consult with Maori over environmental management. We note the consistency in the way that issues were expressed, both by different participants within these hui and also across the two different clusters.

7. Discussions with claimants within the two cluster groups have played a very important role in our understanding of the district and of claimants' relationship with its resources and with the Crown. We have not been able to include significant input from non-clustered claimants in preparing this report. (A list of claimant meetings is provided as an Appendix C.) Apart from claimant counsel concerned with mana wahine issues, only a small number of the other claimant counsel for non-clustered claims has made contact with us. Their claims have had to be explored almost exclusively from the secondary and archival material available to us. Following the release of the draft report we made contact with non-clustered groups which led to some further discussions with them. However, further research in environmental and wahi tapu issues for the Taihape inquiry will require significant consultation and participation from the claimants in identifying priorities for research, in some cases and finalising case studies and in providing claimant perspectives. The research process at that time must ensure, as a very high priority, that all claimants in the district have the ability to participate. If as is recommend, the study is broadened to include the whole of the Rangatikei catchment, then the claims and case studies of these additional claimants will also have to be explored as part of the substantive research.
8. The environment, water and wahi tapu are holistically connected through a spiritual relationship that links claimants to all of the places within their rohe. As one claimant commented:
- I think the term wahi tapu needs to be spelt out very clearly because we have an understanding of what it is. I think the simple one comes across sacred area of our people or maybe a site but more importantly it's something that has the spiritual connection to our people. If we were to apply that ... the whole of the rohe here is wahi tapu.<sup>1</sup>
9. Rivers provided the life source to the communities, not just because of their life giving properties, but because 'our people in the old days referred to our awa...as the tipuna, an ancestor'. Rivers, it was explained, were central to life, not just in providing food and water, but in ensuring the health of all the other resources within the rohe, from the tuna and patiki that flowed in the river to the shag that fished along it, and to the plants that grew on its banks and around it.

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<sup>1</sup> Mokai Patea claimant, Taihape, 22 November 2011

10. Claimants were particularly concerned about the health of waterways and the extent to which these had been significantly damaged, with a flow-on impact on wahi tapu and on their own physical, psychological and spiritual health. Clean waters, to claimants, were not just waters that were scientifically pure, but waters which had a spiritual connection with the claimants through whakapapa through links with ancestors. Places where waters were particularly pure were also places where ‘there was that spiritual connection that whakapapa connection to the mountain and to our ancestors, but it was also because it was pristine.... It had its own mauri and then because it had the connection to us. It was kind of a heightened experience’. One claimant described this as being part of the ‘unseen things’, to be contrasted with those things that were scientific. He said that:

[The] spirituality of that area is a good one....it’s for the wellbeing of the tangata whenua of the people and that is where they practised their healing. There is the spiritual side of the flows and the energy that comes through the rivers.<sup>2</sup>

11. The connection between the waters and species such as birds was essential, and when pollution damaged or destroyed these waters, there were wider consequences; ‘you’re talking about the natural pollutions from the milling of all the native bush, native trees that were all around here which leads back to the energy that was given to the rivers from the birds, the native birds’. Not only did the waters provide spiritual sustenance for the species around them but the reverse was also true:

The awa... was a spiritual, healing place of our people, it was also the place where they bathed and they took the fish as part of the everyday life and so forth. As you know the river itself flows through two of our meeting houses or past that area ...<sup>3</sup>

12. Pollution or damage to the resource affected the places of wahi tapu and meant that people no longer went there, or when they did, they went there for more mundane reasons, such as swimming rather than for healing.
13. The report examines the legislative and policy frameworks which have been used to manage environmental resources. This covers the period where control was held exclusively by tangata whenua, to the growing encroachment of the Crown on resource management, without any reference to Maori needs, Maori rights to be consulted or even

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<sup>2</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

<sup>3</sup> Mokai Patea claimant, Taihape, 22 November 2011

legal rights to many traditional resources. In a regime of environmental management governed by Maori lore, environmental and resource management were fundamental to the legal systems. However, resource management in a 19<sup>th</sup> century capitalist economy was subject to almost no legal regulation. Private enterprise, assisted by the state, determined resource use, environmental transformation and its consequential impact on fauna and flora. Only since about the 1970s has there been an attempt to reintroduce environmental management and the priorities of sustainability to New Zealand law and policy. And only more recently, have Maori been included in this form of environmental management.

14. This report examines this transition in terms of mainstream Pakeha perceptions of the environment, the legal regimes for managing the environment and the policy environment on which these rest and also introduces claimant perspectives based on discussions with the two client clusters of the Crown Forestry Rental Trust in the district. Issues such as the impact of changes in environmental quality, and the definition of wahi tapu and regimes of managing them must inevitably reflect local understandings and local needs. The wide variety of different environmental impacts, without an overarching regime to manage them, means that a variety of disparate activities have been pulled together, described and analysed. These activities range from the introduction of pastoral farming and its substantial impact on water and soil quality, to forestry, defence activities, and the control of flora and fauna.
15. This historical review relies on contemporary sources and illustrates the rising importance of environmental issues by the 1970s. The report attempts to provide a balance between national regimes of management and legislation and the specific evidence that has been collected by government or is available from contemporary scientific reports on the district itself.

## **Method**

16. The report is multidisciplinary and combines three approaches to environment and wahi tapu issues. The research objective has been to bring together scientific understandings of environmental change, legal, historical and archival research and oral research

exploring claimants' perspectives of these issues. To this extent, the approach differs from the usual methods applied in scoping reports for Waitangi Tribunal investigations. Scoping reports tend to provide an overview of the legislative framework for understanding of the topic of study, a review of the material which could be required in a more substantial report and an analysis of the specific claim issues to allow the selection of case studies. The overarching objective is to decide whether further research is required and to make recommendations about how this research should be undertaken. While these objectives remain, this scoping report attempts to provide more substantial material on the extent of environmental change from a scientific perspective and has in some instances followed through in greater detail than may usually be expected. Importantly, its use of group interviews with claimants has provided preliminary claimant perspectives on the environment, their views on the impact of environmental change within the district and their understandings of the Crown's responsibility for that change.

17. The methods that have been included in this research include:

- A scientific review of geography and transformation of the Taihape environment with a particular focus on the environmental damage done by the over development of a pastoral economy on the limited soils and steep topography of much of the region;
- A scientific review of the contamination of soils within the district as a result of the use of chemicals and fertilisers;
- An archival review of the relevant material available for the District;
- Oral interviews with the two CFRT clusters within the District;
- Writing up some of the archive material particularly as it related to case studies when this material could be relatively easily reviewed and analysed; and
- Reviews of relevant literature.

18. The approach emphasises combine scientific, archival and historical material with claimants' perspectives is fundamental. We consider that claimants need to be significantly involved in and provide direction for subsequent research, and is a important that they have more detailed this overview of the issues relating to environmental change in environmental management than would normally be the case in the scoping report which anticipates a technical research programme with little direct claimant involvement.
19. After consultation with the claimant's lawyers on issues relating to the mana wahine claims, it was agreed that an an overview of the literature would be undertaken, to give claimants a better understanding of the academic debate on this issue in order that they may have material which allows them to develop these issues further either in later research or in legal submissions.
20. In early discussions with claimants, concerns were raised about oral material being presented to researchers and then having to be repeatedly presented to other researchers at a later date. Because the two clusters were able to engage in this research process at some depth, it was decided to have to consultative hui, one with each cluster, to discuss issues relating to the environment and wahi tapu. These interviews took place on 21 and 22 November and also included David Alexander and Heather Bassett, to ensure that information could be used in their scoping reports as well. The sessions were taped and transcribed and the transcriptions were returned to claimants for comment. It was agreed that individual claimants would not be identified in the transcripts used for this report, but we have identified which cluster contributed each of the quotations.
21. In many areas, the existing archival material from the district is scattered and thin, and some of this is reflected in this scoping report. This lack of local detail on Maori approaches to environmental management and Maori grievances with the Crown's environmental, resource management and wahi tapu regimes in the written record is particularly significant and poses a major research challenge for the next phase in the research.

## PERSONNEL

22. This is a multi-disciplinary study of the environmental impact of development on the Taihape Inquiry District. The personnel involved bring together backgrounds in social and historical research and in environmental science.

## PROJECT TEAM

***Project Leader:***      ***Professor Michael Belgrave***

23. Professor Belgrave has an extensive background in research for the Waitangi Tribunal process beginning in 1987, when he was appointed to the newly formed research staff of the Tribunal. He has a PhD from Victoria University of Wellington. He was research manager for the Waitangi Tribunal from 1990 to 1993. Since 1993, when he took up a position at Massey University's Albany campus, he has published widely on the Waitangi Tribunal's work and particularly on its use of historical research. He has edited, with Merata Kawharu and David Williams, *Waitangi Revisited: Perspectives on the Treaty of Waitangi*, Oxford University Press, Melbourne (2005) and is sole author of *Historical Frictions*, by Auckland University Press. Research for claimants has included projects in the Gisborne, Hauraki, Urewera, Wairoa, Central North Island and East Coast Inquiry districts. His recent work on wahi tapu and environmental issues includes work for the Raukawa negotiations and leading the team producing both the scoping and final reports for the Rohe Potae Inquiry District.

***David Belgrave***

24. Mr Belgrave has undertaken historical research in the Wairoa, East Coast, Hauraki, and Rohe Potae Inquiry Districts. He was an author of the *Raukawa Waterways and Environmental Impact Report; Te Rohe Potae Harbours and Coast, Inland Waterways, Indigenous Flora and Fauna, Sites of Significance and Environmental Management and Impacts Scoping Report; East Coast Title Re-organisation in the Twentieth Century; A Quantitative Assessment of Land Loss in Raukawa's Rohe; Raukawa and the Crown: 1945-1990; and Te Rohe Potae Environmental and Wahi Tapu Report*. He has a BA (Hons) in Politics and Media Studies from Auckland University, a Masters of Philosophy in Social Policy from Massey University and a Masters of Strategic Studies from the

Australian National University. Since the completion of this project he has been a PhD candidate at the School of History, Philosophy, Political Studies and International Relations at Victoria University Wellington.

***Dr Chris Anderson***

25. Dr Anderson has a PhD in Earth Science from Massey University. He is a Senior Lecturer and research leader on contract to the Institute of Natural Resources at the university, and is the founder and director of Tiaki Research Limited, a biotechnology company that is developing commercial scale operations for gold phytoextraction technologies. He has published extensively in the areas of environmental impact assessment, land rehabilitation, environmental geochemistry and phytoremediation. Dr Anderson contributed to the objectives in the project that relate to the impacts of the timber production and agricultural industries on soils.

***Dr Jonathan Proctor***

26. Dr Procter (Muaupoko) is a Research Officer in Earth Science with expertise in natural hazards, Geographic Information Systems and the computer simulation of mass flows and floods. He has recently completed his PhD thesis that demonstrates the innovation needed to apply new complex numerical simulation tools to mass flow hazard mapping and prediction. In addition, he has published 14 peer-reviewed works, including a recent paper in the prestigious journal *Geology*. He is an active member of many University and Community Ethics and Management Committees as well as having experience in conservation and RMA matters for the Department of Conservation, Horizons and Local Authorities. Dr Procter also participates in research projects with Landcare and AgResearch investigating ways to incorporate Māori values and knowledge into environmental management frameworks and developing Māori GIS systems. Dr Procter is also the specialist environmental and cultural adviser for Tanenuiarangi Manawatu Inc. and is active within his own Iwi, Muaupoko, chairing and participating in management of Māori Land blocks such as Lake Horowhenua.

*Sharon Togher*

27. Sharon Togher was an IT Project Coordinator for IBM Global Services in the United Kingdom. Her passion has always been for science, particularly marine biology and conservation issues. In 2006, she completed a BSc (Hons) in Marine Biology from the University of Portsmouth in the United Kingdom. She received a scholarship to study tropical marine invertebrates at the Bermuda Biological Station for Research. In 2010, she completed her Graduate Diploma of Teaching (Secondary).

*Erana Hokopaura Watkins*

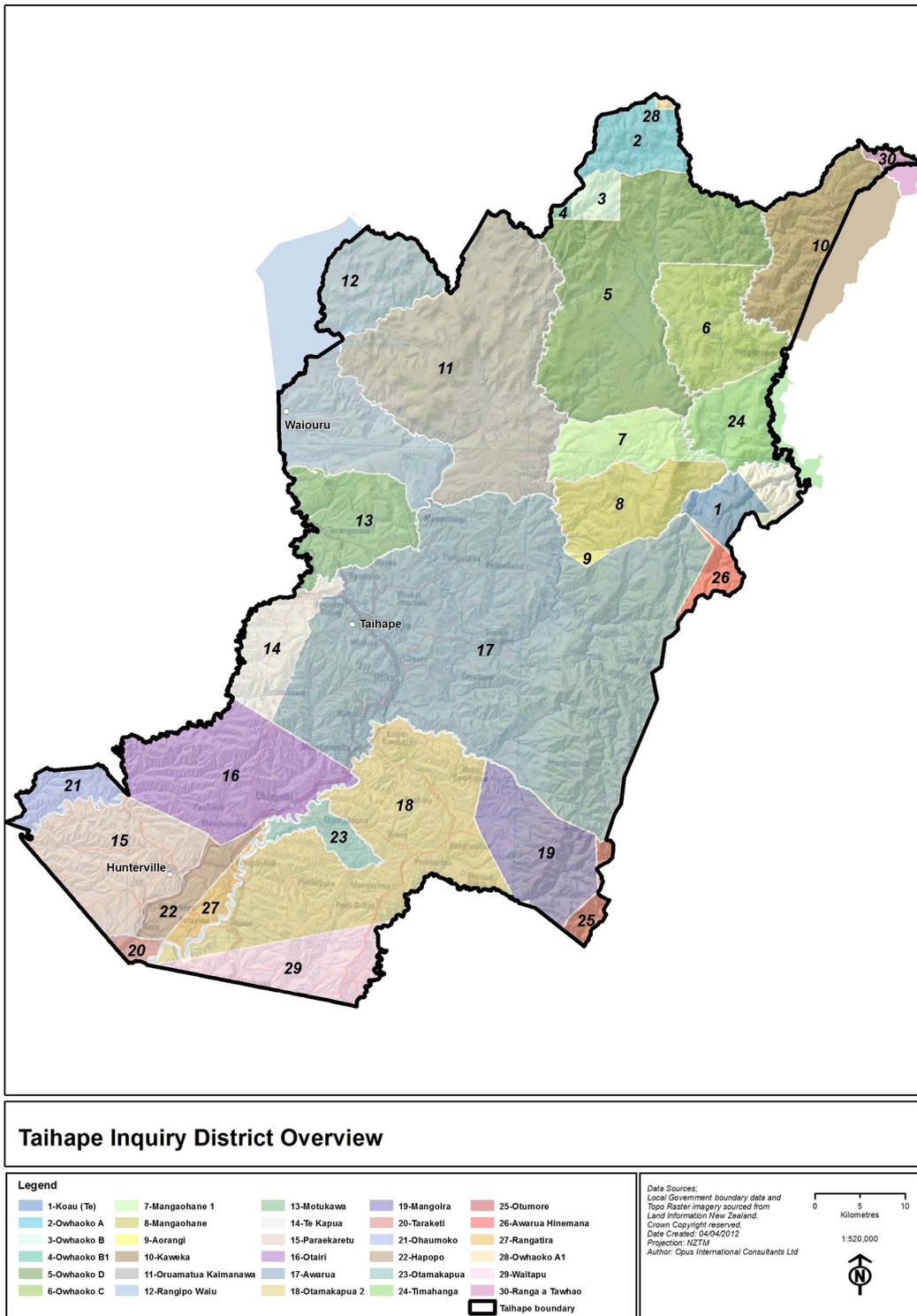
28. Erana Hokopaura-Watkins (Pakakohi, Ngā Rauru Kītahi, Ngāti Ruanui) is a Massey University postgraduate student and also prepared draft material for the report. She is currently completing a BA (Hons) in Social Anthropology at Massey University, Albany.

*Dr Grant Young*

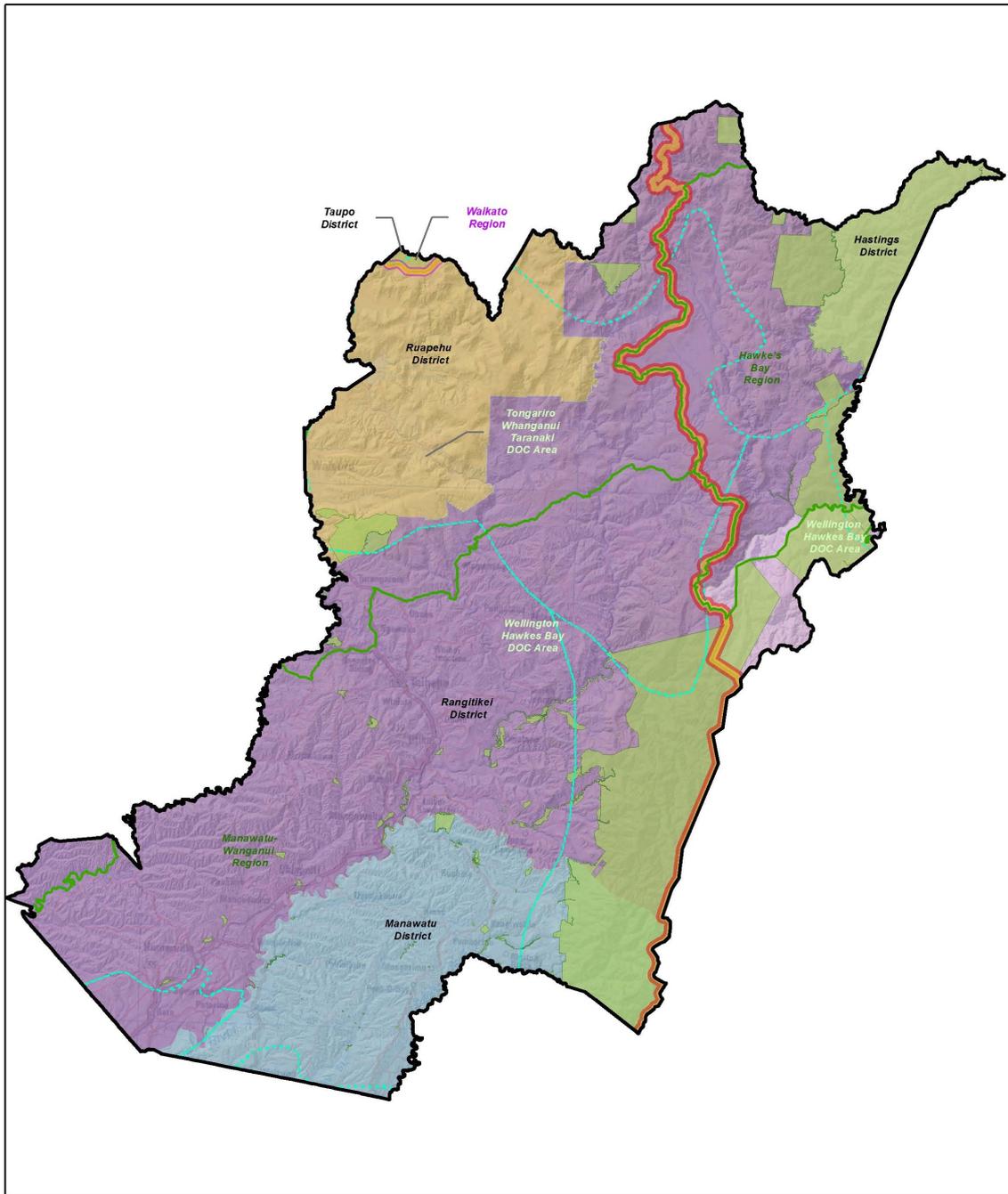
29. **Dr Young** is the principal researcher at The History Workshop Limited and an Honorary Research Associate at Massey University. He was awarded a PhD by Massey University in History, completed in 2003, for a thesis which examined the Native Land Court and its treatment of Maori custom from 1862 to the 1920s. He also holds a Master of Arts with First Class Honours (1999) and a Bachelor of Arts (1996) from the University of Auckland. Since completing his doctorate he has worked full-time as a researcher dealing primarily with the Court and Maori custom relating to land. Much of this work has been undertaken for Maori claimants in the Waitangi Tribunal process or Maori organisations looking to settle their treaty claims in direct negotiations with the Crown. He has prepared substantial research reports for claimants and for the Waitangi Tribunal in the Central North Island, Hauraki, National Park, Tauranga, Urewera, Wairoa, Whanganui, Te Rohe Potae and Taihape Inquiry Districts. He has also published a number of articles in refereed journals and edited collections dealing with aspects of the Native Land Court and presented several papers at conferences of historians and legal scholars.

# THE CLAIMS

Figure 1: The Taihape Inquiry District Overview



**Figure 2: Local Body and Department of Conservation Boundaries**

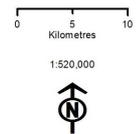


**Local Government and DOC Administrative Boundaries**

**Legend**

- |                          |                          |                     |
|--------------------------|--------------------------|---------------------|
| Taihape boundary         | Hawke's Bay Region       | Hastings District   |
| DOC Area Boundaries      | Manawatu-Wanganui Region | Manawatu District   |
| DOC Ecological Districts | Waikato Region           | Rangitikei District |
| DOC land                 | Ruapehu District         | Taupo District      |

Data Sources:  
Local Government boundary data and  
Topo Raster Imagery sourced from  
Land Information New Zealand.  
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Projection: NZTM  
Author: Opus International Consultants Ltd



30. The relatively small Taihape Inquiry District has fewer claims compared with districts of a greater area or Maori population. Despite the relatively low number of claims, a large portion of claims reference grievances relating to the environment, wahi tapu or portable taonga. In addition to a number of claims central to the district, several claims primarily relate to neighbouring Porirua ki Manawatu, Rangitikei-Manawatu, Hawke's Bay, Whanganui, National Park or Central North Island districts but involve interests which spill over into the Taihape district. As such, those claims refer to locations outside the Taihape Inquiry District but they also refer to general issues which can be discussed in the Taihape context.
31. Most of the claims centred on the inquiry district relevant to this report make reference to the Rangitikei, Moawhango, Hautapu, or Ngaruroro Rivers. It is difficult to separate rivers from wahi tapu and environmental issues. The importance of the rivers to the claimants is clear from both the claims and discussions with claimants. This report is not going to address river issues directly but environmental and wahi tapu claims need to be seen in conjunction with water issues.
32. The relevant issues in the claims can be divided into three broad categories: economic, political, and health and spiritual. These categories should not be seen as exclusive as some issues, like the loss of indigenous species spans all three categories. The claims argue the Crown made the following treaty breaches:

## **ECONOMIC**

- Caused/allowed the loss of indigenous species (Wai 61, 166, 1705, 1835)
- Allowed the introduction of exotic pests such as possums, deer, rabbits, mustelids, gorse, and blackberry (Wai 61, 263, 378, 382)
- Allowed the loss of resources for food, clothing, medicine, construction materials (Wai 61, 1705, 1835)
- Destroyed environments for pastoral farming (Wai 263, 378, 382)
- Failed to prevent erosion (Wai 575, 1705, 1835)
- Prevented the claimants from economic development of their own resources (Wai 61, 647, 972, 1262, 1835)
- Prevented the collection of flora and fauna (Wai 378, 282, 263)

- Allowed the destruction of indigenous forests and introduced exotic reforestation (Wai 1034)
- Took land for defence and forestry (Wai 151, 575, 581, 1639)
- Caused more damage through pest control methods (Wai 69, 263, 378, 382)

## **HEALTH AND SPIRITUAL**

- Pollution to waterways (Wai 263, 378, 382, 166, 1639, 1835)
- Spiritual loss due to pollution, modification or desecration of land and waters (Wai 263, 1705, 1835)
- Destruction of cultural landscapes
- Destruction of river flows due to dams and gravel extraction (Wai 588)
- Drainage of swamps (Wai 588)
- Caused/allowed the destruction of and prevented access to wahi tapu (Wai 69, 263, 378, 382, 166, 588, 662, 1835, 1944)
- Loss of taonga including loss of portable taonga to museums and private collections (Wai 263, 378, 382, 1254)
- Destruction of wild horses (Wai 588)

## **POLITICAL**

- Failure of the Crown to recognise and protect the claimants' tino rangatiratanga and kaitiakitanga over resources and the environment (Wai 69, 263, 581)
- Failure of the Crown to consult claimants on environmental and planning issues (Wai 581)
- The Crown prevented claimants from managing their resources in accordance with lore, cultural preferences and customs (Wai 1835)

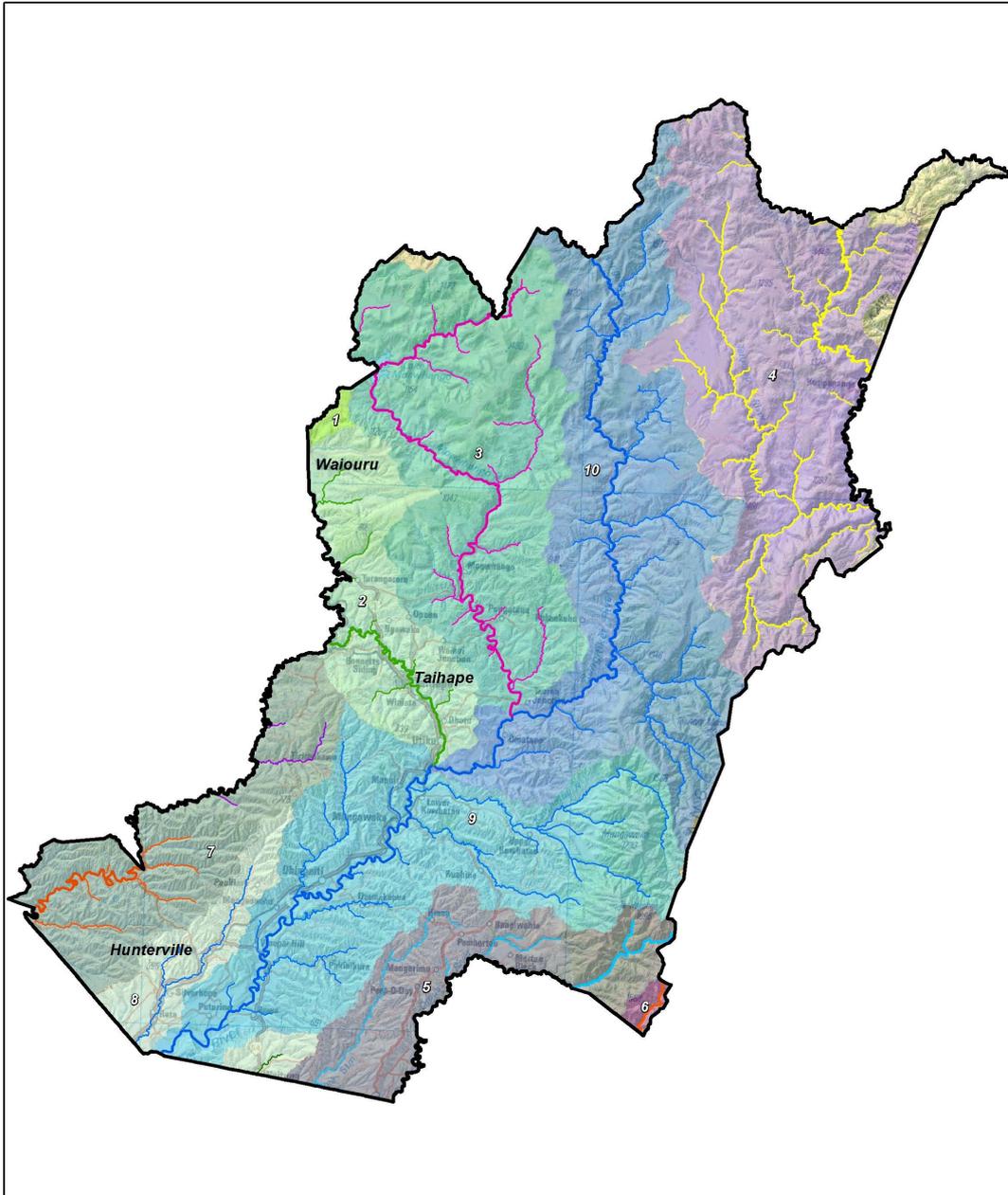
## MANA WAHINE

33. Mana wahine issues have been raised in a number of claims, but most notably as part of a more general mana wahine claim (Wai 2091) which has broader national significance. While these claims are not specifically directed at environmental or wahi tapu and portable taonga issues, they are relevant to these aspects of this scoping report and we have reviewed the literature on mana wahine, primarily from an academic perspective. We have attempted to review the evidence and make recommendations which take into account mana wahine concerns to make the emphasis on Maori women's issues relevant to researching these claims before the Waitangi Tribunal.

# THE GEOGRAPHY AND TRANSFORMATION OF INLAND PATEA

## INTRODUCTION

Figure 3: Rivers of the Taihape Inquiry District



### Major Rivers and Catchments of the Taihape Inquiry District



34. The Taihape inquiry district covers the central areas of “Te Ika a Maui” or “the Great Fish of Maui” and is characterised by the backbone of the great fish of Maui through the Kaimanawa and Ruahine Ranges. The rugged landscape of the inquiry district contains a complex geological juxtaposition of Triassic-Jurassic aged rocks against a succession of Pliocene sediments recording climatic oscillations, regional tectonics and the inception of the Taupo Volcanic Zone. More recent geomorphic events record Quaternary climate change with the appearance and disappearance of large scale glaciations resulting in the formation of large aggradational terraces that have been carved and uplifted by changing fluvial conditions. These features are only preserved in the landscape due to the tectonic regional setting and active uplift, yet this has also created a faulted landscape of small plateaus, ridges, steep slopes scarred by landslides and earth movements.
35. The inquiry district does have a distinct contrast in landscape, soils and flora from the northern limestone and greywacke, volcanically dominated upland, sub-alpine region with beech forests and free draining volcanic soils, to the southern area influenced by steeply eroded river valleys and gullies of mudstones and clay rich soils that once supported a dense podocarp forest.
36. Iwi in the area before European contact would have prospered from having an abundance of natural resources, mainly wildlife or birdlife (in particular moa and huia) over an extensive area. Within this rohe, specific sites such as palustrine ephemeral wetlands, terraces adjacent to rivers and streams, and gully head waters were managed for either the gathering of native wildlife or traditional agriculture.
37. Since European settlement land use change has been from native forest to pasture for primarily sheep and cattle production. This land use change has increased the grasslands by approximately 40,000 ha to 300,000 ha between 1880 and 2007. This change has been a gradual process (in New Zealand terms) yet the challenges of the steep (15-30 degree) hill country land and alpine tussock lands have limited future changes to the land or other intensive agricultural methods.

## GEOLOGY

38. The geology and basement lithologies of the Inquiry District significantly control the waterways, landscape, soils and vegetation of the area. The Inquiry District is characterised by three main geological provinces: the northern sub-alpine area occasionally impacted by volcanic ash fall from the Tongariro Volcanic Centre, the eastern axial ranges dominated by Jurassic (>65 million years) greywacke and the younger western to southern Tertiary mudstones and limestones.
39. The oldest greywacke rocks of the Ruahine and Kaimanawa Ranges are highly fractured, faulted and sheared. The greywacke and argillite sequences of the axial ranges unconformably underlie the younger Tertiary sequences yet are adjacent to and extrude due to the north to north east trending faults. The regional structures or fault blocks and folds that exist in the Jurassic greywacke and underlie the Tertiary aged marine sediments of the Moawhango and Waiouru areas are expressed in or control many of the surface features or large plateaus that occur.
40. The Tertiary marine sequences that form the majority of the mudstones and limestones in the District are correlative to the Wanganui Basin sequence of marine deposits. These gently (<5°) south to south east dipping lithologies of muds to limestones are approximately 2km thick and young towards the south. The geological sequences have been mapped and identified over the last 60 years and rather than being grouped into chrono-stratigraphic units based on the marine transgressive and regressive sequences similar to other areas of the Wanganui Basin they have been grouped into formations based on lithology and topography (**Error! Reference source not found.**Table 1).

Age	Formation	Basic Description	Economic Use
Pliocene (3.5-2.5 Ma)	Mangaweka Mudstone	Blue grey mudstone and siltstone	
	Utiku Sandstone	Blue grey sandstone	
	Omatane Limestone	Shell limestone	Possible source of aggregate
	Manui		

	Kawhatau Mudstone	Blue fine mudstone and siltstone	
	Tarare	Grey silty sandstone	
	Taihape Mudstone	Blue grey mudstone to sandstone with calcareous concretions	
	Waiouru Sandstone	Blue grey sandstone and limestone	Limestone can produce low quality aggregate and riprap

**Table 1:** *Geological Formations after Kerr (1991) and Journeaux et al. (1996)*

41. The mud-, silt- and lime-stones of the area are considered soft and weak rocks that form distinct steep slopes that are prone to land sliding. River gullies are generally deeply entrenched carving steep sided ravines. The harder calcareous or limestone units tend to form stable sections or mesa/plateaus/pinnacles in overlying units with extremely steep side escarpments generally associated with younger faulting.
42. One of the most distinctive features of the geology is its ability to produce landslides. Within New Zealand's Tertiary mudstones over 7000 mapped large (>10 000 m<sup>2</sup>) landslides have been identified.<sup>4</sup> The two end members of a spectrum of large landslides are recognisable deep seated block slides and creeping debris slides. These are heavily influenced or triggered by differences in the porosity, permeability and water content of layers and the weathering of rock layers to higher contents of clay. Many of these landslides make up landscape in the District with the most recognisable deposit or "Taihape Landslide" forming a major part of the Taihape Township. Faulting and fault movements along the Rangitikei and Rauoterangi fault zones, striking NNE-SSW, could also contribute to triggering landslides in these regions.
43. The Tongariro Volcanic Centre has had an influence on the geology of the area with the production of ash fall over the northern areas of the Inquiry District. In the Taihape area

<sup>4</sup> C. Massey, C. 'The dynamics of reactivated landslides: Utiku and Taihape, North Island, New Zealand', Doctoral Thesis, Durham University, 2010.

volcanic rocks as conglomerates or diamictons occur in aggradational terraces emplaced through volcanic sedimentation and long run out volcanic mass flows.

## **Geomorphology/Terraces**

44. The geomorphology of the Inquiry District is an extension of or a result of the geology of the area yet the formation of steep slopes, river gullies and large aggradational terraces is also related to the recent interaction of water, alluvial systems and climate.
45. The mid to lower sections of the Rangitikei River consist of a series of large aggradational river gravels. The river terraces are an important record of New Zealand's Quaternary (0.01-2.5 Ma) history and the response of the landscape to oscillating climatic conditions between glacial (cold-climates) and interglacials (warm climates).<sup>5</sup> During cold periods vegetation retreated resulting in increased erosion and aggrading rivers that formed large broad channels or plains. During warm climates the rivers cut down into these previously deposited gravels, and combined with active constant uplift of the region the terraces then became preserved. Approximately 14 sets of terraces (Molloy, 1988) can be found within the entire Rangitikei River Catchment.
46. Active faulting in the Inquiry District is an important control or factor on the landscape and formation of the landscape. Prominent NNE strike slip faults dominate the axial ranges and the Rangitikei and Rauoterangi fault zones or blocks. A number of smaller sub-parallel faults (such as the Rangitikei and Taihape fault) are considered active and likely to move. The potential as earthquake generating faults is still questionable yet movement on faults such as these may influence land sliding and other movements. Active faulting and movement or uplift of the land in combination with a mean summer and winter rainfall of 70-80 mm per month and annual rainfall of 960 mm per year, result in a highly incised and eroded landscape.
47. The influence of the volcanoes of the central North Island is present within the soils and terraces of the District with many ash fall sequences being preserved, however the

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<sup>5</sup> Te Punga, M.T. (1952). The geology of Rangitikei Valley. New Zealand Geological Survey. Memo No. 8; Milne, J.D.G. (1973b). Map and sections of river terraces in the Rangitikei Basin, North Island, New Zealand. In: New Zealand Soil Survey Report 4.

number and extent of these are controlled by the prevailing westerly winds. The presence of Pliocene ignimbrite units is rare yet they are present more in the Turakina Catchment and may be more representative of re-sedimentation. Te Punga (1952) was the first to identify volcanic diamictons in the Hautapu catchment which are sourced from andesitic rocks of Mt. Ruapehu. It is postulated that these deposits were emplaced as lahars or from larger mass movement events possibly related to volcanic events or re-mobilisation of past volcanic mass flow events.

## **SOILS**

48. The soils of the Inquiry District are strongly influenced by the underlying geology and slope of the terrain. Campbell (1979) produced a soil map for the area classifying the soils into three main groups within the Inquiry District:

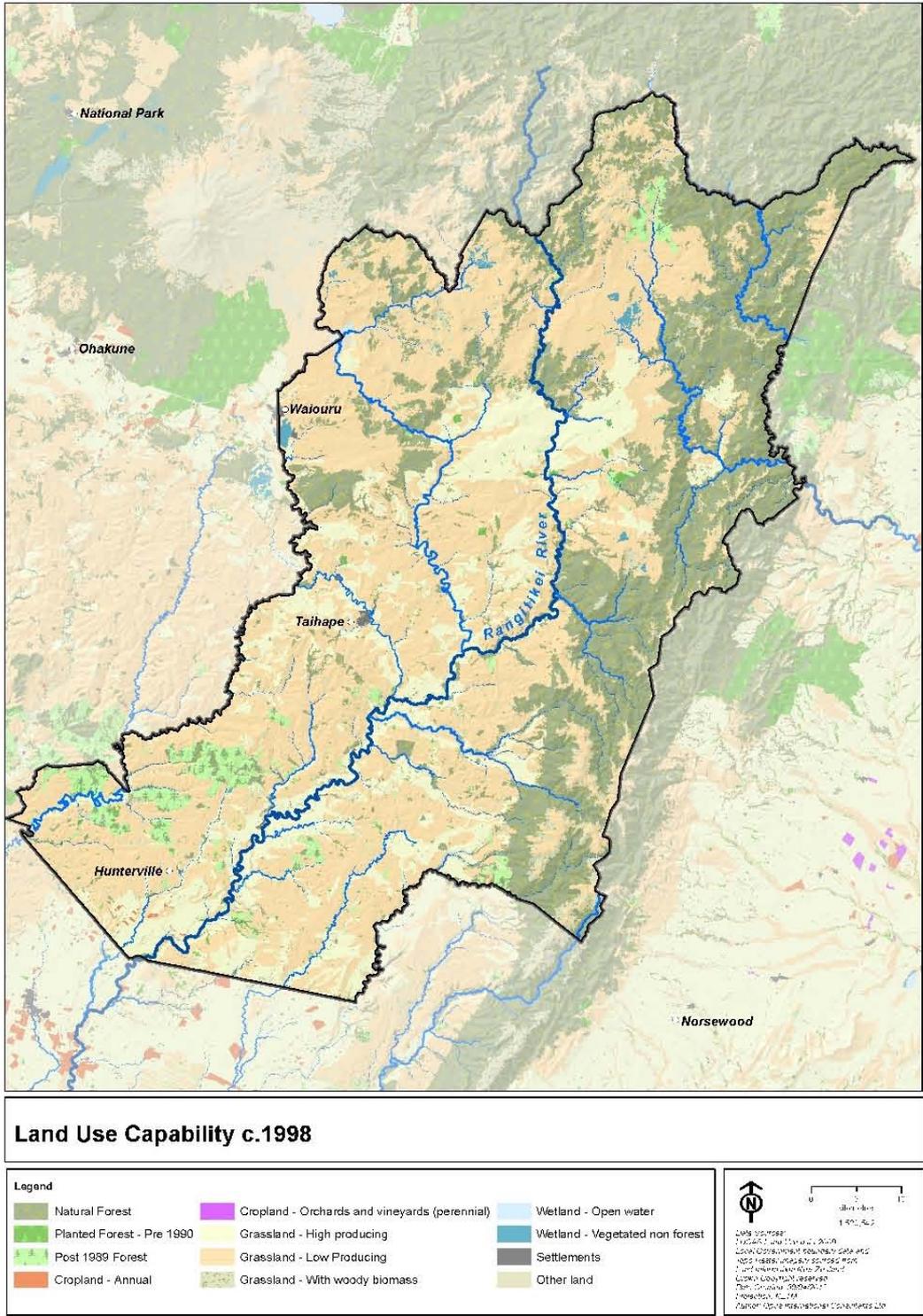
### **Soils of the flood plains and terraces lands**

49. These soils formed on colluviums and alluvium surrounding the rivers as well as soils formed on loess. The soils are generally well drained but can be poorly drained in areas behind levees. The limitations to their use are their water deficiency, low nutrient status and low soil temperatures. On older river terraces the soils are better developed but can still be water deficient during autumn.

### **Soils of the steep land and related flat rolling and moderately steep to steep land**

50. These soils are most common in the District occurring on the Pleistocene, Tertiary sedimentary rocks. Soils are generally subdivided by changes in the underlying parent rock rather than other means. The soils are mottled in their lower horizons and sit directly on the rock below. Due to being situated on the parent rock they are prone to instability and slip, and where this has occurred they can be re-colonised by pasture rather quickly. Most of these soils have limitations for extensive use.

**Figure 4: Land Use Capability**



## **Soils of the northern uplands and dissected mountain lands**

51. The soils of these northern areas are influenced by volcanic ash and peat while the underlying parent material can also be greywacke in combination with the sedimentary mudstones and limestones. Generally these soils are considered to be subalpine soils. They have developed soil horizons which distinguish and classify them. Soils on younger volcanic ashes are generally less weathered than older ones and can be subjected to wind erosion. Due to high rainfall and cold temperatures their use is highly limited.
52. In general the soils used for cropping, forestry and pastoral farming in the district have limitations around their productivity. Several soil health or soil quality indicators are routinely used in New Zealand to investigate changes in soil health as a function of land use and time. Biological health is determined through quantification of the store of potentially mineralisable nitrogen in soil. Chemical health is determined through quantification of total carbon, total nitrogen, acidity or alkalinity (pH), and the plant available phosphorous (Olsen P) concentration in soil. Physical health is determined through measuring the abundance of holes in a soil through which air and water can move (macroporosity).
53. Claimants identified Paru, as a cultural soil resource within the Taihape District. The organic soil was associated with wetlands and the anaerobic decomposition of organic materials with minerals and metals sourced in the area. Traditionally this soil was used for dyeing and was managed and maintained by particular whanau and hapu of the area. Paru was highly sought after and has today nearly disappeared in the area due to land use change, wetland draining and altering of waterways.

## **Soil Quality Indicators**

54. A simple definition of soil quality is 'fitness for use'. However a more involved definition of soil quality is that used by the Soil Science Society of America:

The capacity of a specific soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation.

55. Soil quality must be considered in the context of both production criteria (agricultural productivity; economic yield; sustainable production; farm profitability; and impact on the rural economy) and environmental criteria (risk to air and water quality; loss of habitat, amenity and access; loss of indigenous biodiversity; weed and pest invasion; and contaminant accumulation). These two contexts must be considered to achieve a balance that is representative of functional soil quality. Parameters that define soil quality for pasture production on a dairy farm, for example, may differ from those that define soil quality for soil protection; high N may promote greater pasture production, but beyond a certain level, unacceptable risk of nutrient leaching will become apparent.
56. Six parameters are generally used in New Zealand for environmental reporting to monitor soil quality: total carbon, total nitrogen, mineralisable nitrogen, pH, Olsen phosphorous and macroporosity. A seventh parameter, bulk density (the mass of soil per fixed volume), is also necessary to allow weight and volume correlations to be made between various units. By use of a panel of New Zealand experts and statistical models, Landcare Research has generated a range of values that establish parameters for soil quality in New Zealand for variable land use on a range of soil types (**Error! Reference source not found.**).
57. The New Zealand Ministry for the Environment 2007 State of the Environment report makes the statement that the intensification of pastoral farming is occurring to the detriment of soil, water and air quality. Phosphorous and nitrogen levels under dairying are high, with nitrogen reaching saturation point. Soil compaction is becoming a problem with increased stocking density. Many of New Zealand's rivers (43%) and lakes (40%) are in catchments that are predominantly in pastoral agriculture and are also becoming impacted by nitrogen and phosphorus from intensification. While this is a national trend it can be inferred in the absence of more accurate or detailed regional or local "state of the environment reporting" that this trend is also consistent within the Taihape Inquiry District.



**Table 2:** Provisional target values or ranges (select soil orders) for soil chemical, biological and physical properties to assess soil quality using production or environmental criteria

Soil quality attribute	Soil Orders	Land use categories	Target value or range for production criteria	Target value or range for environmental criteria
Soil pH	All soil orders except organic	Pasture	6.0	5.0-7.0
		Cropping horticulture	6.0	5.0-7.0
		Exotic forestry	4-6.5	4.2-6.5
		Native forestry	4.5-6.0	4.0-6.5
Organic C (% w/w)	Allophanic and Oxidic	All land uses	>2	>5
	Semi-arid, Recent and Pallic		>5	>3
	All other soil orders		>1	>3.5
Olsen P (ug/cm <sup>3</sup> )	Organic and Pumice	Pasture	>40	35-65
		Cropping and horticulture	>90	ND
	All other soil orders	Pasture	>40	20-80
		Cropping and horticulture	>50	ND
Mineralisable N (g/cm <sup>3</sup> )	All soil orders	Pasture	>70	0-150
		Cropping horticulture	>70	0-120
		Exotic forestry	>50	50-170
		Native forestry	ND	ND

Bulk density (Mg/m <sup>3</sup> )	All soil orders	All land uses	0.8-1.1	0.8-1.1
Macroporosity (%w/v)	All soil orders	Pasture	10-15%	10-15%
		Cropping and horticulture	8-17%	8-17%
		Exotic forestry	8-17%	8-17%

ND = not determined

## NEW ZEALAND LAND RESOURCE INVENTORY AND LAND COVER DATABASE

58. The Rangitikei and Taihape area is erosion-prone land consisting of hill country with a slope of more than 15-21 degrees. Most erosion-prone hill country lands are in pastoral land cover and have soils situated on weakly consolidated mudstones and sandstones. The Land-Use Capability (NZLUC) survey classes from the New Zealand Land Resource Inventory (NZLRI) databases for the District show that 88% of the Inquiry District is of LUC class 6 to 8 (

Table 3) unsuitable for most agricultural practices and having a low suitability for pastoral farming yet the region is dominated by pastoral lands and farming.

**Table 3:** Area (in square metres) of Land Use Class from the NZLRI Database for the Taihape Inquiry District.

LUC	Class	Area Sum (m <sup>2</sup> )	Area Percentage (%)
1c 2, 1w 1, 1w 1+4s 2	1	58529632.2000	1.132864813
2c 1, 2c 1+3s 2, 2e 2, 2s 1, 2s 2, 2s 2+7e 3, 2w 1, 2w 2, 2w 2+7e 6, 2w 2+8e 3	2	175852257.4800	3.403691894
3c 1, 3c 1+4e 6, 3c 2, 3c 3, 3e 3, 3e 4, 3e 4+6e14, 3e 4+8e 3, 3e 5, 3s 2, 3s 2+8e 3, 3w 1, 3w 2	3	175510352.2500	3.39707418
4c 1+6e 7, 4c 2, 4c 2+6e27, 4e 2, 4e 3, 4e 4, 4e 6, 4e 8, 4e12, 4e12+6c 3, 4e12+6e27, 4e13, 4s 2, 4w 1, 4w 2, 4w 4	4	250174384.9800	4.84222687
<b>6c 1, 6c 1+3w 2, 6c 2, 6c 3, 6c 3+4e12, 6c 3+7e13, 6e 2, 6e 3, 6e 4, 6e 4+4e 4, 6e 6, 6e 7, 6e 8, 6e11, 6e12, 6e13, 6e14, 6e15, 6e16, 6e19, 6e20, 6e27, 6e27+4c 2, 6e27+4e12, 6s 7, 6s 7+7e 9</b>	<b>6</b>	<b>1763963165.1800</b>	<b>34.14222378</b>
7c 1, 7c 1+8w 1, 7e 1, 7e 2, 7e 3, 7e 4, 7e 4+3e 4, 7e 5, 7e 6, 7e 7, 7e 9, 7e10, 7e11, 7e12, 7e13, 7e13+8e 3, 7e14, 7e16, 7e17, 7e18, 7e21, 7e22, 7e23, 7e24, 7e25, 7e26	7	1164257921.2000	22.53468512
8c 1, 8e 2, 8e 3, 8e 3+2s 1, 8e 3+3s 2, 8e 3+3w 2, 8e 4, 8e 5, 8e 6, 8e 7, 8e 8, 8e 9, 8e10, 8e11, 8w 1	8	1551937269.5800	30.03837642
River		20916770.0000	0.404852582
Town		5373400.0000	0.10400434
<b>TOTAL</b>		<b>5166515152.8700</b>	<b>100.0000</b>

59. The Ministry for the Environment (2007) states that New Zealand's pastoral land is prone to mass movement through soil erosion with transport to rivers and the sea which was estimated in 1996 to be 400 million tonnes a year.<sup>6</sup> The cause of this movement is the removal of native forest between the 1880s and 1920s. The Ministry for the Environment (2007) reports that in 2002 4.25% of New Zealand was hill country erosion prone lands. Analysis from the Land Cover Database (LCDB) from 1997 to 2002 (Table

<sup>6</sup> Ministry for the Environment. (2007). Environment New Zealand. MfE, ME847, Wellington. ISBN 978-0-478-30192-2.

4) shows a national decrease of 3.09% in erosion prone hill country land. The Manawatu-Wanganui Region is consistent with national trends, however the reduction in erosion prone lands is primarily a result of land converted to native forest or “left” to revert to colonising forest species or scrub.

**Table 4:** Area (in hectares) of pasture on hill-country erosion-prone land by region between 1997 (LCDB 1) and 2002 (LCDB 2)

Region	Erosion-prone area (hectares) in pasture (LCDB 1)	Erosion-prone area (hectares) in pasture (LCDB 2)	Area (hectares) change from pasture (LCDB 2)	Percentage change (%)
Manawatu	230,585	223,535	-6,793	-2.95
NZ Total	1,176,721	1,140,367	-36,354	-3.09

60. The New Zealand Land Cover Database (NZLCDB) produced from analysing satellite imagery from 1996 and 2001 provides a present day baseline on the state of land cover in New Zealand. As New Zealand became settled by Europeans forests were cleared for the native timber resource and then for pasture. From the 1860s pasture increased rapidly from less than 70,000 hectares in 1861 to 1.4 million hectares by 1881 and 4.5 million hectares in 1901.<sup>7</sup> The Ministry for the Environment reports that between 1890 and 1900, 27% of New Zealand’s existing forest (or 13 percent of the total land area) was cleared, reducing the forest area from 13 million hectares to 9.5 million hectares.<sup>8</sup> Following the 1920s, the remnant indigenous forests remained in steep, marginal areas yet were subsequently cleared by burning, accounting for probably 90 per cent of New Zealand’s deforestation.<sup>9</sup>

**The present day land cover in the Taihape Inquiry District is composed primarily of pasture of exotic grasses (58%), indigenous forest (20%) and native scrub-cover (8%) (**

61. Table 5). This present day land cover highlights the massive change that occurred post-European settlement from an area dominated by indigenous forest.

<sup>7</sup> Department of Statistics 1990. *The New Zealand Official 1990 Yearbook*, Department of Statistics: Wellington.

<sup>8</sup> Taylor, R., Smith, I. (1997). ‘The State of New Zealand’s Environment’. Wellington, Ministry for the Environment.

<sup>9</sup> Purey-Cust, J. (1986). ‘A condensed history of forestry in New Zealand’ in (H. Levack ed.) *Forestry Handbook*, New Zealand Institute of Foresters, Wellington. pp 27–28.

**Table 5:** Area (in square metres) of land cover from the NZLCDB Database for the Taihape Inquiry District.

LCDB2 CLASS	LCDB Categories	AREA (m <sup>2</sup> )	Area (%)
1	Built-up Area	4182757.34	0.05
2	Urban Parkland/ Open Space	1274533.64	0.01
3	Surface Mine	55760.06	0.00
5	Transport Infrastructure	280196.26	0.00
11	River and Lakeshore Gravel and Rock	8286472.21	0.09
12	Landslide	8547817.25	0.09
13	Alpine Gravel and Rock	26777177.05	0.30
20	Lake and Pond	6840206.65	0.08
21	River	16697331.98	0.19
30	Short-rotation Cropland	4135314.07	0.05
32	Orchard and Other Perennial Crops	59953.80	0.00
40	High Producing Exotic Grassland	5218954273.20	57.96
41	Low Producing Grassland	35168907.58	0.39
43	Tall Tussock Grassland	740222453.97	8.22
44	Depleted Tussock Grassland	2918507.32	0.03
45	Herbaceous Freshwater Vegetation	15984811.44	0.18
46	Herbaceous Saline Vegetation	255889.08	0.00
47	Flaxland	446401.25	0.00
50	Fernland	1287730.09	0.01
51	Gorse and Broom	11845118.78	0.13
52	Manuka and or Kanuka	699179972.52	7.76
53	Matagouri	13591.51	0.00
54	Broadleaved Indigenous Hardwoods	92691939.25	1.03
55	Sub Alpine Shrubland	154938887.87	1.72
56	Mixed Exotic Shrubland	5025220.16	0.06
57	Grey Scrub	4778855.65	0.05
61	Major Shelterbelts	889591.57	0.01
62	Afforestation (not imaged)	12106771.81	0.13
63	Afforestation (imaged, post LCDB 1)	22292705.52	0.25
64	Forest Harvested	2084798.20	0.02
65	Pine Forest - Open Canopy	42416636.98	0.47
66	Pine Forest - Closed Canopy	40919081.82	0.45
67	Other Exotic Forest	6731063.75	0.07
68	Deciduous Hardwoods	18475084.38	0.21
69	Indigenous Forest	1798393971.62	19.97
	TOTAL	9005159785.65	100.00

62. The dramatic change in land cover on steep geologically unstable landscapes poses risks to soil health and the risk of erosion. The risk of soil erosion on hill-country areas in pasture is based on information from the LCDB and NZLRI. The Ministry for the Environment (2007) classifies erosion risk by degrees of severity e.g. severe, very severe, or extreme. This classification is based on:
- Soils and underlying geology – areas with yellow-brown earths situated on weakly consolidated mudstones and sandstones pose greater erosion risk.
  - Slope or altitude – areas with slopes steeper than 21 degrees or situated more than 1,000 metres above sea level pose greater erosion risk.
  - Land cover – whether erosion-prone areas are in pasture or other more appropriate vegetation to hold the soils in place.
63. A significant portion of the Inquiry District is considered to be at risk (Table 6) with the Manawatu (including the Rangitikei) region contributing 20% of New Zealand’s total at risk erosion prone land.

**Table 6:** Area (in hectares) of pasture on hill-country erosion-prone land in 2002 (LCDB 2). This includes pastoral land above and not above 1000 m in three erosion risk classes: extreme, very severe and severe.

Region	extreme > 1000 m	very severe > 1000 m	severe > 1000 m	extreme	very severe	severe	Total
Manawatu	20	11	131	7,337	11,878	204,158	223,535
North Island	27	418	776	23,386	172,773	601,773	799,154
NZ Total	19,279	9,078	44,852	56,748	179,784	830,626	1,140,367

64. Horizons, the Manawatu-Wanganui Regional Council post 2001, under the obligations of the Resource Management Act 1991, embarked on a process to produce its second generation Regional Plan. The “One Plan” required a greater level of understanding of land management issues in its region. This combined with the 2004 floods and rain storm which resulted in extensive flooding and erosion resulted in a more in depth understanding of the issue of soil erosion risk on pastoral lands. Dymond and Shepherd provided an analysis of highly erodible land in the Region.<sup>10</sup> Page et al defined highly

<sup>10</sup> J. R. Dymond and J.D. Shepherd, et. al. 2006. Validation of a region-wide model of landslide risk in the Manawatu/Wanganui region of New Zealand. *Geomorphology* 74: 70-79.

erodible land as land with the potential for severe erosion if it does not have a protective woody cover.<sup>11</sup> Analysing the NZLRI and NZLCDB, Dymond and Shepherd determined that 273 000 hectares of land (12.3% of the Manawatu/Whanganui region) is classed as highly erodible land with 35 000 hectares of that land in the Rangitikei catchment (Table 7).<sup>12</sup>

**Table 7:** Statistics of highly erodible land in the Manawatu-Wanganui region according to the region and major catchments (from Dymond and Shepherd, 2006).

Land Areas (hectares)	Wanganui catchment	Whangaehu catchment	Turakina catchment	Rangitikei catchment	Manawatu catchment	Region
Total	712185	196561	96606	397931	596861	2220890
Lowland	111089	61703	24842	127547	248878	652785
Hill Country	550465	106131	71642	131290	291196	1295235
Mountain Land	45758	27818	98	138336	51532	272871
Land Proportions (%)	Wanganui	Whangaehu	Turakina	Rangitikei	Manawatu	Region
Lowland	15.6%	31.4%	25.7%	32.1%	41.7%	29.4%
Hill Country	77.3%	54.0%	74.2%	33.0%	48.8%	58.3%
Mountain Land	6.4%	14.2%	0.1%	34.8%	8.6%	12.3%
Highly erodible land areas (hectares)	Wanganui	Whangaehu	Turakina	Rangitikei	Manawatu	Region
Landslide Connected	230370	44493	21853	56092	57919	440353
Landslide Connected – Not Protected	48248	29628	15795	22410	18779	146532
Landslide Disconnected	93156	17992	12544	14757	15871	162945
Landslide Disconnected – Not Protected	33428	11867	9581	10691	11693	81672
Moderate Earthflow	19273	555	1659	1082	5515	40283
Moderate Earthflow – Not Protected	12964	445	1426	917	4834	31591
Severe Earthflow	706	147	6	899	4902	17778
Severe Earthflow – Not Protected	560	133	6	615	4050	13733
Highly erodible land proportions (%)	Wanganui	Whangaehu	Turakina	Rangitikei	Manawatu	Region
Landslide Connected	32.35%	22.64%	22.62%	14.10%	9.70%	19.83%
Landslide Connected – not Protected	6.77%	15.07%	16.35%	5.63%	3.15%	6.60%
Landslide Disconnected	13.08%	9.15%	12.99%	3.71%	2.66%	7.34%
Landslide Disconnected – not Protected	4.69%	6.04%	9.92%	2.69%	1.96%	3.68%
Moderate Earthflow	2.71%	0.28%	1.72%	0.27%	0.92%	1.81%
Moderate Earthflow – not Protected Severe	1.82%	0.23%	1.48%	0.23%	0.81%	1.42%
Earthflow	0.10%	0.07%	0.01%	0.23%	0.82%	0.80%
Severe Earthflow – not Protected	0.08%	0.07%	0.01%	0.15%	0.68%	0.62%

<sup>11</sup> M. J. Page, J. Shepherd, et. al. (2005). Defining highly erodible land for Horizons Regional Council. Landcare Research Contract Report LC0506/050 (unpublished) for Horizons Regional Council. p. 18

<sup>12</sup> J. R. Dymond and J.D. Shepherd, et. al. 2006. Validation of a region-wide model of landslide risk in the Manawatu/Wanganui region of New Zealand. *Geomorphology* 74: 70-79.

<b>Total highly erodible land</b>	<b>Wanganui</b>	<b>Whangaehu</b>	<b>Turakina</b>	<b>Rangitikei</b>	<b>Manawatu</b>	<b>Region</b>
Area (hectares)	343505	63188	36062	72830	84207	661359
Proportion (%)	48.2%	32.1%	37.3%	18.3%	14.1%	29.8%
<b>Total highly erodible land – not protected</b>	<b>Wanganui</b>	<b>Whangaehu</b>	<b>Turakina</b>	<b>Rangitikei</b>	<b>Manawatu</b>	<b>Region</b>
Area (hectares)	95201 13.4%	42073	26808	34633	39356	273527
Proportion (%)		21.4%	27.7%	8.7%	6.6%	12.3%
<b>Total highly erodible land connected</b>	<b>Wanganui</b>	<b>Whangaehu</b>	<b>Turakina</b>	<b>Rangitikei</b>	<b>Manawatu</b>	<b>Region</b>
Area (hectares)	250349	45195	23517	58073	68336	498414
Proportion (%)	35.2%	23.0%	24.3%	14.6%	11.4%	22.4%
<b>Total highly erodible land connected – not protected</b>	<b>Wanganui</b>	<b>Whangaehu</b>	<b>Turakina</b>	<b>Rangitikei</b>	<b>Manawatu</b>	<b>Region</b>
Area (hectares)	61772	30206	17228	23942	27663	191855
Proportion (%)	8.7%	15.4%	17.8%	6.0%	4.6%	8.6%

## **FLOODING IN THE RANGITIKEI AND TAIHAPE INQUIRY DISTRICT**

65. Flooding has been one of the most recognisable natural hazards within the district. Risk is calculated by vulnerability and exposure to a hazard. It is important to consider flooding as a factor in environmental change as the conversion from indigenous forest to pasture has destabilised the steep slopes found in the district, resulting in more soil to remove during high rainfall events that eventually is transported and/or stored in fluvial systems increasing the flood risk.
66. In the Taihape Inquiry District two notable floods are identified: the 1897 and 2004 events. The 1897 the flood washed away all bridges recently installed on the river as well as the port at the mouth.<sup>13</sup> While there is no quantifiable data on river heights or impacts to land it has remained in the memory of the people settling the area.
67. In 2004 an intense rainstorm in the region resulted one of the largest floods in recorded history. Horizons Regional Council report that:
- 70% of the region was affected by the storm,
  - the direct economic impact of the storm to the region was \$300 million,

<sup>13</sup> See: David Alexander, 'The Rangitikei River, Its Tributary Waterways and Other Taihape Waterways', draft CFRT report, December 2011, Chapter 7.

- slipping occurred across 120,000 ha of hill country, with 30,000ha experiencing severe erosion,
- 200 million tonnes of soil was lost from the region,
- the lower Manawatu and Rangitikei River schemes experienced significant silt deposition in their lower reaches, and consequent reduction in flood protection levels.<sup>14</sup>

68. On a local agricultural level the Rangitikei catchment suffered significant impacts through the loss of soil and land sliding. Eighty per cent of the erosion occurred on soft mudstones with 35 per cent of all landslides occurring on slopes above 21°. Both of these characterise the Inquiry District in which 11,000 ha of the Rangitikei district were subjected to landslides.<sup>15</sup>

### Scoping brief issues

69. This chapter has covered the **environmental geography of the Taihape Inquiry District**. It describes the landscape and the available scientific data on the soils of the district. The chapter goes into detail on land use in the district and the **erosion** that is commonplace in the area. Following this is a section on the ‘Contamination of Soils in the Taihape Inquiry District’. This section focuses on the contamination of soil in the area through industrial practises associated with **bush clearance, timber milling, pastoral farming**, landfills and defence activities. These two sections are based on a review of the available scientific literature and data collected from local and central government reports.

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<sup>14</sup> L. Trafford, (2004). ‘Storm - Civil Emergency - Storm and Flood Report - February 2004’. Report Number: 2004/EXT/591, Horizons Regional Council, Palmerston North. ISBN: 1-877310-44-1.

<sup>15</sup> L. Trafford, (2004). ‘Storm - Civil Emergency - Storm and Flood Report - February 2004’. Report Number: 2004/EXT/591, Horizons Regional Council, Palmerston North. ISBN: 1-877310-44-1.

# CONTAMINATION OF SOIL IN THE TAIHAPE INQUIRY DISTRICT

## INTRODUCTION

### **The importance of soil**

70. Soil is the matrix that supports life on the planet, while the water of the soil (soil solution) is the life blood of this matrix. Soil is a complex structure of organic particles, inorganic particles and pore spaces that fill with air and water. Soil acts as a sink for many forms of contaminant that are discharged into the environment as a result of the land-based disposal of waste and waste solutions, wind- and rain-borne contamination, and through the use of agricultural chemicals. Low levels of contamination are often within a soil's capacity to treat and assimilate. However, when the level of contamination exceeds a critical level, the function of the chemical and biological processes that occur within the soil can be detrimentally affected.
71. Water movement through soil can transport contaminants deeper into the soil profile and eventually into groundwater. However this transport is in equilibrium with the attractive power of soil particles to bind contaminants. The movement of contaminants in soil is therefore a function of the specific chemical properties of each contaminant (solubility, charge, size etc.) and of the specific physical and chemical properties of a soil (soil organic matter and soil particle size).
72. Soil contains many species and large numbers of microorganisms which are essential to the health and function of soil. Soil microorganisms play an essential role in the cycling and degradation of both essential nutrients and contaminants. Soil contaminants that are toxic to these microorganisms can rapidly decrease a soil's ability to degrade and hold contamination. Therefore, the presence of one contaminant in the soil system may impinge upon the ability of a soil to assimilate other contaminants. Similarly, the presence of contaminants can mitigate the healthy functioning of the soil ecosystem to the detriment of primary production.

73. The soil conservation issues explored in this report relate to the Taihape Inquiry District because of the special significance of erosion in this region. The areas around the lower reaches of the river have not been examined as part of this report.

### Sources of contamination

74. The source of soil contamination may be well defined, such as discharge from a mine site, wastewater treatment plant, meatworks, or a timber treatment plant. In this scenario contamination is described as point-source. But often the exact discharge point of contamination cannot be defined; examples include fertiliser run off from wide areas of agricultural land, or animal effluent. Such contamination is described as non-point source.
75. Point source contamination is generally associated with specific industries and production sectors, whereas non-point source contamination is more pervasive and diverse. In New Zealand, agriculture is a significant contributor to non-point source contamination of soil.
76. Various industry sectors in New Zealand discharge contamination into non-soil media; for example metal smelting and refining operations, and hydrocarbon-burning power stations discharging into air, and paper mills discharging into water.
77. In the context of the Taihape Inquiry District, there are five activities involving contamination and soil degradation that are considered in this Report (Table 8: Assessed likely historic and current soil contamination-generating activities in *the Taihape Inquiry District*).

**Table 8:** Assessed likely historic and current soil contamination-generating activities in the Taihape Inquiry District

Activity	Type of contaminants	Source
Closed landfills and rubbish dumps	Heavy metals, nutrients and organic pollutants	Point source
Defence works	Heavy metals and organic pollutants	Point source
Timber treatment facilities	Heavy metal and organic pollutants	Point source

Historic pesticide treatment of pasture soils	Heavy metals and organic pollutants	Non-point source
Historic sheep dip sites	Heavy metal and organic pollutants	Point source

78. In areas of New Zealand subject to intensive agriculture, such as much of the Waikato and Taranaki, intensive agriculture itself can be considered both a point source and non-point source of pollution that will introduce nutrients, harmful microorganisms and inorganic (including heavy metal) contaminants into the environment. Intensive agriculture is not, however, considered a major source of contamination in the Taihape Inquiry District, due to the low stocking rate and hill country farming that is dominant throughout the area. Intensive agriculture is not considered as a vector for soil contamination in this report.
79. Reported data for contamination and degradation for the soils and land of the Taihape Inquiry District as a result of the activities in Table 8 has limited to non-existent availability. Thus the occurrence of these activities is reviewed in the context of posing likely environmental risk in the District. As a result of this scoping exercise, five follow-on case studies are proposed to research specific aspects of land contamination.

### **The Legal framework for contamination**

80. The Resource Management Act 1991 (RMA) was implemented with its stated purpose ‘to promote the sustainable management of natural and physical resources’. “Sustainable management” in this context means managing the use, development and protection of resources in a way, or at a rate, that enables New Zealanders to provide for their social, economic and cultural well-being, and provide for their health and safety.
81. The Resource Management Act 1991 defines ‘contaminant’ under section 2(1):

“*Contaminant*” includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat –

- When discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or

- When discharged onto or into land or into air, changes or is likely to change the physical, chemical or biological condition of the land or air onto or into which it is discharged

82. The Resource Management Act (1991) defines contaminated land under section 2(1):

“*Contaminated land*” means land of one of the following kinds:

- if there is an applicable national environmental standard on contaminants in soil, the land is more contaminated than the standard allows; or
- if there is no applicable national environmental standard on contaminants in soil, the land has a hazardous substance in or on it that –
  - has significant adverse effects on the environment; or
  - is reasonably likely to have significant adverse effects on the environment

83. The ‘RMA defines the environment to include ecosystems, people and communities, natural and physical resources, and amenity values. The RMA is designed to protect the environment through local government’s control of activities through plans and resource consents. It requires that local government control the discharge of contaminants to land to ensure that no new contaminated sites are created, and controls the effects of contaminated land on the environment’.<sup>16</sup>

84. Sections 30 and 31 of the RMA define, to some extent, the responsibility of local government with respect to contaminated land:

‘regional councils - the investigation of land for the purposes of identifying and monitoring land’

‘territorial authorities - the prevention or mitigation of any adverse effects of the development, subdivision, or use of contaminated land’.

85. In the context of the sustainable management of land, regional councils have responsibilities towards ensuring that natural resources are used sustainably: that air and water are protected against contaminant discharge; that land is protected against erosion

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<sup>16</sup> Ministry for the Environment, 2006. Working towards a comprehensive policy framework for managing contaminated land in New Zealand. A discussion paper. Report ME777, Ministry for the Environment, Wellington.

and natural hazards; that waste disposal practices have minimal impact on land and water quality; and that the population of the region that a council governs are educated and informed on issues of environmental awareness.

86. In carrying out these duties towards sustainable management, Regional Councils work with district and city councils, health authorities and Maori groups.
87. Vectors for hazard to human and animal health include: direct contact with contaminated soil (dermal absorption, ingestion or inhalation of dust particulates), or the consumption of food or water that has received a contaminant load from the soil<sup>17</sup>. The diet of many animals is known to contain up to 10% by dry weight of soil particles<sup>18</sup>.

### **Classification of land as contaminated**

88. The Hazardous Activities and Industries List (HAIL) defines industries and activities that could use or store hazardous substances that could lead to site contamination. Scenarios for contamination include escape of substances from storage, disposal of substances on site, or loss of substances into the environment through their use.<sup>19</sup>
89. Allocation of an industry or activity to the HAIL does not necessarily define a specific location as contaminated. Likewise, non-allocation of an industry or activity to the HAIL does not necessarily define a specific location as not-contaminated. Each case must be considered on its merits. The HAIL guides all regional and local councils in the management and reporting of sites that may pose an environmental risk.
90. Risk of contamination is based on historic land use. Past activities should be reconciled with the HAIL. If past land use for a specific site is found on the HAIL then risk of contamination exists. However, unless current files on a site are held by regional

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<sup>17</sup> Lentz, M., Kennedy, P., Jones, P., Hickey, C., Mills, G., Fisher, G. and Eason, G., 1998. Review of environmental performance indicators for toxic contaminants in the environment – air, water and land. Technical Paper No. 37. Report prepared for the Ministry for the Environment, Wellington.

<sup>18</sup> Beyer N.W., Conner, E. and Gerould, S., 1994. Survey of soil ingested by wild life. *The Journal of Wildlife Management*, 58: 375-382.

<sup>19</sup> [www.mfe.govt.nz/issues/hazardous/contaminated/hazardous-activities-industries-list.html](http://www.mfe.govt.nz/issues/hazardous/contaminated/hazardous-activities-industries-list.html)

councils such as Horizons Regional Council, the only way to confirm the status of contamination is to conduct a site investigation.

91. Under the Resource Management Act, the landowner is generally responsible and liable for cleaning up a site, even if contamination was caused by a previous owner.<sup>20</sup>

HAIL (updated in October 2011 from Schedule A, first released in January 2004)

- A Chemical manufacture, application and bulk storage
1. Agrichemicals including commercial premises used by spray contractors for filling, storing or washing out tanks for agrichemical application
  2. Chemical manufacture, formulation or bulk storage
  3. Commercial analytical laboratory sites
  4. Corrosives including formulation or bulk storage
  5. Dry-cleaning plants including dry-cleaning premises or the bulk storage of dry-cleaning solvents
  6. Fertiliser manufacture or bulk storage
  7. Gasworks including the manufacture of gas from coal or oil feedstocks
  8. Livestock dip or spray race operations
  9. Paint manufacture or formulation (excluding retail paint stores)
  10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds
  11. Pest control including the premises of commercial pest control operators or any authorities that carry out pest control where bulk storage or preparation of pesticide occurs, including preparation of poisoned baits or filling or washing of tanks for pesticide application
  12. Pesticide manufacture (including animal poisons, insecticides, fungicides or herbicides) including the commercial manufacturing, blending, mixing or formulating of pesticides
  13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground
  14. Pharmaceutical manufacture including the commercial manufacture, blending, mixing or formulation of pharmaceuticals, including animal remedies or the manufacturing of illicit drugs with the potential for environmental discharges
  15. Printing including commercial printing using metal type, inks, dyes, or solvents (excluding photocopy shops)
  16. Skin or wool processing including a tannery or fellmongery, or any other commercial facility for hide curing, drying, scouring or finishing or storing wool or leather products
  17. Storage tanks or drums for fuel, chemicals or liquid waste
  18. Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside

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<sup>20</sup> [www.ew.govt.nz/Environmental-information/Hazardous-substances-and-contaminated-sites/Contaminated-sites/Managing-contaminated-sites/](http://www.ew.govt.nz/Environmental-information/Hazardous-substances-and-contaminated-sites/Contaminated-sites/Managing-contaminated-sites/)

- B Electrical and electronic works, power generation and transmission
1. Batteries including the commercial assembling, disassembling, manufacturing or recycling of batteries (but excluding retail battery stores)
  2. Electrical transformers including the manufacturing, repairing or disposing of electrical transformers or other heavy electrical equipment
  3. Electronics including the commercial manufacturing, reconditioning or recycling of computers, televisions and other electronic devices
  4. Power stations, substations or switchyards
- C Explosives and ordnance production, storage and use
1. Explosive or ordnance production, maintenance, dismantling, disposal, bulk storage or re-packaging
  2. Gun clubs or rifle ranges, including clay target clubs that use lead munitions outdoors
  3. Training areas set aside exclusively or primarily for the detonation of explosive ammunition
- D Metal extraction, refining and reprocessing, storage and use
1. Abrasive blasting including abrasive blast cleaning (excluding cleaning carried out in fully enclosed booths) or the disposal of abrasive blasting material
  2. Foundry operations including the commercial production of metal products by injecting or pouring molten metal into moulds
  3. Metal treatment or coating including polishing, anodising, galvanising, pickling, electroplating, or heat treatment or finishing using cyanide compounds
  4. Metalliferous ore processing including the chemical or physical extraction of metals, including smelting, refining, fusing or refining metals
  5. Engineering workshops with metal fabrication
- E Mineral extraction, refining and reprocessing, storage and use
1. Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition
  2. Asphalt or bitumen manufacture or bulk storage (excluding single-use sites used by a mobile asphalt plant)
  3. Cement or lime manufacture using a kiln including the storage of wastes from the manufacturing process
  4. Commercial concrete manufacture or commercial cement storage
  5. Coal or coke yards
  6. Hydrocarbon exploration or production including well sites or flare pits
  7. Mining industries (excluding gravel extraction) including exposure of faces or release of groundwater containing hazardous contaminants, or the storage of hazardous wastes including waste dumps or dam tailings
- F Vehicle refuelling, service and repair
1. Airports including fuel storage, workshops, washdown areas, or fire practice areas
  2. Brake lining manufacturers, repairers or recyclers
  3. Engine reconditioning workshops
  4. Motor vehicle workshops
  5. Port activities including dry docks or marine vessel maintenance facilities

6. Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas
7. Service stations including retail or commercial refuelling facilities
8. Transport depots or yards including areas used for refuelling or the bulk storage of hazardous substances

G Cemeteries and waste recycling, treatment and disposal

1. Cemeteries
2. Drum or tank reconditioning or recycling
3. Landfill sites
4. Scrap yards including automotive dismantling, wrecking or scrap metal yards
5. Waste disposal to land (excluding where biosolids have been used as soil conditioners)
6. Waste recycling or waste or wastewater treatment

H Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment

I Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

92. The New Zealand Waste Strategy developed in 2002 in partnership with local government sets out an ambitious target for contaminated site investigation<sup>21</sup>:

93. By December 2008, all sites on the HAIL will have been identified and subjected to a rapid screening system in accordance with the Ministry's guidelines (this objective does not appear to have been met). By December 2010, all sites on the HAIL will have been subject to a rapid screening system, in accordance with Ministry guidelines, and a remediation programme will have been developed for those that qualify as high-risk. By December 2015, all high-risk contaminated sites will have been managed or remediated. A timeframe will have been developed to address the management or remediation of remaining sites. There is no reporting on the extent to which the target for December 2010 was met, and there is no available progress report as to work towards the attainment of the December 2015 target.

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<sup>21</sup> Ministry for the Environment, 2002. The New Zealand waste strategy. Ministry for the Environment, Wellington.

## Reporting on contaminated sites

94. The Ministry for the Environment has generated a set of guidelines that ensures consistency of reporting on the investigation, assessment and remediation of contaminated sites.<sup>22</sup>
95. New Zealand guidelines on the investigation, assessment, remediation and monitoring for the specific land uses of gasworks, petroleum hydrocarbon contaminated land, and timber treatment sites have been issued by the Ministry for the Environment.<sup>23</sup>
96. Five reporting stages have been defined as necessary to track the investigation of a contaminated site from inception to closure or long-term management:
- *Preliminary site inspection report* that presents site history, condition and the likelihood of contamination
  - *Detailed site investigation report* that presents comprehensive data on the type, extent, concentration and dispersal risk of contamination as determined through an appropriate sampling and analysis program
  - *Site remedial action plan* that will establish on-site and off-site remediation targets as required by post-remedial land use
  - *Site validation report* to match remediation goals with outcomes
  - *Ongoing monitoring and management plan*
97. Landowners have no duty to report on the contamination status of their land, or on the remediation measures they may have undertaken, if there are no off-site effects. Instead, the investigation of land for the purposes of identifying and monitoring contamination is a function of regional councils.
98. Gaining access to information on contaminated land can be a difficult and time consuming process. With regard to contaminated sites, there is perceived uncertainty among the relevant agencies (district and city councils, regional councils, public health

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<sup>22</sup> Ministry for the Environment, 2003. Contaminated land management guidelines No. 1 – Reporting on contaminated sites in New Zealand. Report ME492, Ministry for the Environment, Wellington.

<sup>23</sup> [www.mfe.govt.nz/issues/contam.htm](http://www.mfe.govt.nz/issues/contam.htm)

agencies) on how they should work together and assign roles with respect to contaminated land. Several reasons are outlined in a 2007 submission report<sup>24</sup>:

- The inability of councils to require clean-up of land contaminated prior to the RMA 1991 [no clear liability for pre 1991 sites]
- Variable awareness of RMA functions
- Lack of clarity regarding the contaminated land functions of the RMA
- The number of agencies involved

99. Regional councils have a function under the RMA to investigate land for the purposes of identifying and monitoring contaminated land. However, most regional councils claim this is a difficult function to fulfil. Reasons given are:

- Costs and resources required to identify and investigate sites are high
- Landowners/occupiers are not compelled to report contamination; no incentive exists to disclose potential sites. In fact, the threat of potential liability is often a sufficient reason for a landowner to avoid reporting sites, or to actively hide possible contamination
- Decreasing awareness of the exact location of sites due to the sale of land or retirement/passing of original owners

100. Councils similarly have clear responsibility through the RMA 1991, as well as the Local Government and Official Information and Meetings Act 1987, and the Building Act 2004, to record and report hazardous substances on land. However, this information is poorly managed due to:

- Poor communication between regional councils and district and city council databases
- The quality of relevant land information databases
- An overly cautious approach by some councils on the release of information, due to a fear of alarming landowners, potential landowners, or the public. The subject of land contamination is contentious.

101. Detailed information can be obtained if the correct questions are asked. Under the Local Government Official Information and Meetings Act (1987), upon written application, all territorial authorities are required to disclose all held information pertinent to a parcel of

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<sup>24</sup> Ministry for the Environment, 2007. Working towards a comprehensive policy framework for managing contaminated land in New Zealand. Report on submissions. Report ME835, Ministry for the Environment, Wellington.

land, including any information on the likely presence of hazardous contaminants, in the form of a land information memorandum (LIM)<sup>25</sup>.

## **HAIL sites in the Taihape Inquiry District**

102. Regional councils hold details on the types of contamination that are known or believed to exist on land within their jurisdiction. The usefulness of this data varies across councils, but in general Horizons holds good records. This means that a territorial authority can be asked to provide the number and type of contaminated sites that exist in a certain area.
103. Horizons Regional Council was contacted as part of this investigation. While regional council policy is ‘generally not to release bulk information on contaminated sites as it may contain details on sites which are yet to be substantiated’ (as could be expected given the contentious nature of contamination), Horizons did provide an assessment of the number of sites in the Taihape Inquiry district that are on Horizons records as being contaminated, likely contaminated or remediated (Table 9). This list was populated by intersecting the HAIL data held by Horizons and the shape file (GIS) of the Inquiry District provided by CFRT.
104. There are 18 sites on the HAIL list for the Taihape Inquiry District. This includes all sites that have been identified as contaminated or likely contaminated and includes sites where contamination has been deemed as acceptable, or managed.
105. Reflecting the types of land use activities on the HAIL list practised in a rural area such as the Inquiry District, the majority of sites on the HAIL list relate to service stations, vehicle workshops and storage facilities (11 of 18 locations). In all cases the contamination at these locations has been a) assessed and either defined as acceptable, b) managed through containment to mitigate any environmental risk, or c) remediated.
106. A single site attributed to power transformers appears on the HAIL site inside the Inquiry District. Contamination attributed to this type of hazardous and industrial land use is

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<sup>25</sup> [www.mfe.govt.nz/issues/hazardous/contaminated](http://www.mfe.govt.nz/issues/hazardous/contaminated)

related to the oil used as a lubricant in the transformers (persistent organic pollutants in the form of PCBs). At this location contamination is regarded as acceptable, or managed through remediation or other strategy.

107. There are three landfill sites in the Rangitikei District within the boundaries of the Inquiry District that are defined as potentially contaminated as a result of land use activity. This means that these landfill sites have not been assessed for contamination by way of a formal environmental impact assessment.

**Table 9:** Extract from the Horizons Regional Council HAIL list of sites within the Taihape Inquiry District.

Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Storage tanks and drum storage
Contamination Managed/Remediated	Acceptable	MANAWATU DISTRICT	Storage tanks and drum storage
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Electrical manufacturing (transformers)
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Service stations
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Motor Vehicle Workshops
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Motor Vehicle Workshops
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Storage tanks and drum storage
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Service stations
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Storage tanks and drum storage
Unverified History of Hazardous Industry or Activity		RANGITIKEI DISTRICT	Landfill site
Unverified History of Hazardous Industry or Activity		RANGITIKEI DISTRICT	Landfill site
Unverified History of Hazardous Industry or Activity		RANGITIKEI DISTRICT	Landfill site
Contamination Confirmed		RUAPEHU DISTRICT	Defence works
Unverified History of Hazardous Industry or Activity		RANGITIKEI DISTRICT	Wood preservative
Contamination Managed/Remediated	Acceptable	RANGITIKEI DISTRICT	Storage tanks and drum storage
Contamination Managed/Remediated	Acceptable	MANAWATU DISTRICT	Service stations
Contamination Managed/Remediated	Acceptable	RUAPEHU DISTRICT	Service stations
Verified History of Hazardous Activity or Industry		RANGITIKEI DISTRICT	Chemicals manufacture and formulation

108. A single hazardous and industrial land use is attributed to defence works in the Ruapehu District. There is no indication of the nature of contamination, however the status as ‘contamination confirmed’ indicates that an environmental impact assessment has been conducted. An appropriate remediation or environmental management plan for this location should be implemented.
109. There is a single verified listing of ‘chemical manufacture and formulation’ in the Rangitikei District. This indicates that an activity that may have led to contamination did occur at this location. No research has been conducted to identify the location of this listing.
110. There is a single unverified listing of ‘wood preservative’ in the Rangitikei District. This indicates that timber treatment using chemicals known to lead to contamination may have occurred at this location. No research has been conducted to identify the location of this listing.

### **Specific detail on potentially contaminated HAIL-listed locations in the Inquiry District**

111. No specific contaminated sites (at a defined location) have been identified during the course of this investigation. The Rangitikei District Council released a State of the Environment report for the Rangitikei District in 2004<sup>26</sup> which described a number of contaminated sites in Bulls and Marton. But no specific mention was made of sites within the Inquiry District.
112. The Ruapehu District Council has no system of state of the environment reporting, but did release a State of the Region report in 2008<sup>27</sup>. There was no mention of soil contamination or degradation in this report.

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<sup>26</sup> Thomas, P. and Cowie, B., 2004. The State of the Rangitikei Environment. Report prepared for the Rangitikei District Council. 63 pp.

<sup>27</sup> Ruapehu District Council, 2008. Ruapehu 2008 State of the District Report. Community Outcomes Monitoring. 39 pp.

## Landfills in the Inquiry District

113. The 2004 Rangitikei District Council State of the Environment Report states that all landfills in the Rangitikei District were closed by 2001, fenced off, capped and replanted where necessary. The last formal landfill to close was that in Hunterville. In 2001 the district council commissioned the engineering consultancy Tonkin and Taylor to assess the 20 formal and informal landfills and dumps that operated in the district prior to 2001.

114. The commentary on this Tonkin and Taylor report as presented in the State of the Environment Report is as follows:

The resulting report gave a generally clean bill of health to all the closed sites, although there were a few issues with site stability at Taihape and compliance at Hunterville. There were also some recommendations made about post closure care, particularly regarding whether the old landfill surface could appropriately be grazed, and whether or not trees should be planted.

These recommendations have generally been implemented. The old Taihape landfill has now been capped. There is no evidence of compliance issues at any of the consented landfills owned by the RDC.

115. The commentary presented by Rangitikei District Council indicates that there is no legacy of contamination associated with landfills in the Rangitikei District. Assuming that the three landfills on the HAIL list for the Taihape Inquiry district are those at Taihape, Hunterville and Mangaweka, the 2004 Rangitikei District Council State of the Environment Report suggests that the landfill sites listed in Table 9 do not present an unacceptable level of environmental contamination.

116. The potential for contamination at landfills and dumps in the Inquiry District is an issue that was voiced by several claimants during interviews on 21 November 2011. A well designed landfill has a liner designed to trap contained waste and to prevent the discharge of such waste over time. However, where this liner fails, a landfill can leach a liquid discharge over time. This leachate may contain a range of chemical contaminants including nutrients (from decomposing waste), heavy metals (for example lead from lead-acid batteries) and organic pesticides (from discarded containers). Specific mention was made of the Taihape landfill (two sets of claimants) as well as dumps sites at Uruku and Moawhango, and an old landfill near the Mokai Gravity Canyon bungee jump.

117. It is recommended that a short case study be commissioned to verify the accuracy of statements on land contamination made in the 2004 Rangitikei District State of the Environment Report. This case study should review all Rangitikei District Council held information pertinent to landfills and dumps in the Rangitikei District, and cross reference this to sites within the boundaries of the Taihape Inquiry District. This exercise would require review of the Tonkin and Taylor report. A follow up site visit is proposed to each significant and identifiable location. Samples of any leachate observed at discharge points from each landfill would be collected during the site visit for chemical analysis (nutrients and heavy metals).

### **Contamination at defence works**

118. A legacy of environmental contamination can be expected at defence works and is associated with the use of military munitions. Contamination can be inorganic (heavy metals that make up the munitions) or organic (nitrogen-based military explosives). Organic contamination, owing to residual levels of explosives and the breakdown products of these explosives in soil, is considered to present a major human health risk at military testing and shooting ranges around the world.

### **Heavy metals**

119. Lead (Pb) and to a lesser extent antimony (Sb) are common contaminants at military shooting ranges (MSRs). On average, bullets and pellets consist of over 90% Pb, 1-7% antimony (Sb), with minor constituents of arsenic (As), nickel (Ni), copper (Cu) and zinc (Zn).<sup>28</sup> Low-quality Pb, from which bullets are made, may also contain bismuth (Bi) and silver (Ag).<sup>29</sup> Tracer and incendiary bullets contain strontium (Sr), barium (Ba) and Zn.<sup>30</sup>
120. These elements do not degrade in soil, but can be slowly released over time from individual bullets or pellets and contaminate soil water. From here, these potentially

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<sup>28</sup> Rooney, C.P., McLaren, R.G. and Cresswell, R.J., 1999. Distribution and phytoavailability of lead in a soil contaminated with lead shot. *Water, Air and Soil Pollution*, 116: 535-548

<sup>29</sup> Johnson, C.A., Moench, H., Wersin, P., Kugler, P., Wenger, P., 2005. Solubility of antimony and other elements in samples taken from shooting ranges. *Journal of Environmental Quality*, 34: 248-254

<sup>30</sup> Robinson, B.H., Bischofberger, S., Stoll, A., Schroer, D., Furrer, G., Roulier, S., Gruenwald, A., Attinger, W. and Schulin, R., 2008. Plant uptake of trace elements on a Swiss military shooting range: Uptake pathways and land management implications. *Environmental Pollution*, 153: 668-676.

harmful heavy metals can move into ground water, or be taken up by plants for transfer into animals.

## **Military explosives**

121. The two chemical compounds 2,4,6-trinitrotoluene (TNT) and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) have been used extensively as military explosives since World War II. Of these chemicals, RDX has become an extensive global pollutant in the last 50 years and there are mounting concerns over the toxicity of RDX to biological systems<sup>31</sup>.
122. RDX is resistant to degradation in soil, and is therefore known to exist for many years at contaminated sites.
123. Environmental contamination associated with military explosives can occur at live firing ranges where residues can be widely and heterogeneously dispersed, or where munitions fail to explode. The casing of this unexploded ordnance can subsequently corrode or break open releasing the explosive to the environment.
124. Detailed reporting on the nature and extent of contamination in the Ruapehu District associated with defence works may be difficult due to the secrecy and confidentiality that surrounds military establishments. A future case study could be commissioned to research this issue in detail.

## **Wood preservatives: Antisapstain fungicides and timber preservatives**

125. When exotic tree species such as *Pinus radiata* are cut, natural populations of fungi rapidly colonise the outer ring of young growing wood, or sapwood. The excretions from the fungi discolour the wood. In the case of pine, this discolouration appears as a dark blue stain. The damage to wood is purely cosmetic; there is no reduction in wood strength. However, the cosmetic damage affects the domestic and export value of the

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<sup>31</sup> Rylott, E.L., Jackson, R.G., Sabbadin, F., Seth-Smith, H.M.B., Edwards, J., Chong, C.S., Strand, S.E., Grogan, G. and Bruce, N.C., 2011. The explosive-degrading cytochrome P450 Xp1A: Biochemistry, structural features and prospects for bioremediation. *Biochimica et Biophysica Acta*, 1814: 230-236.

timber<sup>32</sup>. Potent fungicides (antisapstain agents) are therefore used to prevent fungal attack on the timber as it is dried prior to processing.

126. Current timber treatment is by way of the metals copper, chromium and arsenic (CCA) and the element boron. Historic timber treatment was by way of the chemical pentachlorophenol (PCP). In current operations, CCA is impregnated into sawn timber under pressure. Protection against insect attack is primarily afforded by arsenic, while protection against fungal decay is afforded by copper and chromium, as well as boron.
127. The CCA treatment process uses water soluble salts of the constituent elements:<sup>33</sup>
128. **Chromium** – soluble salts of sodium dichromate, chromic acid and chromic oxide. Chromium exists in two chemical states: trivalent chromium or Cr (III) and hexavalent chromium or Cr(VI). Cr(III) is not classified as carcinogenic, but will cause adverse skin reactions, asthma and irritation of mucous membranes. Cr(VI) is regarded as a carcinogen as a result of chronic exposure through inhalation, and will cause similar sensitivity effects to Cr(III). Cr(VI) is considered 1,000 times more toxic than Cr(III)<sup>34</sup>.
129. **Copper** – soluble salts of copper sulphate and copper oxide. Chronic exposure to high levels of copper will result in human health effects. Copper is not regarded as a carcinogen, and is an essential trace element for both plants and animals.
130. **Arsenic** – soluble salts of arsenic pentoxide and sodium pyroarsenate. Arsenic has been implicated in causing both carcinogenic and non-carcinogenic health effects in humans, and is classified as a confirmed carcinogen. Long-term exposure to arsenic has been linked to lung cancer (through inhalation) and skin cancer (contaminated drinking water). Non carcinogenic effects on the central nervous system and organs have been recorded.

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<sup>32</sup> Thwaites, J.M., Farrell, R.L., Duncan, S.M., Reay, S.D., Blanchette, R.A., Hadar, E., Hadar, Y., Harrington, T.C., McNew, D., 2005. Survey of potential sapstainfungi on *Pinus radiata* in New Zealand. *New Zealand Journal of Botany*, 43: 653-663.

<sup>33</sup> Ministry for the Environment and Ministry of Health, 1997. Health and environmental guidelines for selected timber treatment chemicals. Wellington.

<sup>34</sup> [http://www.atsdr.cdc.gov/csem/chromium/exposure\\_pathways.html](http://www.atsdr.cdc.gov/csem/chromium/exposure_pathways.html)

131. **Boron**, as the water soluble boric acid, was historically used in combination with PCP. Boron is highly mobile in aquatic systems. The element is not regarded as carcinogenic, but is toxic to humans at high concentrations. Boron is an essential trace element for plants, but is not an essential element for animals. At high concentrations boron has strong antiseptic properties.
132. Water insoluble **PCP** was either used as a sodium salt (NaPCP) or dissolved in an oil carrier such as diesel or creosote; PCP is insoluble in water unless it exists in combination with sodium. PCP and NaPCP were generally contaminated with other organochlorines such as dioxin during the manufacturing process. The current classification of PCP as a carcinogen is unclear and this is due to limited data. However, contaminating chemicals associated with PCP are carcinogenic. Non carcinogenic human response effects to PCP are: irritation of skin, mucous membranes and the respiratory tract, depression, headaches and changes in kidney and liver function. Additional contaminants associated with oil or creosote used to dissolve PCP include petroleum and aromatic hydrocarbons (phenols and benzenes).
133. All historic and current timber treatment locations can be regarded as potential locations for contamination. At all timber treatment locations there is a risk of chemical spill, improper disposal, or dripping of chemicals from the treated timber. The apparent risk increases with the size and age of the timber treatment facility.
134. The listing of one unverified location where timber treatment chemicals were used on the HAIL database for the Taihape Inquiry District indicates that only limited (if any) timber treatment has occurred within the Inquiry District. The potential for land contamination owing to this activity is therefore low. It must be noted that treatment is only necessary for exotic tree species such as *Pinus radiata*, and is therefore not expected for locations where native timber was milled.
135. There are several possible locations for this listing on the HAIL database for the Inquiry District. A likely location is the Hautapu Pine facility on State Highway 1, north of Taihape, however through interviews on 21 November 2011 with the claimants for this scoping study, a historic mill at Utuku was described. A short case study could be

commissioned to confirm the identity of this location and to verify the likely extent of contamination that might be expected.

### **The process of release of regional-council managed HAIL information**

136. Policies that regulate the disclosure of information on contaminated sites changed in 2009 when the Ombudsman ruled that the Hawke's Bay Regional Council had no grounds to refuse a request made under the Official Information Act to issue the location of all HAIL listed potentially contaminated sites in Hawke's Bay (1800 sites).<sup>35</sup> The Hawke's Bay Regional Council subsequently released information on the 1800 contaminated sites in the region. The Environment Minister, Mr. Nick Smith, stated at the time that other regional councils must follow this ruling. The precedent was therefore set in 2009 for greater access to existing data on contaminated sites.
137. Horizons Regional Council accepted the ruling of the Ombudsman and began to release details of HAIL sites within the region from late 2009. Horizons regard the list of HAIL sites to be public information, and provide specific information on land parcels when asked.<sup>36</sup> The information presented as Table 9 is the limit of Horizons' disclosure to a general query such as that presented for this report. More detailed disclosure involves staff time, and where more significant work is required, then cost-recovery can be expected from the requesting party.
138. The most cost-effective way to check the contamination status of a specific piece of land is to request a Land Information Memorandum. However, the Ombudsman's ruling has opened up the possibility of commissioning a regional council to prepare a detailed report on all land contamination information held by a territorial authority for a general area. Both options have an associated cost.
139. In the opinion of the author of this section of the report, information from the HAIL database must be used appropriately and with care. As has been stated, the listing of a

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<sup>35</sup> <http://www.stuff.co.nz/environment/2716393/Ruling-to-affect-land-values>

<sup>36</sup> Personal correspondence with Alison Russell, Environmental Protection Manager for Horizons Regional Council, 15 Dec 2011.

site on the HAIL does *not* classify the site as contaminated. It simply describes the site as being potentially contaminated.

## **Guideline values for soil and water contamination**

140. Around the world numerous data sets have been generated by scientists and regulations have been created to define safe levels for contaminant concentrations in soil and water. These values are based on the intended use of the soil or water, and the particular selection criteria upon which definition is made (e.g. human health, livestock health or ecosystem protection). The New Zealand Ministry for the Environment / Ministry of Health has defined drinking water standards<sup>37</sup>. The Australia New Zealand Environmental Conservation Council (ANZECC) has defined safe standards for marine and fresh water quality<sup>38</sup>. The National Environmental Protection Council (of Australia) has defined investigation levels for contaminants in soil and groundwater<sup>39</sup>.
141. It is not possible to produce a generic list of critical values for specific contaminants at which contamination becomes an issue of concern for the environment. The New Zealand Ministry for the Environment has generated a user-friendly database that can be downloaded and interrogated to investigate critical values for contaminants in soil and water<sup>40</sup>, and the reader is directed to this database for further information.
142. In some cases critical or investigation levels have not been defined in New Zealand, or, alternatively, these values may not be relevant. Foreign systems are therefore often quoted. Examples include the United States Environmental Protection Agency (USEPA), Dutch Intervention Values (DIV), and the Canadian Environmental Quality Guidelines.

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<sup>37</sup> <http://www.mfe.govt.nz/publications/water/nz-drinking-water-standards-00.html>

<sup>38</sup> ANZECC, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).

<sup>39</sup> NEPC, 1999. National Environmental Protection (Assessment of Site Contaminants) Measure 1999. Adelaide, Australia.

<sup>40</sup> <http://www.mfe.govt.nz/issues/hazardous/contaminated/egv-database.html>

143. The Ministry for the Environment has defined guideline values to assess whether land is contaminated for four specific former land uses<sup>41</sup>:

1. Gas works
2. Petroleum hydrocarbon (production or storage)
3. Timber treatment contaminated sites
4. Former sheep dip sites

### **Chemical contamination of primary production environments**

144. The term ‘pesticides’ is used by the New Zealand Ministry for the Environment as an all encompassing term to describe all chemical ‘pest’ control agents in New Zealand’s primary production environments (i.e. farms and forests)<sup>42</sup>. Use of the term ‘pesticides’ in this manner follows the convention of the United Nations Food and Agricultural Organisation (UN-FAO).

145. In this sense, ‘pesticides’ is used to describe the following:

- Herbicides (to kill weeds)
- Insecticides (to kill insects) [including heavy metals]
- Fungicides (to control fungus disease) [including heavy metals]
- Plant and insect regulators (to synchronise the development of pest populations and alter the growth of plants)
- Rodenticides and other vermin control agents (to kill rats and other vertebrate pests)
- Acaricides (to kill spiders and mites)
- Fumigants that kill borer in houses, or sterilise soil, or treat imported goods
- Non-agricultural pesticides or ‘biocides’ (e.g. timber treatment chemicals, and compounds used in industry to prevent algal growth in pipes)

146. In the context of this report, the term ‘pesticides’ is used to describe both agricultural and non-agricultural herbicides, insecticides and fungicides.

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<sup>41</sup> <http://www.mfe.govt.nz/issues/hazardous/contaminated/how-land-contaminated.html>

<sup>42</sup> Ministry for the Environment, 2002. Towards a pesticides risk reduction policy for New Zealand. Public discussion paper. Report 427, Ministry for the Environment, Wellington

## Primary production environments

147. With respect to pesticide use, The Royal Commission on Genetic Modification considers three land management systems:<sup>43</sup>
- ‘Conventional’ farming and horticulture where weeds and pests are generally controlled by pesticides. This is the dominant system in New Zealand agriculture, horticulture and silviculture
  - An integrated pest management (IPM) system where chemical use is minimised through target pesticide use, pest life cycle knowledge and the promotion of symbiotic reactions in the soil/plant system
  - Organic farming; only organic regulated pesticides are permissible
148. Current use of pesticides in New Zealand’s primary production sector is limited to:
- Herbicide use during the development phase of exotic forest
  - Aerial application of copper to forestry as a fungicide
  - Ectoparasite and endoparasite control
  - Herbicides to control woody and broadleaf weeds (16-33% of total usage)
149. These four modes of application have remained essentially unchanged over the past 60 years. What has changed is the type of chemical used for each application.
150. There is very little environmental monitoring of pesticide use by regional or district councils. A regular system for data collection on pesticide use at either the regional or national level is similarly lacking. Actively recorded pesticide data is limited to levels in groundwater, the concentration of certain historic (deregistered) pesticides in soil at known and investigated contaminated sites, and, in some areas, the background level of registered (at the time) or deregistered pesticides in agricultural soils.

## Contaminants of Concern

151. The Ministry for the Environment has defined a broad list of contaminants relevant to New Zealand’s primary production environments<sup>44</sup>:

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<sup>43</sup> *ibid*

- Persistent organic pollutants (POPs)
- Metals
- Polycyclic aromatic hydrocarbons (PAHs)
- Pesticides/herbicides [specific to insects/plants]
- Phthalates
- Others (asbestos, substance 1080, paper industry chemicals)
- Ammonia and nitrate

152. **POPs** are defined under the Stockholm convention (The United Nations Convention on POPs) as:

- Nine pesticides: Aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, hexachlorobenzene and toxaphene
- PCBs (polychlorinated biphenyls)
- Dioxins and furans (polychlorinated dibenzo-p-dioxins or PCDDs and polychlorinated dibenzofurans or PCDFs). This includes PCP.

153. POPs are a worldwide problem. They have been found on every continent, in every geographical region, and in every major climatic zone. Transfer is a function of their long half-life, bioaccumulation potential and in many cases, semi-volatility. This means that POPs can travel long distances and accumulate in locations that may be thousands of kilometres from their point of discharge. POPs accumulate in soil, sediment, the fat of fish and terrestrial animals, and human breast milk.

154. Human symptoms associated with POP contamination are: cancer, neurotoxicity, immunotoxicity and behavioural and reproductive effects. Similar symptoms have been reported in animals. A well publicised case of POP poisoning was the decline of the North American Bald Eagle population in the 1980s. This was attributed to high concentrations of DDT effecting eggshell thinning with a resultant increased mortality of developing chicks.

155. Persistent organic pollutants (POPs) are described in the context of New Zealand agriculture as ‘intractable agricultural chemicals.’ Concern over POPs in NZ has

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<sup>44</sup> Lentz, M., Kennedy, P., Jones, P., Hickey, C., Mills, G., Fisher, G. and Eason, G., 1998. Review of environmental performance indicators for toxic contaminants in the environment – air, water and land. Technical Paper No. 37. Report prepared for the Ministry for the Environment, Wellington.

increased over recent years due to detection of these chemicals in the environment. For example, in the blood of humans<sup>45</sup>, and in New Zealand's fauna such as the rare Hector's dolphin<sup>46</sup>.

156. **Metals** includes the heavy metals copper, chromium and the metalloid arsenic. Metals regularly enter the soil environment through land-based application of waste and effluent. Discharge from timber treatment facilities can lead to soil contamination with copper, chrome and arsenic (CCA). High natural levels of mercury in geothermal areas can lead to metal contamination of soils and sediments. Several heavy metals are also associated with agricultural products such as fungicides and fertiliser. Agricultural sources of heavy metal contamination will be considered in this section.
  
157. **Polyaromatic hydrocarbons** have been identified as a significant contaminant in the New Zealand environment<sup>47, 48</sup>, however PAH contamination is associated with industrial activities and the transport sector, not forestry or agriculture, and thus is not investigated in this Report. There is, however, limited superficial evidence for PAH contamination within the Taihape Inquiry District. This is due to the classification of service stations, workshops and storage facilities within the District (likely locations for contamination) as having an acceptable level of contamination, or alternatively being remediated or managed.
  
158. Many **pesticides** (and **herbicides**) historically used in New Zealand are POPs. Soil residues associated with two herbicides used last century that had known levels of POP contamination, 2,4,5-T and DDT, are of concern in the New Zealand environment. The potential for pesticide residues in the Taihape Inquiry District will be considered in this section.

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<sup>45</sup> Hannah, D.J., Banks, L.H., Buckland, S.J., Dye, E.A., Hoffman, K.A., Leathem, S.V., Porter, L.J., van Maanen, T., 1994. Polychlorinated dibenzo-p-dioxins and dibenzofurans in the blood of New Zealanders. *Organohalogen Compounds*, 21: 277-280.

<sup>46</sup> Ministry for the Environment, 1997. The state of New Zealand's environment (1997). Ministry for the Environment, Wellington.

<sup>47</sup> Ministry for the Environment, 1997. Environmental performance indicators. Proposal for air, fresh water and land. Ministry for the Environment, Wellington.

<sup>48</sup> Ministry for the Environment, 1997. Guidelines for the management of contaminated gasworks sites in New Zealand. Ministry for the Environment, Wellington.

159. **Phthalates, asbestos and 1080 poison** have not been investigated, although it should be noted that there is potential for 1080 contamination of soil throughout the Taihape Inquiry District due to possum control in the native forests of the area. The pesticide 1080 is an organic chemical compound containing the active ingredient fluoroacetate and is highly toxic to all mammals. However, 1080 is not a persistent organic pollutant (POP), and is readily degraded in soil. The chemical can be taken up by plants, but the levels accumulated pose very limited risk to consumers of these plants, whether the end use is food or medicine. An assessment by Landcare Research showed that 1080 had limited toxicity to earthworms and soil bacteria<sup>49</sup>. Therefore, while 1080 is toxic, the risk to the environment is low. A 2011 report by the Parliamentary Commissioner for the Environment (PCE) concluded that any risk posed by 1080 was minimal compared to the benefits to New Zealand biodiversity that were afforded by its use<sup>50</sup>. The PCE recommends that use of 1080 in New Zealand should be increased. Therefore, in this report, the chemical 1080 is not considered to be a contaminant in the Taihape Inquiry District.
160. **Paper industry chemicals** describes the chemicals EDTA, chlorine and chlorine dioxide. These are generally considered as water contaminants, not soil contaminants, due to the paper industry discharging waste directly into waterbodies. There is no history of paper production in the Taihape Inquiry District.
161. The potential for **ammonia** and **nitrate** contamination of the environment is of concern to water quality, as nitrogen fertilisers are poorly retained in New Zealand soils when the rate of application to soil is in excess of the requirement of flora and fauna for this essential nutrient.

### **Exposure risk and environmental cost**

162. The New Zealand Hazardous and New Organisms Act 1996 defines the hazard status of contaminants in the New Zealand environment based upon exposure risk. A toxic contaminant is defined as a chemical or contaminant that adversely affects biological or

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<sup>49</sup> Fisher, 2008. 1080; Brief of evidence of Penelope Mary Fisher. Report Wai 903; #A159.

<sup>50</sup> Parliamentary Commissioner for the Environment. June 2011. Evaluating the use of 1080: Predators, poisons and silent forests. Wellington. Accessed from <http://www.pce.parliament.nz/publications/all-publications/evaluating-the-use-of-1080-predators-poisons-and-silent-forests>

human systems. Toxic contaminants constitute a major category of stress on the natural environment and this stress is a consequence of human activity. Contaminants are not necessarily static, but can move through various states, phases or media and through various trophic levels in an ecosystem. Short-lived contaminants may be broken down before toxicity can be realised. A toxic contaminant that is immobile is unlikely to be taken up and detrimentally affect organisms, but if a contaminant is stable and mobile, it has a good chance of interacting with living organisms.

163. Contaminants that are long-lived and stable in the environment are defined as persistent contaminants. The Ontario Ministry of the Environment (Canada) defines persistence as a half-life in soil or sediment of 50 days (or greater)<sup>51</sup>. The chemical structures that are created through the degradation of contaminants are described as ‘breakdown products or breakdown residues’.
164. Some persistent toxic contaminants can bioaccumulate in the environment (accumulate in an organism to a higher concentration than present in environmental media). An example is contaminants that are soluble in fats, such as dioxin, DDT, aldrin and dieldrin. Such contaminants show a tendency to concentrate from one link of the food chain to the next (biomagnify).
165. The concentration of soil contaminants, and the breakdown residues of these contaminants, that we see in the environment today, are there because at one time the ‘environmental cost’ of using the contaminant was less than the economic benefit of using the contaminant. An example is the pesticide DDT, widely used through the middle part of last century to control grass grub in pasture. The potential dangers of high concentrations of DDT and DDT residues in soil were probably not fully realised at the time of use. A decision was likely made that use of the chemical was justified based on a positive cost-benefit analysis; DDT was used because it made sense to use it. It was a good pesticide that promoted better pasture growth, and this in turn led to better feed for sheep and cattle, and thus bigger animals. The bottom line was greater profit. A similar narrative can be presented for the use of PCP in timber treatment and for the use of

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<sup>51</sup> Lentz, M., Kennedy, P., Jones, P., Hickey, C., Mills, G., Fisher, G. and Eason, G., 1998. Review of environmental performance indicators for toxic contaminants in the environment – air, water and land. Technical Paper No. 37. Report prepared for the Ministry for the Environment, Wellington.

arsenic and dieldrin for sheep dipping. Generally all decisions that affect the environment now, or in the future, have been, or are, made based on potential economic benefits at the time. The future environmental cost of clean up, or loss of productivity that may become apparent in the future, was generally not considered in economic decisions made last century. Even today, the future environmental cost of our industrial, commercial or agricultural activities is either ignored, or heavily under-estimated.

166. No robust economic modelling of the current economic benefit of using contamination causing land systems (primary production and industry) has been carried out in New Zealand. However, studies in the USA estimate that every US\$1 increase in pesticide expenditure raises gross agricultural output by US\$3-6.50<sup>52</sup>. The case for contamination as a by-product of agricultural production is difficult to argue when such numbers are presented. However, an opposing view is that of a Cornell University (USA) scientist who estimates that for every \$1 of pesticide used there are approximately \$5-10 of human and environmental costs.<sup>53</sup>

### **Intractable agricultural chemicals; POPs; organochlorines**

167. The term organochlorines is used to describe a range of chemicals that are characterised by one or more chlorine atoms attached to a hydrocarbon structure. Organochlorines can be simple, such as the one-carbon structure chloroform (trichloromethane), or they can be complex structures such as the 14-carbon structure DDT (dichloro diphenyl trichloroethane). Many, but not all, organochlorines are toxic to plants and animals. This explains the widespread use of various structures of organochlorine as a pesticide in New Zealand's primary production sector.
168. Some toxic organochlorine contaminants, as presented in this report, are also described as POPs or 'intractable' agricultural chemicals. The descriptor 'intractable' defines an agrichemical as one that must be exported from New Zealand for disposal or destruction. These terms are used by the Ministry for the Environment, and by Horizons Regional Council.

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<sup>52</sup> Zilberman, D., Schmitz, A., Casterline, G., Lichtenberg, E., Siebert, J., 1991. The economics of pesticide use and regulation. *Science*, 253: 518-522.

<sup>53</sup> Watts, M., 1994. *The Poisoning of New Zealand*. Auckland Institute of Technology Press.

169. Dioxins are a class of organochlorine, and are also classified as a POP. Dioxins are not produced intentionally, but released into the environment through a variety of industrial discharges, combustion processes, and as a result of their occurrence as a by-product during the synthesis of various chlorinated chemical formulations. Strict resource consent conditions imposed by the RMA today strictly limit the discharge of dioxins.
170. Historic releases of organochlorines to the New Zealand environment have come primarily through the manufacture and use of the herbicide 2,4,5,-T, and the use of pentachlorophenol (PCP) in the timber industry. 2,4,5,-T was manufactured in New Zealand at the former Ivon Watkins-Dow plant in New Plymouth until 1987 for use in the control of gorse, blackberry and woody weeds, and was contaminated by the highly toxic dioxin TCDD [2,3,7,8-tetrachloro-p-dibenzodioxin]. The level of TCDD in the herbicide was regulated, and was progressively reduced between 1973 and 1982. The major use of PCP was in the timber industry, as a wood fungicide and preservative. However, PCP found minor use in the pulp and paper industry, the tanning industry, in mushroom culture, and in home gardens. PCP was contaminated with low levels of a range of PCDD (dioxins) and PCDF (furans).
171. The use of pesticides in New Zealand was unregulated until the Agricultural Chemicals Act (1959) established the Agricultural Chemicals Board. By the mid 1970s use of these persistent chemicals had essentially ceased in agriculture and horticulture. While currently-used pesticides are not considered harmful relative to banned chemicals, New Zealand, unlike many countries, does not have in place a system to gather detailed statistics on pesticide use. The last detailed surveys were conducted during the 1980s<sup>54, 55, 56</sup> and in the 1990s<sup>57</sup>.
172. Of potentially the greatest concern in the context of New Zealand agriculture is the pervasive presence of high residual levels of DDT in pastoral soils. As reported by the

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<sup>54</sup> Wilcock, R.J., 1989. Patterns of pesticide use in New Zealand. Part 1, North Island 1985 – 1988. Water Quality Centre Publication No. 15.

<sup>55</sup> MacIntyre, A., Allison, N. and Penman, D., 1989. Pesticides: Issues and options for New Zealand. Ministry for the Environment.

<sup>56</sup> Wilcock, 1989, Patterns of pesticide use in New Zealand. Part 2. South Island 1985 – 1988. Water Quality Centre Publication No. 16.

<sup>57</sup> Holland, P. and Rahman, A., 1999. Review of Trends in Agriculture Pesticide Use in New Zealand. MAF Policy Technical Paper 99/11.

Ministry for the Environment: ‘New Zealand soils contain significant levels of DDT group chemicals which are slowly being released to the environment’<sup>58</sup>.

173. A summary of the common and most concerning historic pesticides used in New Zealand is presented in Table 10.

**Table 10: Organochlorine pesticides used in New Zealand**<sup>59</sup>

DDT	Pasture insecticide to control grass grub ( <i>Costelytra zealandia</i> ) and porina ( <i>Wiseana</i> sp.) caterpillars. DDT was frequently mixed with fertiliser or garden lime and applied to agricultural pastures, lawns, market gardens and parks
Lindane	Agricultural insecticide for the control of lice on cattle, ectoparasites (lice, keds, blowflies) on sheep and grass grub in pasture. Minor use for insect control on vegetables, in orchards and in the home
Aldrin and dieldrin	Introduced in 1954 as stock remedies in sheep sprays or dips for controlling sheep ectoparasites. Aldrin was used to control horticultural pests such as wireworm, soldier fly and blackvine weevil, and in limited quantity to control household spiders. Dieldrin was used to control carrot rust fly, crickets and armyworm, found limited use for timber preservation, and was used to mothproof carpets
Chlordane	Broad spectrum agricultural insecticide, also used in the timber industry as a treatment against termites and borer, and as an insecticide in glues used for the manufacture of plywood, finger jointed and laminated timber
PCP	Approximately 5000 tonnes was used in the timber industry over 40 years until 1988 as an antisapstain (fungicidal) treatment for freshly cut timber (mainly <i>Pinus radiata</i> ). Minor use in the pulp and paper industry and the tanning industry, in mushroom culture in home gardens and on roofs to control moss and algae

174. A 2002 report commissioned by the Ministry for the Environment estimated that 282 tonnes of residual intractable agrichemical pesticides were present in New Zealand. Over the following three years (2003, 2004, 2005), the Ministry for the Environment in collaboration with 13 regional councils worked to collect this chemical stockpile for safe disposal. As at June 2006, 225 tonnes of chemical had been collected. Due to better

<sup>58</sup> Lentz, M., Kennedy, P., Jones, P., Hickey, C., Mills, G., Fisher, G. and Eason, G., 1998. Review of environmental performance indicators for toxic contaminants in the environment – air, water and land. Technical Paper No. 37. Report prepared for the Ministry for the Environment, Wellington.

<sup>59</sup> Buckland, S.J., Ellis, H.K. and Salter, R.T., 1998. Organochlorines in New Zealand: Ambient concentration of selected organochlorines in soil. Organochlorines Programme. Report prepared for the Ministry for the Environment, Wellington.

quantification of levels actually present on New Zealand farms, the residual stockpile was revised upwards to 400 tonnes (175 tonnes outstanding)<sup>60</sup>.

175. As of June 2006, 8 tonnes of intractable agrichemicals had been collected from farms under Horizons regional governance as part of the collection programme, with a further estimated 2 tonnes for residual collection. There has been no further reporting on the collection programme since 2006.
176. As a signatory to the Stockholm Convention, New Zealand is obliged to remove all stockpiled intractable agrichemicals by 2013<sup>61, 62, 63</sup>.

### **Agrichemicals and Persistent Organic Pollutants in the Rangitikei District**

177. A detailed survey of pesticide use across New Zealand was conducted by DSIR Marine and Freshwater (the Wilcock report) between 1985 and mid-1988<sup>64, 65</sup>. Data in the Wilcock report is expressed as being for an 'average year in that period'. Pesticide use included in this survey was for plant protection or plant eradication, not for noxious animal control, and thus 1080 is not included in this data set (3,400 kg of 1080 was used throughout New Zealand in 1993<sup>66</sup>). Industrial use and small-scale use such as that in private gardens or greenhouses is not included. The use of herbicides by drainage authorities for the clearance of drainage ditches is also not fully included.
178. Data was compiled through consideration of agricultural statistics and pesticide use surveys conducted in the 1980s, and through consultation with local body and national regulatory agencies. The Rangitikei Province is one region in the report, and extends

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<sup>60</sup> Ministry for the Environment, 2006. Intractable agricultural chemicals in New Zealand. Ministry for the Environment, Wellington.

<sup>61</sup> Ministry for the Environment, 2006. Working towards a comprehensive policy framework for managing contaminated land in New Zealand. A discussion paper. Report ME777, Ministry for the Environment, Wellington.

<sup>62</sup> Ministry for the Environment, 2006. New Zealand's implementation plan under the Stockholm Convention on persistent organic pollutants. Report ME789, Ministry for the Environment, Wellington.

<sup>63</sup> United Nations Environment Programme, 2005. Ridding the world of POPs: a guide to the Stockholm Convention on persistent organic pollutants. UNEP, Geneva.

<sup>64</sup> Wilcock, 1989, Patterns of pesticide use in New Zealand. Part 1. North Island 1985 – 1988. Water Quality Centre Publication No. 15.

<sup>65</sup> Wilcock, 1989, Patterns of pesticide use in New Zealand. Part 2. South Island 1985 – 1988. Water Quality Centre Publication No. 16.

<sup>66</sup> Watts, M., 1994. The Poisoning of New Zealand. Auckland Institute of Technology press.

from the Tasman Sea in the south west to the Central Volcanic Plateau in the north and is bounded by the provinces Wanganui, Waimarino, Taupo, Hawke's Bay, Waipawa District, Kiwitea, Oroua and Manawatu. The complete area of the Taihape Inquiry District will have been encompassed within the Rangitikei province, and although this province is larger than the inquiry district, the data can be meaningfully used to estimate the relative loads of pesticide use in the Inquiry District throughout much of the later part of last century.

179. The database generated for the Wilcock report was designed to assess the potential for water pollution as a result of pesticide use, and thereby to assess risk to aquatic organisms. The most toxic compounds to aquatic organisms are organophosphates such as azinphos methyl, chlorpyrifos, isazophos and phosmet (Table 11). Use of these chemicals was low in the Rangitikei district relative to parts of the Waikato (for example) where monitoring of waterways was recommended in light of the estimated risk. Therefore degraded water quality in the Rangitikei from pesticide discharge and leaching was not expected at the time of the report.
180. The data presented in Table 11 summarises the types and amounts of active chemical ingredient applied to land in the Rangitikei district. Up to 110 active pesticide ingredients (ai's) are recorded as having been used in the North Island. The amounts used and the toxicity of these ai's varies significantly.

**Table 11:** *The Wilcock report summary of annual pesticide loading to the Rangitikei District from 1985 to 1988*

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha/yr)	LC50 (mg/L)
2,4-D (all forms)	HFf	144000	P/F	155000	1.08	2
2, 4, 5-T	HFf	37900	P/F	254000	6.70	20
Alachlor	HXs	140	M	120	0.86	1.8
Asulam	HCf	3	F	15	5.00	5000
Atrazine	HAf	145	F/M	230	1.59	8
Azinphos methyl	IPf	25	S	28	1.12	0.014
bentazone	HXf	6500	CR	455	0.07	
bromoxynil	HOf	6500	CR	790	0.12	0.15
Carbofuran	ICf	140	M	3	0.02	0.28
Chlorpyrifos	IPf	6525	CR/S	115	0.02	0.003
chlorsulfuron	HXf	6500	CR	20	<0.01	250
Clopyralid	HXf	6500	CR	50	0.01	104
Copper	FXf	24	F	20	0.83	9.6
Cyanazine	Has	6500	CR	800	0.12	10
Demeton-S-metyl	IPf	6500	CR	975	0.15	4.3

Diazinon	IPf	25	S	170	6.80	0.09
Dicamba	Hof	6640	CR/M	170	0.03	135
dichlorprop	HFf	6500	CR	9820	1.51	165
Dinoseb	HXf	240	CR	220	0.92	0.14
Diquat	HXf	25	S	13	0.52	10
EPTC	HCs	140	M	350	2.50	19
Fluazifop-butyl	HXf	25	S	8	.032	1.37
Glyphosate	HXf	500	P/F/S	940	1.88	86
Ioxynil	HXf	6500	CR	65	0.01	4
Ipridione	FXf	25	S	65	2.60	
Isazophos	IPs	140	M	95	0.68	0.008
MCPA	HFf	6500	CR	2950	0.45	10
MCPB	HFf	6740	CR	1340	0.20	10
Mecoprop	HFf	6500	CR	2930	0.45	230
Metolachlor	HXf	140	M	80	0.57	2
Oryzalin	HXs	25	S	23	0.92	1
Paraquat	HXf	6770	F/CR/S	1380	0.20	32
Pendimethalin	HXf/s	140	M	14	0.10	0.4
Phorate	IPs	140	M	95	0.68	0.01
Phosmet	IPf	25	S	260	10.40	0.002
Picloram	HOf	5370	P	2690	0.50	20
Pirimicarb	ICf	6500	CR	40	0.01	29
propiconazole	FXf	6500	CR	410	0.06	100
Sethoxydim	HXf	25	S	5	0.20	
Simazine	HXf/s	535	P/F/S	530	0.99	100
Terbacil	HXs	25	S	15	0.60	90
Terbumeton	HAf	25	S	15	0.60	14
Terbutylazine	HAf	25	S	15	0.60	4.6
terbutryne	HAf/s	240	CR	50	0.21	2
triadimenol	FAf	1950	CR	100	0.05	23.5
tridemorph	FXf	1950	CR	270	0.14	
Vinclozoline	FXf	25	S	85	3.40	52.5

*An explanation of codes is presented in the text of this report.*

The key to the codes in Table 11 is as follows:

Code: 1<sup>st</sup> descriptor; H = herbicide, I = insecticide, F = fungicide, X = other. 2<sup>nd</sup> descriptor; A = cyclic diaine or triazine, O = organohalogen (organochlorine), P = organophosphate, C = carbamate, F = phenoxyalkanoic herbicide, X = other. 3<sup>rd</sup> descriptor; s = applied to soil, f = applied to foliage.

Land use code: P = pasture, PF = pipfruit, SF = stonefruit, C = citrus, B = berry, S = subtropical (avocado, kiwifruit, tamarillo, nuts), G = grape, V = vegetables, M = maize, F = forest, CR = cereal cash crop (wheat, oats, barley), PC = processing crop (peas, beans, tomatoes).

LC50: the concentration of chemical ai that will kill 50% of a test animal (for this data set rainbow trout) within a defined time frame (for this data set 96 hours).

181. Despite the low use of organophosphates, the Rangitikei is marked as having a history of very significant chlorinated phenoxy herbicide use (2,4-D and 2,4,5-T). Over the period of the Wilcock report, an estimated 3,980 t of 2,4-D and almost 4,200 t of 2,4,5-T was used across the North Island each year. The Rangitikei District, with an estimated usage of 1,550 t 2,4-D and 2,540 t 2,4,5-T, accounted for 39% and 61% of total North Island use of these two chemicals respectively. Soil mapping in the 1970s defined the area of the Rangitikei county as 4,486 square kilometres, or 448,600 ha<sup>67</sup>. Figures in the Wilcock report estimate that 2,4,5-T was applied to 37,900 ha of land in the Rangitikei district at the highest rate in New Zealand (6.70 kg/ha/yr). This is equivalent to nearly

<sup>67</sup> Campbell, I.B., 1978. Soil of Rangitikei County, North Island, New Zealand. N.Z. Soil Survey Report 38, Department of Scientific and Industrial Research, Wellington.

8.5% of the total area of the Rangitikei. It is very likely that a portion of this area was within the Taihape Inquiry District.

### **Pesticide use in the Rangitikei prior to the 1980s**

182. While the Wilcock report is limited to use of pesticides between 1985 and 1988, extensive use of phenoxy herbicide through this period suggests that extensive use will also have occurred throughout the period from the end of World War II to the 1980s. Of the two phenoxy chemicals described in the Wilcock report, it is the extensive use of 2,4,5-T that is most concerning. This herbicide was manufactured at Paritutu and was known to be contaminated with dioxin. The use of this chemical prior to 1982, the year in which contaminant levels in the herbicide were brought under control, may have seen extensive use of dioxin-contaminated 2,4,5-T throughout the Rangitikei district to support woody weed clearance for pasture production on the dominant hill country of the region. Dioxin is a persistent organic pollutant. Residual levels of dioxin applied to soil last century will highly likely remain in the soil today.
183. The use of the pesticide DDT was banned in New Zealand prior to the Wilcock survey, however residual levels remain an environmental issue of concern<sup>68</sup>. The extent of phenoxy herbicide use in the 1980s indicates that DDT may have found use in the Rangitikei. DDT was extensively used throughout New Zealand from the 1950s to the 1970s to control grass grub in pastoral soils. The half-life of DDT in soil is approximately 30 years, thus it is a persistent organic pollutant in the top 2-3 mm of soils. The exposure pathway for dairy cows is soil ingestion: cows will consume between 180 and 320 kg of soil per year, although the figure can increase to up to 450 kg on heavily stocked farms where grass levels are kept short<sup>69</sup>. Once ingested DDT will concentrate in animal fat, including the fat content of the milk of dairy cows and thus concern over the accumulation of DDT in the food chain in part brought about the ban on DDT use. Until 2006 the Fonterra standard for DDT residue levels in soil was set at 0.2 mg/kg. A survey in 2002 showed that 40% of samples submitted for analysis exceeded this level, meaning that the farms from which these samples were taken could not be

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<sup>68</sup> Environment Waikato, 2008. The condition of rural water and soil in the Waikato region: risks and opportunities. Environment Waikato, Hamilton

<sup>69</sup> Healy, W.B., 1968. Ingestion of soil by dairy cows. *New Zealand Journal of Agricultural Research*, 11: 487-499.

converted to dairy. This value was raised to 0.7 mg/kg in May 2006, facilitating the widespread conversion of more land.

184. Under the correct soil chemical and microbiological conditions, DDT will fully degrade. Co-contamination can, however inhibit degradation, as has been observed for grazing soils from the Waikato and Tasman districts<sup>70</sup>.
185. The unknown or poorly quantified use of DDT and dioxin contaminated 2,4,5-T in the Taihape Inquiry District from the 1950s through to the early 1980s represents perhaps the greatest unknown potential for land contamination in the District. Undisclosed storage of agrichemical residues and unknown farm dump sites for chemical residues and containers will present current environment hazards as these residues are slowly released into soil.

### **Changes in pesticide use between the 1980s and 1990s**

186. The Wilcock report was unique in that it presented detailed figures for pesticide use across each district in New Zealand. Subsequent reporting has presented nationwide statistics, grouped according to land use or crop type. As such, no direct comparison of recent data can be made with the Wilcock report to highlight changes in pesticide use in the Rangitikei Inquiry District with time. Trends can, however, be delineated and meaningful assumptions made regarding pesticide use in regions of New Zealand.
187. Total pesticide use in New Zealand agriculture was generally consistent across the 15 years from 1984, peaking in 1994 at 3,700 t active ingredient<sup>71</sup>. As the Wilcock report shows, a percentage of this total during the 1980s was potentially dioxin contaminated phenoxy herbicides. Between 1994 and 1998 total agricultural pesticide use across the country decreased to 3,300 tonnes. Use in pastoral agriculture over the 15 year period was judged to have remained static or reduced slightly. However, consideration of herbicide, insecticide and fungicide use by class shows that while there was a decrease in

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<sup>70</sup> Gaw, S.K., Wilkins, A.L., Kim, N.D., Palmer, G.T. and Robinson, P., 2006. Trace element and ΣDDT concentrations in horticultural soils from the Tasman, Waikato and Auckland regions of New Zealand. *Science of the Total Environment*, 355: 31-47.

<sup>71</sup> Holland, P. and Rahman, A., 1999. Review of trends in agricultural pesticide use in New Zealand. MAF Policy Technical Paper 99/11. Ministry of Agriculture and Forestry, Wellington.

the use of some pesticide classes, there were often significant increases in the use of chemicals within other classes. For example, phenoxy herbicide (2,4-D and 2,4,5-T) use decreased over the period. We know that production and use of 2,4,5-T was phased out from 1987, so other phenoxy herbicides, including more abundant use of 2,4-D, which was still registered as a pesticide in 1998, must have taken its place. One well recorded trend over this period was an increase in use of glyphosphate (roundup) in place of phenoxy herbicides.<sup>72</sup>

188. The consistent use of agricultural pesticides throughout New Zealand presents a strong likelihood of continuing use of agrichemicals in the Taihape Inquiry District at similar rates to those reported in the Wilcock report, both before and after the mid 1980s.
189. Pesticide use reporting in the late 1980s and 1990s did not describe the use of POPs as this class of chemicals was formally banned from use by this time.

### **Specific use of pesticides as a sheep dip: Sheep dip sites**

190. Until 1966 there was a legal requirement that sheep sold in New Zealand were free of pests such as lice, blowflies, ticks and mites<sup>73</sup>.
191. The necessary treatment to satisfy this requirement was to dip animals in a chemical bath (“sheep dip”). The content of this bath was typically a mixture of the toxic chemicals arsenic (used 1840s-1980), organochlorines (DDT 1945-1961, lindane 1947-1961, dieldrin 1955-1961, aldrin 1955-1961) and organophosphates (1960s to present). Arsenic and organochlorines are regarded as persistent in the environment. That is to say they do not readily break down in the soil environment, and therefore remain mobile and may interact with the ecosystem. Exposure pathways are: direct contact with contaminated soil, groundwater or surface water; consumption of food grown on contaminated soil; consumption of animals that have ingested contaminated soil.

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<sup>72</sup> Ministry for the Environment, 2002. Towards a pesticides risk reduction policy for New Zealand. Public discussion paper. Report ME427. Ministry for the Environment, Wellington.

<sup>73</sup> Heath, A., 1994. Ectoparasites in livestock in New Zealand. *New Zealand Journal of Zoology*, 21: 23-38.

192. Current practices for parasite control are based on more direct 'pour-on' techniques, and make use of chemicals that while initially toxic, rapidly break down in the soil. High-risk sheep dip sites that may contain persistent contaminants are therefore regarded as those in action before 1980.
193. Land-use change from pastoral to intensive cropping, horticultural, dairying and residential land use often exposes the presence of levels of contamination associated with sheep-dips that pose an unacceptable level of risk to people, livestock and the environment.
194. Prior to 1940 pot-dip and swim-through dips were the most common structures used for sheep dipping. These were semi-permanent structures, dug into the ground and lined with timber or concrete. From 1940 power-spray machines were commonly used. These were constructed in above-ground structures, which included concrete enclosures, or steel piping and corrugated iron, and an underground sump for recycling dipping liquid.

### **Contamination hot spots**

195. Contamination associated with sheep dipping is generally localised to a small area. The dip bath or structure, rather than the wider property, is the primary candidate for possible contamination. These structures are generally associated with stockyards, woolsheds, or bore-water supplies. In some cases the remains of these structures can be seen today. Alternatively, farm records can be searched, aerial photographs studied, or farmers/landowners, shearers and stock agents interviewed, to delineate sites of concern. Less easy to locate are sites where dip solution was disposed of. Options commonly included emptying into a burial pit, pipe discharge over a bank, or pumping onto adjoining land where ground soakage occurred. The sludge from the bottom of the dip trough or sump was often shovelled onto the ground adjacent to the dip (scooping mound). Anecdotal evidence can be a major help in identifying these hot areas. However, due to the liability associated with contamination linked to land values, and to a progressive lack of knowledge with time, anecdotal stories should be cross referenced. While unusual, mis-information could conceivably be given.

196. It is estimated that across New Zealand as many as 50,000 historic sheep-dip sites may be regarded as contaminated. This is perhaps the highest number of sites for any single contamination source in the country, and may represent New Zealand's most significant environmental issue.
197. According to the Ministry for the Environment, the following are the areas of concern associated with sheep-dip sites<sup>74</sup>:
1. beneath the dip bath and within the bath
  2. the area where the sheep-dip liquid was disposed of
  3. around the bath where dip chemicals may have splashed
  4. next to the dip bath where the sludge was disposed of
  5. the area where the sheep exited the sheep dip (the draining pen)
  6. the area where the sheep-dip chemicals were stored
198. The risk of contaminant movement away from a localised dipping or disposal site is a function of topography and drainage. Case studies have shown that arsenic and dieldrin can contaminate creeks, streams and ground water that are down-gradient of the actual site. In some cases, the existence of a historic sheep dip site can be inferred based on the presence of contaminants in sub or surface water (for example see Nahinapouri site, identified through bore water data). A graphical summary of the relevant exposure pathways for sheep dip sites is presented in **Error! Reference source not found.**

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<sup>74</sup> Ministry for the Environment, 2006. Identifying, investigating and managing risks associated with former sheep-dip sites. A guide for local authorities. Report 775, Ministry for the Environment, Wellington.

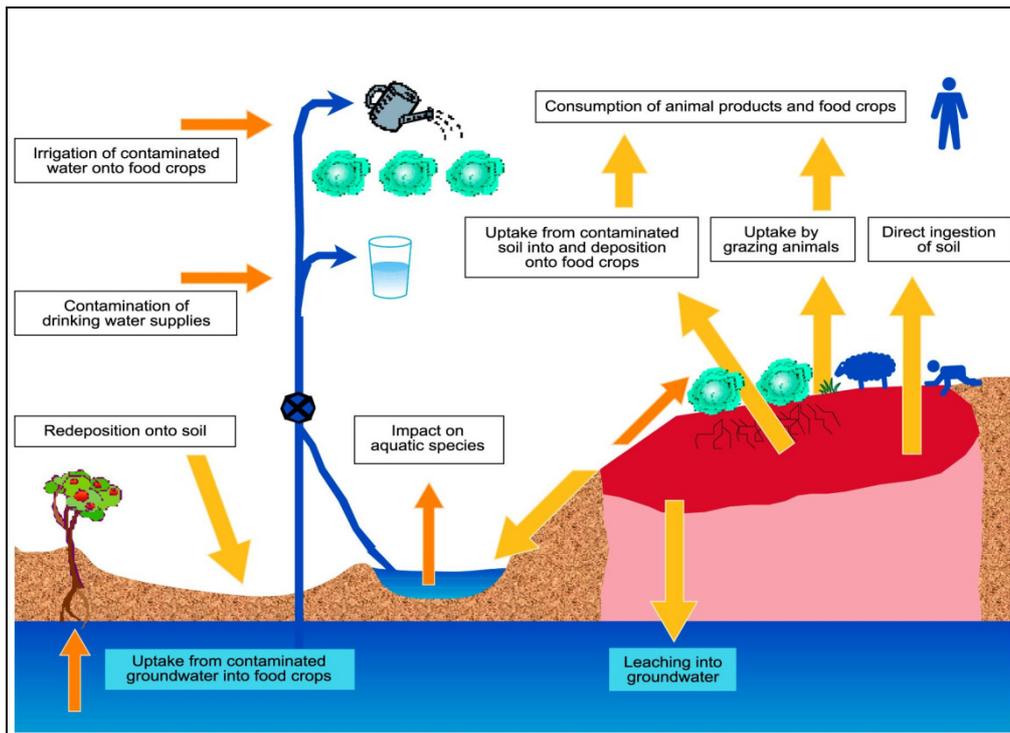


Figure 5: Exposure pathways from disused sheep-dip sites<sup>75</sup>

199. Ministry for the Environment guidelines state that if site history shows a likelihood of dipping prior to 1961, soil samples should be taken and analysed for arsenic, organochlorines and appropriate organochlorine breakdown intermediates. If dipping post 1961 is likely, then organophosphates and the appropriate breakdown intermediates or products should be tested for.

### Risk for groundwater contamination

200. Contaminants can be dispersed away from zones of original contamination by movement in groundwater. The critical concentration of a contaminant that can trigger health risk is a function of its mobility in the soil environment; immobile contaminants generally have low concentrations at which ecosystem risk becomes apparent as they persist in the soil environment.

<sup>75</sup> Ministry for the Environment, 2006. Identifying, investigating and managing risks associated with former sheep-dip sites. A guide for local authorities. Report 775, Ministry for the Environment, Wellington. <http://www.mfe.govt.nz/publications/hazardous/risks-former-sheep-dip-sites-nov06/html/figure-4.html>

201. The risk for groundwater contamination with persistent and immobile contaminants present at sheep dip sites is generally low. Some degree of equilibrium can be expected at sites of historic contamination; ‘most of the contaminants that would leach under current circumstances could be expected to have done so<sup>76</sup>.’ However, elevated levels in groundwater can indicate a nearby source of contamination (see Case Study).

**Case Study: Phytoremediation of a disused sheep-dipping site<sup>77</sup>**

A disused sheep-dipping site in an asparagus field was discovered near Ngahinapouri, south of Hamilton, following the measurement of elevated dieldrin concentration in a nearby well. Soil analysis revealed dieldrin concentrations from 10 to 70 mg/kg over 100 m<sup>2</sup>. The Dutch Intervention Value for dieldrin in soil is 4 mg/kg.

Research conducted by HortResearch at this site showed that willow trees planted on site could stimulate soil microbial growth, which in turned led to decreasing dieldrin concentrations in the soil with time as a result of microbial degradation of the contaminant. This is an example of phytoremediation: the plant-based remediation of organic or inorganic contaminants.

202. Guidelines indicate that a three metre horizon of unfractured clean soil or low permeability rock is a sufficient barrier to prevent a dip site from contaminating groundwater.
203. Groundwater should be investigated if:
- A site is close to a lake or stream that is the discharge point for groundwater passing the site
  - A site is close to a water supply well (farm water bore)
  - The concentration of chemicals on site is very high
204. A complete summary of risk vectors to people from historic sheep-dip sites is presented in **Table 12: Risk vectors to people from disused sheep-dip sites**

<sup>76</sup> Ministry for the Environment, 2006. Identifying, investigating and managing risks associated with former sheep-dip sites. A guide for local authorities. Report 775, Ministry for the Environment, Wellington.

<sup>77</sup> Robinson, B. and Anderson, C., 2007. Phytoremediation in New Zealand and Australia (Ed. N.Willey) In: Methods in Biotechnology Vol 23. Phytoremediation: Methods and Reviews. Humana Press Inc., Totowa NJ.

**Table 12: Risk vectors to people from disused sheep-dip sites**<sup>78</sup>

Land-user group (likely land-use categories)	Main exposure route	Risk
Children (rural, residential)	Eating contaminated soil; touching and breathing soil and dust when playing in or around old sheep dips	High (immediate risk)
Life-style block occupants (rural, rural-residential)	Eating vegetables grown on a contaminated area; consuming animal products (e.g. eggs and milk) from animals kept on a contaminated area; drinking contaminated bore water	High to medium (longer-term risk)
Residential occupants (residential)	Touching and breathing in contaminated soil or dust when gardening; eating vegetables grown on a contaminated area (depending on the residential character; e.g. a significant number of home gardens)	Medium (longer-term)
Local iwi and hapu (rural, parkland, residential)	Eating mahinga kai (aquatic and wild food; e.g. freshwater mussels, crayfish, eels, watercress, land-based ferns)	Medium to low (longer term)
Farmers and workers (rural, rural-residential)	Touching and breathing in contaminated soil or dust when working on the farm	Medium to low (longer-term)
Neighbours of subdivision development (residential)	Breathing in wind-blown contaminated soil particles and dust from site redevelopment for housing	Low

Councils may choose to employ an active programme of locating the old sheep dip sites in each district before knowledge of their whereabouts is progressively lost. This approach would effectively address both the acute toxic risk to children on farms or lifestyle blocks and the need to identify old dip sites by the time a property is subdivided. It is much harder to address contamination issues after the subdivision has taken place. The identification and site investigation may be carried out as a joint initiative between the regional council and the territorial authority.<sup>79</sup>

### Specific contaminants at sheep dip sites:

205. **Arsenic** is a stomach poison, and is only effective for the control of parasites once ingested by the target pest. Arsenic is highly toxic to humans and animals and arsenic poisoning of treated sheep was relatively common via direct ingestion (swallowing) of

<sup>78</sup> Ministry for the Environment, 2006. Identifying, investigating and managing risks associated with former sheep-dip sites. A guide for local authorities. Report 775, Ministry for the Environment, Wellington.

<sup>79</sup> [www.mfe.govt.nz/publications/hazardous/risks-former-sheep-dip-sites-nov06/html/page5.html](http://www.mfe.govt.nz/publications/hazardous/risks-former-sheep-dip-sites-nov06/html/page5.html)

the dip, or by way of absorption through the skin. Arsenic was withdrawn from the market as a dipping chemical in 1978, with the sale of final stocks in 1980. It is believed that arsenic remained in use for several more years, however, as farmers used previously bought supplies.

### ***Organochlorines***

206. The term organochlorine describes any chlorinated hydrocarbon<sup>80</sup>. Examples used as a pesticide for dipping include DDT, lindane, dieldrin and aldrin. These chemicals all have limited to no solubility in water. However, they are soluble in the wool grease of sheep. This was an advantage to farmers, as once applied the chemicals would migrate towards the skin, meaning that saturation was not necessary. This led to the common use of spray showers as opposed to immersion troughs. Stock could become poisoned with organochlorines in a similar manner to arsenic. Once ingested, these chemicals concentrate in body fat with limited chance for excretion. The use of the organochlorines was banned under Stock Regulations of 1961 due to the fact that these chemicals would accumulate in animal fat, and potentially accumulate in the food chain.
207. The most widely publicised example of organochlorine toxicity in the context of sheep dipping is DDT. This is a persistent chemical with a half life in soil of 2-15 years. The chemical is extremely hydrophobic and essentially immobile in soil. DDT will break down to secondary chemicals DDE and DDD. These chemicals have similar chemical, physical and toxicity properties.

### ***Organophosphates***

208. The term organophosphate describes a group of insecticides or nerve agents that are based on an organic phosphate chemical assemblage<sup>81</sup>, and have replaced organochlorines as the dominant insecticide used for dipping. Organophosphates are highly toxic and act to inhibit the activity of enzymes used in nerve function. These chemicals are more toxic than organochlorines; however unlike their predecessor, organophosphates break down readily in sunlight, air and soil. In soil breakdown is

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<sup>80</sup> [en.wikipedia.org/wiki/organochloride](http://en.wikipedia.org/wiki/organochloride)

<sup>81</sup> [en.wikipedia.org/wiki/organophosphate](http://en.wikipedia.org/wiki/organophosphate)

regulated by biological activity. Reports suggest that in locations where a high concentration of arsenic and/or organochlorines is present in addition to organophosphates, breakdown of organophosphates can be limited due to the decreased biological activity as affected by previous chemicals. This issue should be considered when reviewing the history of a dipping site with respect to environmental risk assessment.

### **Other insecticides/treatments**

209. Synthetic pyrethroids are synthesised derivatives of naturally occurring pyrethrin, an insecticide that is extracted from the seed case of flowers from plants belonging to the genus *Chrysanthemum* (pyrethrum). Pyrethroids have been chemically engineered to be more toxic and more persistent than their naturally occurring analogues, and attack the nervous system of all insects.
210. Pyrethroids are toxic to soil microflora and to aquatic organisms. Data from the USA showed that the half life of Permethrin (one of many pyrethroids) was between 17 and 43 days, depending on the location of the study<sup>82</sup>. This was presumably a function of variable soil types between locations. There appear to be no regulations or guidelines on the presence of pyrethroids in New Zealand soils, groundwater or the aquatic environment. This chemical appears to not be regarded as a contaminant of current interest.
211. Insect growth regulators are described by the Ministry for the Environment as a current option for sheep dipping. No information on the risk of soil contamination that might be posed by this chemical could be found during the research for this project.
212. Copper and Zinc powders have been used since the 1950s as an antifungal foot treatment, in powder form, or as a footbath. Both copper and zinc are heavy metals, and at high concentration in the environment can be toxic to flora and fauna. Contamination levels associated with sheep dip sites appear to be of lesser importance than arsenic, organochlorines and organophosphates. However, high levels of these metals may be

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<sup>82</sup> Cox, C., 1998. Insecticide factsheet: Permethrin. *Journal of Pesticide Reform*, 18(2): 14-20.

toxic to soil microorganisms, and inhibit the degradation of organophosphates and organochlorines.

213. As highlighted in previous paragraphs, the presence of multiple contaminants at a site can change the expected pathways of degradation. At the heavily contaminated Mapua site near Nelson, high levels of copper were applied to soil to catalyse the degradation of organic contaminants. In this way high copper levels caused increased degradation, although breakdown here is a function of chemistry, not microbiology. This has left a modern day legacy of high metal contamination that must be managed. However in many soils of the Auckland, Tasman and Waikato regions that are contaminated with much lower levels of metal, soil DDT:DDE ratios differ from those that are expected based upon the passage of time. This in turn indicates that degradation of DDT has been inhibited at some locations, most likely because of other contaminants in the soil<sup>83</sup>.

### **Historic sheep dipping sites in the Taihape Inquiry District**

214. The locations of New Zealand's estimated 50,000 historic sheep dip sites are poorly recorded, and this statement will be true for the Taihape Inquiry District. Interviews with claimants conducted on 21 November confirmed that historic dipping sites are present in the District, and that contamination associated with these sites is of concern to the claimants. Mention was made of two sites where 'farms used to do sheep dipping by the hundreds of thousands'. During interviews a link was voiced between the sheep dipping sites, and a current-day lack of koura in the downslope creeks, streams and rivers.

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<sup>83</sup> Gaw, S.K., Wilkins, A.L., Kim, N.D., Palmer, G.T. and Robinson, P., 2006. Trace element and ΣDDT concentrations in horticultural soils from the Tasman, Waikato and Auckland regions of New Zealand. *Science of the Total Environment*, 355: 31-47.



## LAND USE AND AGRICULTURE IN THE TAIHAPE INQUIRY DISTRICT

215. The most dramatic environmental impact and the origin of most of the present day environmental issues in the Taihape Inquiry District is the conversion of the land from (native) flora to pasture for grazing of sheep and beef. In 1896 the majority of potential farmland in the area was under European tenure and over the next 50 years this land was rapidly converted into pasture. This progression of agricultural development is poorly recorded during the latter part of the 19<sup>th</sup> century with many records being anecdotal in nature and focused on the establishment of towns. Twentieth century development of agriculture has remained essentially static since post World War II with development becoming heavily influenced by international economic factors.
216. The 2007 New Zealand State of the Environment Report states that between 1997 and 2002 the following land use changes were recorded:
- Pastoral land decreased by 1% (125,200 ha)
  - Native forest/vegetation decreased by 0.15% (17,200 ha)
  - Exotic forestry increased 8% (139,500 ha)
  - Human settlement increased 3% (5,300 ha)
217. From these numbers it appears that conversion of pastoral land to exotic forestry was the main driver of land-use change. However, in the context of the sustainable management of pastoral land, these figures hide the emergence of dairy conversion during this time. In 2004 pastoral land constituted 37% of New Zealand's total land area, and from the figures above it is safe to assume that this relative percentage is decreasing with time. These national figures and trends would be consistent with current land use in the inquiry district. With a lack of detailed quantifiable records of pasture development in the Inquiry District it can be assumed that the 50 years following the 1890s were when the majority of native forest was removed and since then the current agricultural practices have remained static.

218. When land became available following the 1890s, settlers were encouraged to develop primarily the lower reaches of the Manawatu/Rangitikei, with development in the upper reaches of the Rangitikei being limited by dense native forest and steep dissected landscapes accessible only by bullock tracks. Access improved with the development of the railway from 1883 to 1908. During this time (up until 1894) roading networks were established. From 1900-1910, using loans raised by the Rangitikei District Council, roads were sealed using locally sourced “burnt papa”. This infrastructure development opened up much of the District firstly to saw millers to provide wood for Railways but also to the first local dairying co-operatives and meat works.
219. Maori farmers were an integral part of developing the land and from claimant indications adapted to this agricultural development and change well, seeing it as a natural part of providing for hapu and whanau. Residents such as R.T. Batley and Henare Keepa of Moawhango were recorded in the *Otago Witness* newspaper as supplying 417 pounds of wool in 1871 to England and producing the first “native” wool from Inland Patea.<sup>84</sup> Batley later went on to manage the Erewhon sheep station during the 1870s. Claimants talked about their tupuna’s response to the new agricultural economy:
- ... they saw the opportunities of new culture and economic development. Over time that was right through to - my great grandmother’s time, Utu Potaka, he saw the benefits as well and .... That translated through to his son, my grandfather. I’m talking about him because in his lifetime he inherited property and kept hold of it. He was able to take part in local economies, particularly for example, establishment of the local Dairy Board, he was one of the directors on that Dairy Board. At one time his own farm at Rata was being farmed as a dairy unit and he was part of those developments.<sup>85</sup>
220. These initiatives led to other lands being leased in the Moawhango area and developed into large scale sheep stations. Many of the present day land blocks still maintain the original boundaries of those stations. However, claimants saw individualisation of title as the means by which these lands were lost from Maori ownership.
221. The districts towns grew along the railway and now State Highway 1, with the railway reaching Taihape in 1894. The population rose slowly reaching its peak in the 1960s of around 3500 people. Restructuring of the economy, particularly with reductions in the

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<sup>84</sup> ‘Agricultural and Pastoral News’, *Otago Witness*, Issue 2661, 15 March 1905, Page 21

<sup>85</sup> Mokai Patea claimant, Taihape, 22 November 2011

numbers of those working on the railways work, has seen the population decline since the 1980s to almost half that size. Mangaweka, Ohingaiti, Hunterville and Rata developed as small settlements alongside the railway. The environmental impact of these towns was largely local with the major issues of significance being the siting and quality of refuse dumps and sewerage schemes, when these were established. Leaching from dumpsites and septic tanks were problems and sewerage schemes have not been completely successful in protecting waterways. The very small size of the Taihape Borough and the Hunterville Town Board limited their capacities to deal with the environmental risks of waste disposal and there were conflicts between local and central government over dumps and sewerage schemes in the post-war period.<sup>86</sup>

222. While original farm ballot lots were on average 200 acre sections these proved impracticable. The original purchasers were unaware of the steep hill country, the practicalities of surveying and fencing boundaries and what was realistically achievable on the land. Many original lots were combined and boundaries adjusted to suit the landscape, avoid earth movements and make farming possible. Statistics on the agricultural development of the district are not well maintained or easily accessible. Records indicate that there were 239 farms in the district in 1880 with 100,000 acres being sown in pasture or crops.<sup>87</sup> During the first half of the 20<sup>th</sup> century the average farm lot doubled in size and then after the Second World War it increased to 600 acres (242 ha). Presently the average titled land parcel is approximately 80 acres (32 ha), however this would be heavily influenced by urban areas and small parcel sizes around rivers. As a distinct contrast the northern portion of the Inquiry District would exhibit parcel sizes of around 850 acres (343 ha).

223. It is important to note that within 15-20 years of forest clearance post-1890s soil erosion became evident. Also soils that were productive under 10,000 years of native forest could only sustain pasture for one or two years. As a response the Soil Conservation and Rivers Control Act came into force during 1941, establishing the Rangitikei Catchment. The Rangitikei Catchment Board was established on 14 December 1944. It covered the southern area of the district, an area totaling 2800 square miles. The board was dedicated

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<sup>86</sup> See Heather Bassett, Local Government, Rating, and Native Townships scoping report, CFRT, pp.7-8 for the local authorities within the district.

<sup>87</sup> Manawatu Herald, Volume II, Issue 70, 27 April 1880.

to dealing with erosion, but its primary focus was still on ensuring that there was good productive farmland. Until the 1970s, its response to dealing with erosion was to use fertiliser and over sowing of grass seeds, with tree-planting to re-establish productive land, aimed at boosting the national economy. Such an approach was far too expensive and piecemeal to resolve a problem of this magnitude. In 1961, a survey of 900 square miles, following an August storm, showed that 2 per cent of the land had been lost to slips.<sup>88</sup>

224. Works to stabilise land and control rivers began with the use of introduced species of fast growing willows and poplars to limit the movement of soil. Fertiliser application also became the norm with aerial top dressing becoming the only practical means of application. The downside of this pasture management was the rapid re-growth of colonising species such as Manuka and introduced species such as gorse. The control of these species never became common practice until post World War II when farming became more profitable and land previously discarded as uneconomic became valuable. These practices combined with the chemical removal of animal intestinal parasites resulted in great advances in New Zealand agricultural and profitable times for the agriculture sector in the District.
225. The catchment board joined with the New Zealand Army in 1947 to attempt to improve an area of partly depleted tussock land on wind eroded pumice. Fifty acres was set aside as a conservation reserve. The solution was to drill grass clover seed with fertiliser and over sew and top dress, an experiment regarded as successful. The more damaged land was treated by planting exotic trees, including 38,000 *pinus contorta*, the introduction of which had devastating effects on the tussock land in the following decades.<sup>89</sup> Eventually the whole area was retired from grazing and the project brought to an end in 1966.

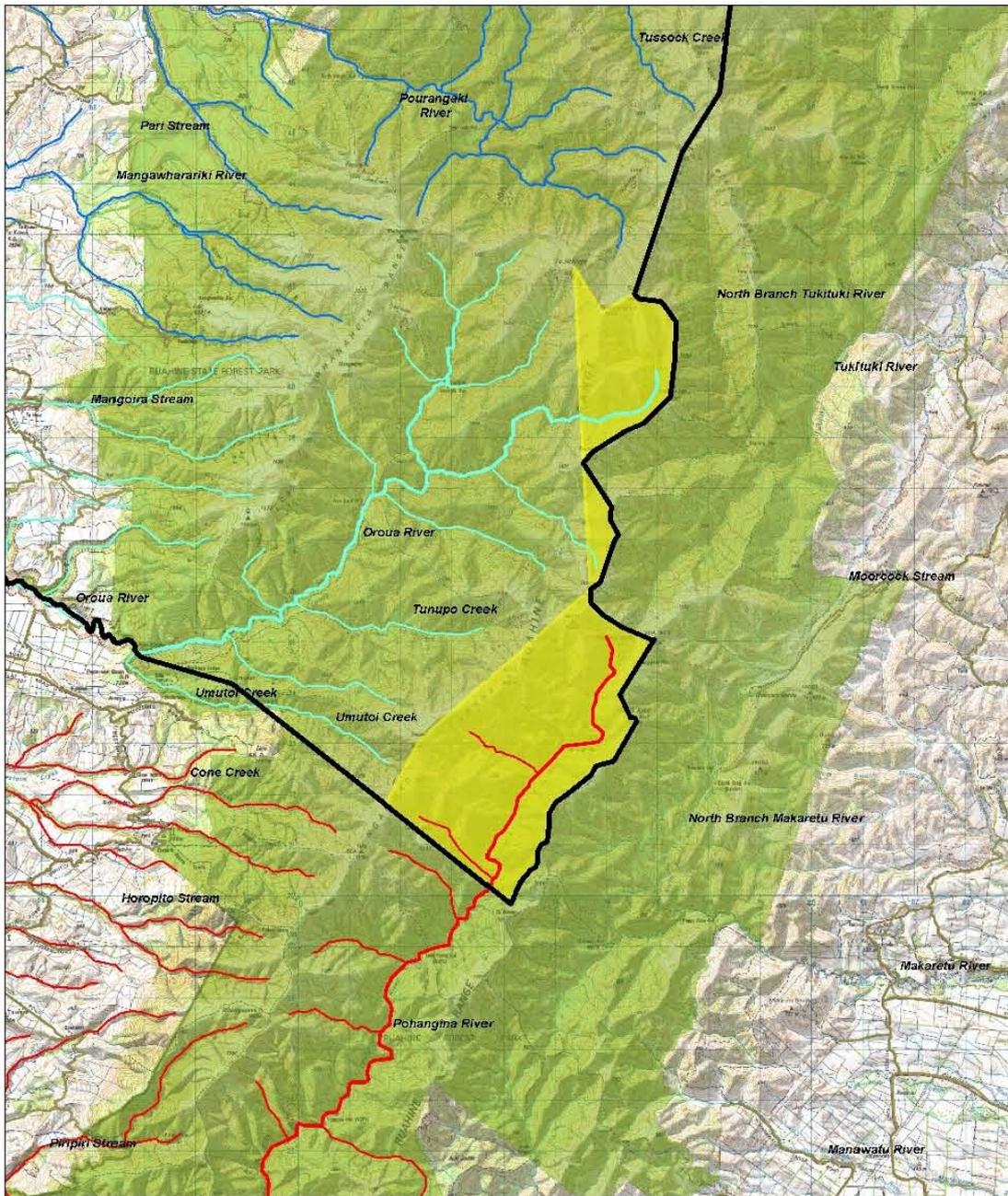
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<sup>88</sup> L.W. McCaskill, *Hold this land. A History of Soil Conservation in New Zealand*, A.H & A.W. Reed, Wellington, 1973

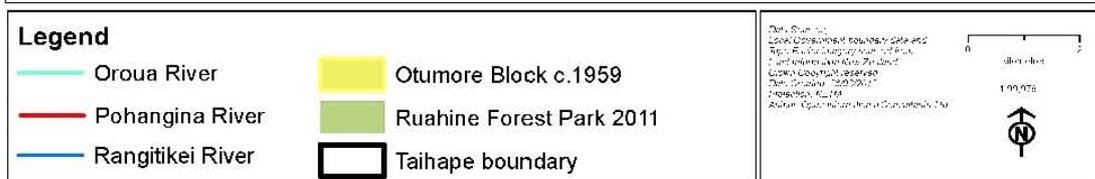
<sup>89</sup> L.W. McCaskill, *Hold this land. A History of Soil Conservation in New Zealand*, A.H & A.W. Reed, Wellington, 1973

# Otumore

Figure 6: Otumore Block



Otumore Block in Relation to Ruahine Forest Park



226. The acquisition of Otumore demonstrates another approach to dealing with degraded land, this time involving the alienation of the block and its inclusion in the neighbouring forest park. The Otumore block comprised an area of 5152 acres 1 rood 2 perches and adjoined an existing state forest. In 1961, the chief surveyor of the Department of Lands and Survey applied for a charging order under s 408 of the Maori Affairs Act 1953. The application related to a survey for the original boundaries of the Otumore block which was made in 1923. By this time, the block had been partitioned into a number of smaller parcels of land though their boundaries had not been surveyed. The Court's decision to vest the land in the Maori Trustee for sale to the New Zealand Forest Service flowed from this application. After investigating further, the Court concluded:

The Court made enquiries as to the locality with which it had a distant acquaintance through a number of flights over it in aircraft and it learned that nearly all (if not all) of the adjoining land is State Forest land. Its eastern boundary is the ridge of the Ruahine Range. The owners who were located in the various subdivisions would all be dead with many successors and the area would not warrant further survey or other expense. The Court therefore decided to cancel all partitions and vest the land in a trustee for disposal to the Crown for Forest Service purposes. A notification of intention to do this was made in a panui for a Levin Sitting the Court at that Sitting announced that it would make the Orders but there was not time then to pronounce the details thereof.<sup>90</sup>

227. In January 1962, the Court issued orders cancelling the partition orders but the judge subsequently found there was a technical issue in dealing with the partition orders in this way and instead the titles were amalgamated under s 435 by cancelling the existing partition orders and substituting a single title in their place.

228. In March, the Otumore block was vested in the Maori Trustee under s 438 of the Maori Affairs Act 1953 (this order had to be approved by the Minister of Maori Affairs before it could have effect). The purpose of the trust was to negotiate the transfer of the land to the New Zealand Forest Service at the highest price possible. The Maori Trustee was to use the funds received to meet its own expenses and charges connected with the block, negotiate the discharge of all survey charges with the Department of Lands and Survey and pay the balance of the proceeds, if there were any, to the Maori Education

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<sup>90</sup> R. A. Burns, Application by Chief Surveyor for Charging Order for Survey, 15 May 1962, WBWN W5021 6085 Box 309, 10/95/42, National Archives Wellington

Foundation. The outstanding survey liens on the block totalled £566 17s 3d and five years' interest of £141 14s 4d was also due.<sup>91</sup>

229. The land was located on the summit of the Ruahine range and formed part of the upper watersheds of the Oroua and Pohaninga rivers. The elevation of the block was between 3000 and 5000 feet. The vegetation was primarily sub-alpine with a small area of beech bush which was inaccessible and could not be milled. With the exception of a small boundary adjacent to the Awarua block, the land was surrounded by state forest. It was erodible and had the potential to cause flooding in lower lying farm land so there was value in protecting the area. The New Zealand Forest Service was actively engaged in pest control on the land. The forest service saw merit in acquiring the land which it considered was 'of no possible use to the owners' but only if the cost was low. It was willing to offer £750 'but if there is any difficulty at buying it at an extremely modest figure the land could quite well be left as it is'.<sup>92</sup>
230. The block was valued by the Government Valuer in 1959 and the total value was £395. Due to the location of the land and the low value, the Director-General of Lands and Survey did not consider a new valuation was necessary and asked the Secretary for Maori Affairs to arrange for the necessary approvals from the Board of Maori Affairs to commence negotiations on the basis of this valuation.<sup>93</sup> The department indicated it would be prepared to offer £425 for the land and accept £353 to discharge the survey lien. This offer was accepted by the Maori Trustee and approved by the Board of Maori Affairs; the remission of the survey lien was approved by the Minister of Lands.<sup>94</sup> The Otumore block was declared Crown land in May 1963.<sup>95</sup> In July, the land was set aside as permanent state forest.<sup>96</sup>
231. The alienation of Otumore appears to have been only marginally a result of environmental concerns, rather than the result of the Crown's approach to uneconomic multiply owned land in the 1960s. Nonetheless, it is significant that no attempt was made

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<sup>91</sup> Acting Director-General of Lands and Survey to the Director-General of Forests, 11 June 1962, ABWN W5021 6095 10/95/42 1, Archives New Zealand, Wellington.

<sup>92</sup> Acting Director-General of Forests to the Director-General of Lands and Survey, 11 June 1962, *ibid.*

<sup>93</sup> Director-General of Lands and Survey to the Secretary for Maori Affairs, 4 October 1962, *ibid.*

<sup>94</sup> Director-General of Lands and Survey to the Minister of Lands, 25 March 1963, *ibid.*

<sup>95</sup> *New Zealand Gazette*, 23 May 1963, p. 681.

<sup>96</sup> *New Zealand Gazette*, 25 July 1963, p. 1018.

to locate owners and discuss with them their wishes for the block. There was no mechanism considered for preserving the land in Maori ownership, while managing the land for its conservation values, as these were understood at the time.

### **Golden age of pastoral farming in Taihape**

232. Angus Gordon considers the post World War II years in the Rangitikei District as the golden age of farming. During 1951 the price of wool was over one pound sterling per pound of wool resulting in many land owners being able to pay the loans on their original ballot blocks in one season.<sup>97</sup> However, the international economic situation began to change from the 1970s. Subsidies on many aspects of agriculture practice and interest rate controls on loans for land purchase began to be removed in the 1980s. The removal of these interventions changed pastoral farming in the Taihape Inquiry District.

233. Wetlands were also drained to make way for pasture wherever possible with little or no concern about the impact on Maori. Claimants noted:

For example, I was just talking to my aunty not long ago, they used to have wetlands on their property which has been drained. They used to use that to dye flax for puipui, they call it paruparu. In that situation that was actually a natural phenomenon and they utilised it. Since then it's been drained and there's nothing there anymore. the loss of all those wetlands.

We noticed there's a lake that's partly in family ownership not far from here on the - flowing into the Rangitikei. A lot of that has been drained and in fact there were two lakes which once upon a time were quite marshy and that sort of would have been a natural feature of filter, but a lot of that lake has gone now and I've just come to realise that that's probably the same right through the whole catchment.<sup>98</sup>

234. Often this drainage was only viable because of government subsidies.

235. The present state of farming in the district is best described by the 2007 Census data from Statistics New Zealand through Table 13. The social, economic and Governmental changes to the agriculture sector during the mid-1980s greatly changed the "farming culture" of the region and are still having an impact on land use today. Agricultural

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<sup>97</sup> A. Gordon, (2009). 'The history and trends in farming and land use in the Rangitikei catchment', New Zealand Journal of Forestry, 54(1), 20

<sup>98</sup> Mokai Patea claimant, Taihape, 22 November 2011

techniques and methods applied under subsidies or incentives are now unsustainable both economically and environmentally. Farming and farm lots have changed to accommodate a production sector that requires better financial management and environmental regulation. This has also resulted in social changes with a move away from the “family” farm providing the needs of small family groups to a greater corporatisation of the industry and maintenance of productive farm blocks or units capable of providing income.<sup>99</sup> This corporatisation of the sector is also seeing the amalgamation of current land blocks, a greater emphasis on farm planning and management, and precision agriculture for the primary goal of increasing production. There has been very little emphasis on those areas retired to revert to native forest other than from the Regional Council and research organisations (e.g. the Hihitahi Reserve). Maori in the District have already made this philosophical adjustment and were successful in the agricultural sector during its inception, but at present further changes in the industry may require another shift in land use philosophy. This shift will be to a system that may not be as easily accepted as the shift from the development of small farms to provide for whanau groups to the larger corporatisation of land with a focus on economic productivity.

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<sup>99</sup> M. Gilling (1997). ‘Farm families and sustainability in the mid-Rangitikei MAF Policy Technical Paper’; 97/19, MAF, Wellington

**Table 13: Statistics New Zealand characterisation of agriculture in the Rangitikei District (source Statistics New Zealand Census 2006).**

Territorial authority	Nursery production (under cover)	Nursery production (outdoors)	Turf growing	Floriculture production (under cover)	Floriculture production (outdoors)	Mushroom growing	Vegetable growing (under cover)	Vegetable growing (outdoors)	Grape growing	Kiwifruit growing	Berry fruit growing	Apple and pear growing	Stone fruit growing	Citrus fruit growing	Olive growing	Other fruit and tree nut growing
Rangitikei District	-	3	-	-	-	-	3	9	3	6	3	6	3	-	-	3

Territorial authority	Tussock and danthonia used for grazing (whether oversown or not)	Grassland	Grain, seed and fodder crop land, and land prepared for these crops	Horticultural land and land prepared for horticulture	Plantations of exotic trees intended for harvest	Mature native bush	Native scrub and regenerating native bush	Other land	Total Land
Rangitikei District	C	247,402	C	467	18,875	13,807	11,783	4,549	326,152

Territorial authority	Farm size (hectares)														Total	
	Under 5	5-9	10-19	20-39	40-59	60-79	80-99	100-199	200-399	400-599	600-799	800-999	1,000-1,999	2,000-3,999		4,000 and over
Rangitikei District	75	54	63	60	33	24	27	126	144	87	45	21	33	12	9	822

Territorial authority	Total dairy cattle	Total beef cattle	Total sheep	Total deer	Total pigs	Goats	Horses	Ostriches and emus	Alpacas and llamas	All other livestock
Rangitikei District	42,258	162,866	1,774,007	21,976	C	C	1,077	C	C	14

Territorial authority	Sheep farming (specialised)	Beef cattle farming (specialised)	Sheep-beef cattle farming	Grain-sheep and grain-beef cattle farming	Other grain growing	Other crops growing nec	Dairy cattle farming	Poultry farming (eggs)	Deer farming	Horse farming	Pig farming	Other livestock farming nec	Forestry	Other	Total
Rangitikei District	132	117	324	15	3	12	75	-	18	21	-	3	60	3	822

## Changes in resource management in the 1970s

236. The 1970s saw a dramatic transformation in the way that the Crown interpreted its responsibilities in environmental and resource management. These changes are described in more detail in Appendix A. While still promoting the expansion of the agricultural frontier and subsidising the continued transformation of marginal land into pasture or commercial forest, the Crown began to accept responsibility for the management of the environment according to priorities that were not just economic. A popular concern about the diminishing areas of indigenous forest and the need to preserve native species had a significant influence on policy makers.<sup>100</sup> In the Taihape district, retiring land from agricultural production replaced using grass to stabilise pasture as a solution to erosion. Indigenous forest and tussock land were to be preserved.<sup>101</sup> Swamp lands took slightly longer to be appreciated.
237. This change in approach had significant implications for the management of wahi tapu. These sites could now be preserved because of their archaeological or historical significance. Sites that were important because of the ecosystems and species to be found there had to be assessed and interpreted. To assess the non-economic value of sites, the Crown turned to universities and professionally trained botanists, zoologists, archaeologists and historians, to advise on the value of these sites and their suitability for preservation. Preservation was no longer tied specifically to ensuring better economic performance from the land and its waters. There was little emphasis on Maori interpreting Maori sites in the mid-1970s, let alone having control over them. This did not eventuate until a decade later when it contributed to debates on the Treaty of Waitangi before the Waitangi Tribunal and in the development of the Resource Management Act 1991.

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<sup>100</sup> Michael Belgrave, David Belgrave, Jonathan Procter, April Bennett, Mike Joy, Sharon Togher, Grant Young, Chris Anderson, Finbar Kiddle and Jacob Lilley, 'Rohe Potae: Environmental and Wahi Tapu Report', A Report Commissioned by the Crown Forestry Rental Trust for the Waitangi Tribunal's Te Rohe Potae District Inquiry, A Report Commissioned by the Crown Forestry Rental Trust for the Waitangi Tribunal's Rohe Potae District Inquiry, September, 2011.

<sup>101</sup> See the issues over retiring land in 'District Planning Schemes', Rangitikei County Council, Horizon.

238. Owners of Maori land became the subject of this change in emphasis as local bodies attempted to control land use for environmental reasons. The pressures to retire land from agriculture met head on with the pressures on Maori land owners in Mokai Patea to get some return from their land. The conflict over the development of Aorangi Awarua provides an excellent case study of this tension and we have covered the early stages of this negotiation in some detail because of this.
239. Yet despite this appreciation of the damage being done by farming to steep high country land prone to erosion, Crown policies from the late 1960s through to 1984 saw an increasing emphasis on state subsidies to maintain the viability of many forms of pastoral farming. Sheep farming in particular, the most common agricultural use of lands within the Taihape Inquiry District, received a substantial boost from such subsidies. Subsidies were intended to increase sheep numbers nationally. Subsidies were provided for fertiliser use, to provide cheap credit to producer boards and to bring marginal land into production. They were also used to support farmer incomes directly. Once these subsidies removed following the election of the Fourth Labour Government in 1984, sheep numbers dropped dramatically, reducing pressure upon the environment.<sup>102</sup>

### Scoping report issues covered

240. ‘Land Use and Agriculture in the Taihape Inquiry District’ explored at **the expansion of farming and timber milling**. This includes the effect of **the transformation of land into pasture and erosion issues which followed** and **the development of townships**. The Taihape district was settled much later than other parts of the country and details on farming in the upper Rangitikei. It was not until the introduction of the railway in the first decade of the twentieth century that large scale pastoral farming was possible. For this reason 19<sup>th</sup> century sources are rare and of little use. Books on 19<sup>th</sup> century Rangitikei concentrate on the lower reaches of the river and thus outside the inquiry district. The section does describe the use of Crown subsidies to drain swamps in the 20<sup>th</sup> century and the lack of consultation with Maori on such practices has been noted. The changes in Crown farming policy in the 1970s and its implications for **wahi tapu** have

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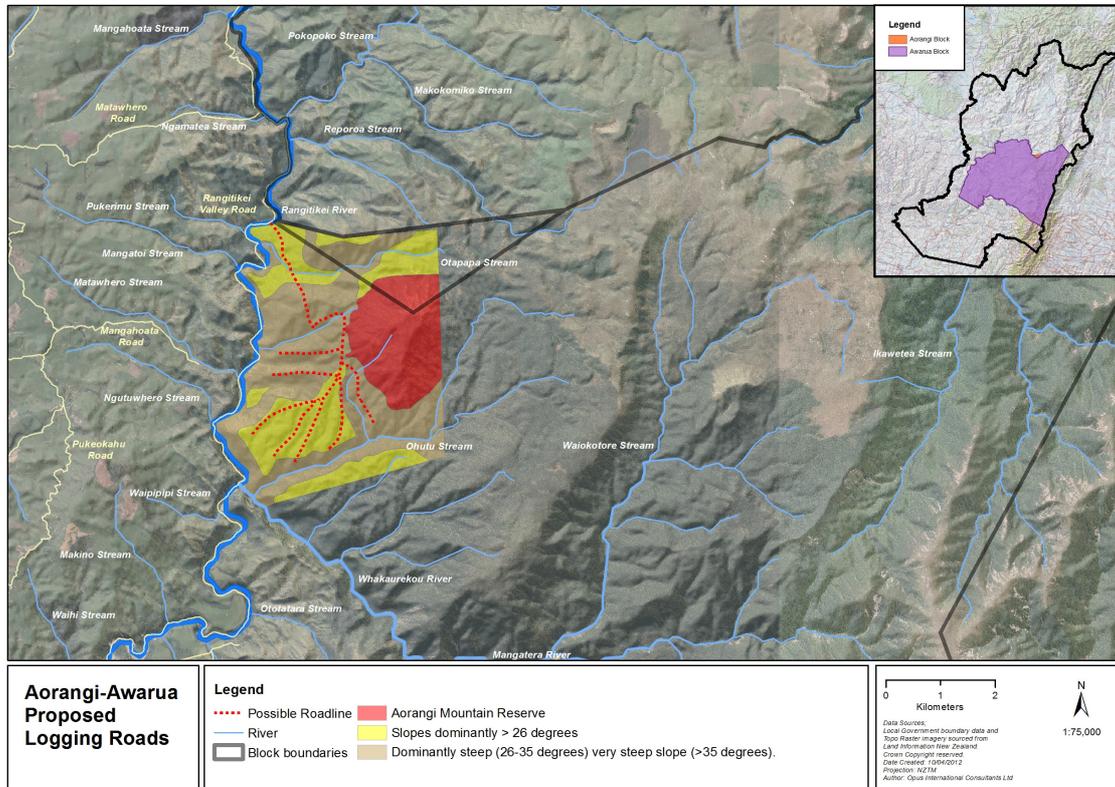
<sup>102</sup> Catriona J. MacLeod and Henrik Moller, ‘Intensification and diversification of New Zealand agriculture since 1960: An evaluation of current indicators of land use change’, *Agriculture, Ecosystems and Environment* 115 (2006) 201–218. B.L. Evans, *A history of agricultural marketing in New Zealand*, Palmerston North, 1969.

been described. The section also includes the **acquisition by the Crown of Otumore for inclusion into a forest park** using the available records from National Archives.



# AORANGI-AWARUA LOGGING PROPOSALS

Figure 7: Aorangi-Awarua Logging Proposals



## INTRODUCTION

241. Aorangi-Awarua and Part Awarua 1DB2 are two blocks of Maori land in the Ruahine Ranges approximately 25 kilometres east of Taihape. The blocks are land locked with no legal access. Near their centre is the flat topped peak of Aorangi which is of great spiritual importance to the claimants. The land is rugged with many steep sections, especially in the forested area around Aorangi. It borders both the Ruahine Forest Park and the Rangitikei River. The area is also of great interest to conservationists due to its large area of indigenous forest. Forest and Bird described the land in the following way:

Aorangi-Awarua is one of the largest privately-owned virgin forest blocks in the North Island. It contains an ecotone of beech forests on greywacke and podocarp forest on sedimentary rocks of outstanding scientific interest. The sequence of high to low altitude podocarp forest is unique in the North Island. It is the southern limit for North Island brown kiwi in the Ruahine-Rangitikei region and it has good populations of blue duck [sic], falcon and yellow-crowned parakeet.<sup>103</sup>

<sup>103</sup> Bellingham to Marshall, 1 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

242. During the second half of the 20th century logging firms repeatedly applied to log the forests on the block. The files of the Rangitikei-Wanganui Catchment Board provide an insight into the attempts at logging made during the 1970s and late 1980s. The files show the difficulties of the process, the potential for environmental harm caused by the proposed logging, and the challenges faced by the owners. The files demonstrate the complexity and limitations of the resource management apparatus just prior to the reorganisation of local government at the end of the 1980s and the introduction of the Resource Management Act in 1991. The influence of a large number of agencies with narrowly focused interests combined with pressure from conservation organisations was set against the desires of logging firms and the reluctant trustees of the block who felt they had little alternative to logging. The trustees had little opportunity to generate revenue from the block and were under pressure to meet rates demands and the costs of fencing. Their attempts at obtaining rates relief in exchange for cooperation in water schemes were rebuffed due to the Crown's claim of ownership over water. Any revenue from leasing parts of the land was more than offset by the burden of boundary fencing costs imposed by neighbouring land owners. Various attempts by the Crown to offer funds in exchange for protection of the forest, such as through the Queen Elizabeth II Trust, would prove insufficient until the Crown was prepared to provide compensation that was comparable to the return from logging.

243. The catchment board and conservation organisations believed the proposed logging would have been immensely destructive. The potential for erosion, damage to the Rangitikei River, the loss of significant flora and fauna, and the destruction of other potential economic uses of the land was dramatic. The proposal was referred to by the logging firm as 'selective logging' but this was a misnomer as the agreement with the owners described clear felling the forest, albeit only in certain areas of the block.<sup>104</sup> An access road and bridge over the historically significant 'narrows' of the Rangitikei River would have had to have been constructed. This construction would have caused considerable silting of the river and damage to fisheries, although it would have

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<sup>104</sup> Deed between Aorangi Awarua Trust and Reeves Contractors Ltd, 28 February 1968, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

improved access to the block for the owners. Forest and Bird felt the loss of timber would most likely have resulted in the loss of birds and other species.<sup>105</sup>

244. Options for the owners were limited and the alternatives to extractive uses of the land were only beginning to become possible. The trustees did not wish to lose the trees on the block or suffer the environmental repercussions but were placed in an almost untenable situation by rates demands, a lack of economic return for the land or its water, and a resource management regime which opposed the logging of the block. For the claimants, this episode represents a period where the owners had little ability to manage their land effectively in an economically viable and environmentally appropriate way.
245. While telling an important part of the story of Aorangi-Awarua, the files assessed for this research only tell part of the history of the block and the attempts at logging. More research could be undertaken by assessing data from more sources such as the Department of Conservation. Greater discussion with claimants and possibly other actors involved in the negotiations may also be useful.

## **THE 1974 LOGGING APPLICATION**

246. The Rangitikei-Wanganui Catchment Board file on Aorangi-Awarua begins on 23 August 1974 with an application to the Soil Conservation Authority of the Catchment Board to log ‘dead and drying totara growing below “Aorangi Hill”’ on the neighbouring Awarua 1DB2 block.<sup>106</sup> There is little information in the file about this application but there are detailed letters of opposition from the Federated Mountain Clubs of New Zealand and Forest and Bird. Opposition from the Federated Mountain Clubs was on recreational grounds.

While the area is not visited all that often by our members because of its remoteness, it is considered to have some outstanding scenic and recreational attractions. Furthermore, because of the rugged nature of the region we would be disturbed at the erosion hazard from such logging operations.<sup>107</sup>

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<sup>105</sup> Bellingham to Marshall, 1 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>106</sup> McIlwaine to Secretary, Soil Conservation Authority, 23 August 1974, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>107</sup> Whiteside to Secretary, Soil Conservation Authority, 17 September 1974, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

247. Forest and Bird opposed the application on a number of grounds. The society's opposition was largely based on the site being the best remaining stand of mixed podocarp in the Ruahine Ranges; erosion from access tracks and logging; bird loss in the area; and unfairness given the Maori owners had been denied logging permits 10 years earlier.<sup>108</sup>
248. The catchment board appears to have been in favour of the application provided the operation met a number of conditions.<sup>109</sup> At the same time the board seems to have been reluctant to make a decision and deferred the hearing until it had received a report from the NZ Forest Service. The application appears to have been strongly opposed by the acting Wellington Conservator of the NZ Forest Service, Mr. Everett. Everett's specific opposition is not recorded in the catchment board file, but the logging firm wrote to the catchment board in protest at Everett's accusations calling them 'emotional, and totally ignoring logic and the facts'.<sup>110</sup>
249. The file does not show how this application was concluded. However, the efforts of the catchment board to protect the area from logging became more formalised over the late 1970s. During this period the board:
- ...promoted the concept of Watershed Protection Zones (W.S.P.Z) with counties in the Board's district. These zones sought to have recognised areas, mainly in the upper catchment, where because of erosion hazard and other natural limitations the land should be retired from or not developed for farming. Because existing-use rights apply to Town and Country planning it was accepted that some parts of these zones would continue to be farmed.<sup>111</sup>
250. The catchment board realised further restrictions would be unpopular with land owners. However, the interaction between the catchment board and the owners of Aorangi-Awarua appears to have run through the double filter of the trustees and the Maori

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<sup>108</sup> Royal Forest and Bird Protection Society of New Zealand - Manawatu Branch to Secretary, Soil Conservation Authority, 23 September 1974, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>109</sup> Resolution of the Rangitikei-Wanganui Catchment Board, 23 August 1974, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>110</sup> McIlwaine to Secretary, Soil Conservation Authority, 18 September 1974, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>111</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

Trustee rather than the direct discussions that general land owners would have experienced.

When the Board first became involved with the concept of the W.S.P.Z. it was very conscious that land-owners could be suspicious of ideas which appeared to impose some restriction on them. For this reason a great deal of time and effort was spent explaining the idea, not only to the County Councillors, but also to landowners directly affected. This included visits to individuals to explain the proposal and at later dates to inform owners of the plan finally adopted by the County and the landowners' rights of objection and appeal.

The concept was adopted by the County with only minor changes and approved in May 1978. As far as the Aorangi-Awarua blocks were concerned all correspondence was relayed through the office of the Maori trustee. It is significant to note that no objection or reservation was voiced from this quarter.<sup>112</sup>

251. The WSPZ process resulted in the catchment board issuing a public notice pursuant to Section 34 of the Soil Conservation and Rivers Control Amendment Act 1959 under which Reeves Contractors Ltd applied to log the land in 1982.<sup>113</sup>

## **THE APPLICATION OF REEVES CONTRACTORS LIMITED**

252. The 1980s proposal to log the area was the fourth since 1951.<sup>114</sup> The application is not in the file but in 1985 it appears that helicopter logging was under discussion. In September 1985 J. Bathgate of the NZ Forest Service wrote to the catchment board suggesting a number of restrictions on helicopter logging of the forest. These suggestions aimed to minimise the effect of this style of logging on the forest. The service made an estimate of \$97/m<sup>3</sup> for the cost of extraction which would allow a royalty to the owners of approximately \$28/m<sup>3</sup>. The service saw the value to the owners of the land and forest as being primarily economic.

The quality of the podocarp timber of the Awarua/Aorangi blocks is fairly mediocre overall, although there are some good sticks of timber. Helicopter logging unlike conventional logging entails relatively low fixed costs, and can therefore opt for quantity rather than quality. Accordingly while a meagre royalty would make much of the timber economically accessible to a helicopter, a relatively substantial royalty

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<sup>112</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>113</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>114</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

should limit the felling and extraction to the better timber only. Such would be in the interests of soil and water protection as well as those of the owners in retaining the values of their forest for future uses, e.g. tourism.<sup>115</sup>

253. Bathgate also suggested acquainting the owners with the scientific values of the block in order for them to better gain economic value from it.
254. By November 1985 the catchment board was advising logging firms that the board would be 'unlikely to issue a permit for ground harvesting for the Aorangi-Awarua blocks because of the water and soil problems associated with this type of operation'.<sup>116</sup> By the following year the catchment board was actively trying to reduce the pressure on the owners to log the block. The board's senior soil conservator, D Harrison, wrote to the Maori Trustee to coordinate an effort to reduce the rates burden on the owners and thus reduce the need to generate logging income.<sup>117</sup> Harrison asked the Maori Trustee for support in an approach to the Rangitikei County Council for a remission of rates.
255. The issue of rates relief for owners of environmentally significant land was being explored by the Crown at this time. An interdepartmental working party was established the same year to examine rates relief for the preservation of 'indigenous natural areas'.<sup>118</sup> The report included significant discussion on the problems faced by Maori owners like those of Aorangi-Awarua, but did not mention specific locations. However, the report did not make strong recommendations. The recommendation was that government departments and local authorities better coordinate with and promote existing schemes like the Queen Elizabeth II Trust. There was not a recommendation that greater funds be allocated to such schemes.

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<sup>115</sup> Bathgate to Hogg, 25 September 1985, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>116</sup> Hogg to Manager, Reeves Contractors Ltd., 8 November 1985, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>117</sup> Harrison to Maori Trustee, 30 April 1986, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>118</sup> 'Rating Relief for Areas of Indigenous Vegetation', August 1985, AAZU W3619 22, National Archives, Wellington

256. By this time the Aorangi Awarua Trust had already signed an agreement with Reeves Contractors Limited to log parts of the Aorangi and Awarua 1DB 1 and 2 blocks.<sup>119</sup> This agreement allowed the contractor to log all the timber (excepting, to a limited extent, the low quality ‘firewood’) on the blocks apart from the areas comprising the Aorangi Mountain Reserve, slopes greater than 35 degrees, and within 100 lineal feet either side of streams or watercourses. While this is described by the contractors as ‘selective logging’, several logging opponents pointed out that this description is not selective logging but clear felling, albeit in restricted spaces.

257. The agreement appears to have caused the catchment board to lose its enthusiasm for obtaining rates relief for the owners. In a letter to the trustees’ lawyers the chief executive officer wrote:

The Board would be prepared to seek some form of rate relief from the Rangitikei County Council providing the blocks were not being used for commercial purposes.

However the Board was somewhat disconcerted by an application from Reeves Contractors Ltd to mill the area and this introduces another dimension.

The Board would be unlikely to seek any form of rates relief while this is application was under consideration.<sup>120</sup>

258. Lawyers acting for the trustees then suggested that the owners should receive payments from the catchment board due to the blocks’ inclusion in the Erewhon Water Scheme.<sup>121</sup> The demands included compensation for any structures on the Aorangi-Awarua lands, an annual payment to the owners’ trust, and a lump sum payment to the owners for water already taken. Hogg felt this claim was a matter for the county council.<sup>122</sup> Hogg was dismissive of the demand when passing on the request to the county council:

You will no doubt be aware that water is owned by the Crown and that there is no legitimate case for such compensation.<sup>123</sup>

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<sup>119</sup> Deed between Aorangi Awarua Trust and Reeves Contractors Ltd, 28 February 1968, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>120</sup> Hogg to Stent, 16 April 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>121</sup> Vane to Hogg, 13 April 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>122</sup> Hogg to Vane, 23 April 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>123</sup> Hogg to Chief Executive Officer, Rangitikei County Council, 23 April 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

259. Logging was strongly opposed by Forest and Bird which took a strong interest in the blocks. The society was also sympathetic to the owners and advocated a payment to the owners in return for the protection of the area.<sup>124</sup> It said that there was no need for further assessment as there was already agreement as to the importance of the area. It advocated the appointment of a negotiator who was sympathetic to the owner's desires but was still committed to protection. A payment to the owners of \$75,000 per year was suggested as this would be half what the society believed the owners would receive in interest from the logging royalties.
260. The Wellington Acclimatisation Society was also concerned about the logging proposals.<sup>125</sup> The Acclimatisation Society was interested in the risk of damage to rivers and fisheries. It demanded that the catchment board take into account the water quality of the Rangitikei and Whakaurekau Rivers and seek to preserve that quality when approving logging operations.
261. In May 1987 the trustees issued a press release where they pointed out that for 10 years it had been the desire of the owners to selectively log the land.<sup>126</sup> The trustees had been given by the Maori Land Court the power to sell cutting rights, develop native or exotic forestry, and investigate the reservation of Aorangi Mountain. Having achieved the reservation the trustees said they put a lot of work into investigating and assessing appropriate contractors. They also pointed out they approved of the terms of the logging and also defined the operation as 'selective logging'.

## **THE CATCHMENT BOARD DECISION AND APPEAL**

262. The Rangitikei Catchment Board could only assess environmental issues assigned to it by legislation. Water and soil conservation were its primary concern. It could not take into account issues such as aesthetics or Maori spiritual values. This narrow remit was mentioned and possibly lamented by Hogg in a letter to the NWSCA:

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<sup>124</sup> Bellingham to Marshall, 1 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>125</sup> Sutton to Hogg, 8 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>126</sup> Rehua to Hogg, 12 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

The Board has received correspondence from a number of organisations advocating from an aesthetic viewpoint, the retention of the forest in its present state. However the Board was careful to consider the merits or otherwise of the application strictly in terms of the Soil Conservation and Rivers Control Act only.<sup>127</sup>

263. On 14 May 1987 the catchment board formally rejected the application and resolved:

That the application from Reeves Contractors, for a permit to undertake tracking and logging on the Aorangi/Awarua Blocks, be declined on the grounds that it would be an imprudent land use practice and that the detrimental effect on water and soil values would be unacceptable.<sup>128</sup>

264. A month later lawyers acting for Reeves Contractors submitted an objection to the decision under Section 34(2a) of the Soil Conservation and Rivers Control Amendment Act 1959. This meant the application was forwarded to a tribunal of the National Water and Soil Conservation Authority for appeal. Submissions were made to the tribunal including a substantial 17 page submission from the catchment board. The Board believed the proposed logging and the accompanying roading would cause significant erosion and loss of water quality.

The Board appreciates that the owners have a resource of timber and land which they would like to utilise, but the Board also has a responsibility to ensure that the resources of water and soil are protected, not only in the short term but for the future. While it may be physically possible to track and log the Aorangi/Awarua blocks the inherent physical limitations of geological instability, erodible soils, steep slopes, high rainfall and harsh climate mean that the onsite and downstream problems that would result, if ground based tracking and logging were permitted, on steep (26° - 35°) or very steep (35°>), would be excessive and therefore unacceptable... There are a number of alternatives (to a ground based logging operation) which would provide an income for the owners. These include:-

- 1) Proposals which would give the Trustees an income but still allow them to retain ownership of the lands in question.
- 2) Extracting the logs by helicopter. This would probably receive favourable consideration by the Board.
- 3) A tourism venture based on the very characteristics which would be removed or negated by the proposal to farm or log the area, and one which would be more profitable to the owners in the long term.<sup>129</sup>

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<sup>127</sup> Hogg to Knowles, 16 July 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>128</sup> Hogg to McKechnie, 15 May 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>129</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

265. The Board seemed to have understood the importance of the mountain to the owners but had little sympathy for the economic difficulties of the claimants:

The Aorangi-Awarua blocks have long been recognised for their unique scenic, historical, spiritual, cultural, botanical, geological and aesthetic importance. Whilst these are features outside the jurisdiction of the Catchment Board there is a direct relationship in that if these features are protected there will be an increased protection given to the soil and water values. For this reason the Board has actively supported moves by other organisations, principally the then N.Z. Forest Service to gain long term protected status for the area.

A number of proposals, dating back to 1974, have been put to the owners. These proposals have included the offer of alternative land with lease-back for the growing of exotics through to a lease type payment for annexing the Blocks to the Ruahine Forest Park. Not only would these offers have given the owners a monetary return but provision was also made for them to retain ownership with its associated cultural significance.

It is probably not unreasonable to assume that had these original offers been acted upon then the owners would already be receiving or close to receiving some form of income.<sup>130</sup>

266. The submission from Reeves Contractors focused on the details of the proposed logging operation and the erosion mitigation efforts that would be made by the firm. It argued that the operation would be selective logging:

On a yearly basis the volume of timber that will be extracted may amount to 4000m<sup>3</sup> which equates to an average of one truck per day. In actual operations the number of trucks would vary from nil to three or four per day. By any harvesting standard this operation is very small and the amount of damage and area harvested per year will be correspondingly small... The area that would be selectively logged in any one year during the initial contract period will not exceed 100 hectares. This is less than 2% of the total area of the block.<sup>131</sup>

267. Another submission from a representative of the firm pointed out the extensive negotiations with the trustees and owners:

Negotiations for the right to log the native timber on the Aorangi Awarua Block began eight or nine years ago. There have been numerous meetings with the Trustees, Owners [sic] and myself. The contract was signed in February 1986. This logging contract is a legal and binding contract.

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<sup>130</sup> David Harrison. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>131</sup> Paul Richardson, Consultant. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

The contract provides that Reeves are the only company able to log this Block. We are not permitted to lease, sub-let or sell the contract right. This was done at the request of the Trustees and Owners.

Mr Reeves and I are very aware of the Trustee and Owners feelings and regard to the historic, sacred and customary rights of the land. We respect these wishes and have undertaken not to prejudice these in any way.<sup>132</sup>

268. Ira Karaitiana made a submission on behalf of the trustees in support of the logging application.<sup>133</sup> Karaitiana pointed out that it had been the desire of the owners to selectively log the forest for 10 years and that the Maori Land Court had empowered the trustees to contract the logging of the land. He also pointed out the effort that the trustees had made to negotiate with logging firms and select a contractor that would operate under conditions that would be acceptable to the owners.

A lot of work has been undertaken in investigating and assessing appropriate contractors. The Trustees have felt a need to be satisfied that the historic sacred and customary rights of owners of the land will not be prejudiced by logging operations... The Trustees believe that Reeves Contractors Ltd will satisfy the needs of the owners while undertaking logging operations.

A written agreement was entered into with the approval of a general meeting of owners granting Reeves Contractors Ltd rights to selectively log timber on the land.<sup>134</sup>

269. Other submitters included a former manager of Mangaohane Station<sup>135</sup> and a Taihape-based bulldozing and earth moving contractor.<sup>136</sup> Both opposed the application on the basis that the logging would result in serious erosion.

270. The NWSA appointed B H Jones and J M Black as the tribunal to consider the objection to the board's decision.<sup>137</sup> The appointment of Jones as a Maori representative

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<sup>132</sup> John Pool, Reeves Contractors Ltd. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>133</sup> Ira Karaitiana, Trustee. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>134</sup> Ira Karaitiana, Trustee. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>135</sup> Peter Green, Farmer. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>136</sup> Neil McDonald, Contractor. Submission to the National Water and Soil Conservation Authority Tribunal, 30 October 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>137</sup> Knowles to McKechnie, 11 August 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

would later become one of the catchment board's points of opposition to the judgement of the tribunal when appealing to the High Court.

271. On 4 December 1987 the NWSCA tribunal upheld the objection, but provided a strict set of conditions under which the logging was permitted.<sup>138</sup> On top of the conditions set by the trustees, the new conditions:

- Limited the logging to compartments of no more than 50 hectares
- Limited logging to no more than two compartments per year
- Excluded logging from land where the average slope exceeded 26 degrees
- Excluded the logging of trees with a breast height of less than 450mm
- Restricted roads to no more than 4.5m in width and grades no more than 1 in 8
- Stated that spoils from roads were not to be placed where they could enter watercourses
- Stated that logging and roading must conform to the NWASCA's Forest Operations Guidelines overseen by the Rangitikei-Wanganui Catchment Board.

272. The tribunal also acknowledged the difficulties the owners had experienced in terms of land use and negotiations with the Crown.

The Tribunal further notes that the alternative uses of land suggested by the catchment board were not supported by the owners of the land; there was no evidence as to whether or not they were viable uses of the land; and despite protracted negotiations between various government departments and the owners

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<sup>138</sup> Decision of the tribunal appointed by the NWSCA, 4 December 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

extending over many years, no formal offer satisfactory to the owners for alternative use of the land has been made.<sup>139</sup>

## HIGH COURT ACTION AND DOC ATTEMPTS AT SETTLEMENT

273. The catchment board immediately sought legal advice about appealing the decision to the High Court and seeking a judicial review of the logging application.<sup>140</sup> The catchment board's concerns about the decision included how evidence was presented to the tribunal, whether watershed protection was an active use of the land, the effect of the decision on the board's other activities, and the appointment of Jones to the tribunal:

...the two man Tribunal comprised of the Chairman, Mr Black and one member, Mr Jones who is a member of the National Authority representing Maori interests.

While I am sure that Mr Jones acted quite properly in this matter I believe that this could well be a case of justice appearing not to be done.

While I have no quarrel with the appointment of Mr Jones as such I believe that the Tribunal should have comprised at least three members which would have given a much more appropriate balance than the one constituted.<sup>141</sup>

274. In addition to the appeal to the High Court, the catchment board also opposed Reeves Contractors' application to the Rangitikei County Council for planning permission to log the forest.<sup>142</sup> However, the catchment board files contain little information on the council's planning procedures in this regard.
275. With the prospect of an appeal in the High Court and opposition to planning permission, the Department of Conservation attempted to purchase the logging rights from Reeves Contractors.

If you are to pursue your logging rights you are faced with considerable expenditure (especially legal fees) in the near future. Both the High Court case and the planning hearing before the County (and any appeals or other proceedings arising from it) could be complex and lengthy. This Department also is faced with incurring legal costs. As you know, we are among the objectors before the County. In view of the obstacles you are facing, and the uncertainty of a successful outcome from your

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<sup>139</sup> Decision of the tribunal appointed by the NWSCA, 4 December 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>140</sup> Hogg to Barker, 14 December 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>141</sup> Hogg to Barker, 14 December 1987, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>142</sup> Fraser to Harrison, 8 February 1988, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

point of view, we would like to know if you would now consider an offer from this Department to in effect buy the logging right you have obtained.<sup>143</sup>

276. However, DOC was unable to provide a market value for the rights and the best offer it could make was to cover the legal costs incurred by the firm up to that point. DOC realised this arrangement would require the approval of the trustees. Like other organisations it saw tourism as the best outcome for the owners:

Any such offer we would make would need to be conditional on the Trustees agreeing with us to protect the block's natural values on a long term basis. While wishing to protect those values we would want to see the Trustees realise their aspirations for their people. But we see this occurring through tourism rather than through logging the timber. The block has certain features (the podocarp forests being one) that if correctly interpreted and marketed, would prove a major tourist attraction. If the prospect of logging can be removed, then appropriate and environmentally sensitive tourism development can be immediately considered. This Department proposes to negotiate an arrangement with the Trustees to preserve the natural values, but make them accessible and a source of employment and tourist revenue for the owners. We expect to commit some of our own resources to that development, but cannot make that commitment until the prospect of logging has disappeared. The County, the Catchment Board, local conservation groups and some adjoining landowners are in support of protection coupled with appropriate tourism, so we can expect to have their co-operation and assistance.<sup>144</sup>

277. The catchment board (now incorporated into the Central Districts Catchment Boards under the management of R A Barrett) was sceptical of DOC's offer which was declined by Reeves.<sup>145</sup> Barrett saw the purchase of cutting rights as insufficient for the protection of the forest. Only the purchase of the timber itself would protect it from extraction. The price was suggested as being 'based on the value of the trees as timber, less an amount perceived as being their value to the owners in developing any tourist venture'.<sup>146</sup> Barrett suggested that DOC make this payment over a number of years as a special payment from central government.

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<sup>143</sup> Connell to Reeves Contractors, 4 May 1988, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>144</sup> Connell to Reeves Contractors, 4 May 1988, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>145</sup> Barrett to Connell, 2 June 1988, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

<sup>146</sup> Barrett to Connell, 2 June 1988, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North

278. The judgement of Justice J Greig was issued on 29 September 1989 and went strongly against the catchment board.<sup>147</sup> The Court dismissed the Board's appeal and its application for judicial review. The Court found, among other things, that town planning considerations were irrelevant notwithstanding the area being zoned with soil conservation as the dominant use, and that a balance between the likelihood of erosion and silting and the benefits and mitigation was required. This did not require the retirement of land or prohibit uses likely to facilitate erosion. The board's accusation of bias on the part of Mr Jones was 'quickly disposed of as unfounded' by the Court.<sup>148</sup>

## CONCLUSION

279. The decision of the Court came at a time of immense change for resource management, local government and the role of the Crown generally. By the time the decision was made the catchment boards, the county councils and the NWSCA had all been abolished. The resource management laws, on which the application process was based, were already in the process of being replaced. However, the saga of the Aorangi-Awarua forests would continue into the 1990s. Eventually DOC would find the resources to purchase the logging rights and support the owners through the Nga Whenua Rahui scheme where owners are paid to protect indigenous ecosystems on Maori land.<sup>149</sup> The agreement which resulted remains controversial with claimants.

280. While the owners and conservation interests eventually came to an accommodation, the owners faced a period of over ten years where they were placed in an impossible position by a resource management regime which prevented the owners from achieving their desires of making an economic return from their land while failing to provide credible alternatives. Throughout the period there was strong pressure from the public and civil society organisations for the protection of the forest yet the Crown would not offer the owners compensation which matched the financial return they would have gained from logging. At the same time the limitations of the resource management law of the time

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<sup>147</sup> Decision of Justice J Greig, 29 September 1989, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North.

<sup>148</sup> Decision of Justice J Greig, 29 September 1989, HRC 00050:29:327/391, Horizons Regional Council, Palmerston North.

<sup>149</sup> Nga Whenua Rahui, Department of Conservation, <http://www.doc.govt.nz/getting-involved/volunteer-join-or-start-a-project/start-or-fund-a-project/funding/for-landowners/nga-whenua-rahui/nga-whenua-rahui-fund/>

were evident in that the planning regime was divided between the county council and the catchment board, each with narrow interests in terms of environmental management. While this system would be improved by the introduction of the Resource Management Act, it was only a greater financial commitment by the Crown that allowed the owners to make an economically rational decision in favour of environmental protection.

### **Scoping report issues covered**

281. A considerable section has been written on the **Aorangi-Awarua logging proposals**. This work has been done using the records available from Horizons Regional Council, National Archives and two secondary sources. The Horizons file was by far the most useful as it chronicles the development of the proposals and the opposition of the catchment board and civil society organisations as the Crown slowly moved to protect the forest. These files end in 1989 but still show significant Crown culpability in the difficulties faced by the owners of the block. The current DOC files were not available for this research and may shed more light on post-1989 events, although this may not be necessary.

## FAUNA AND FLORA

### DESTRUCTION OF INDIGENOUS FORESTS AND SWAMPLANDS

282. Prior to European colonisation, the district was dominated by forests and wetlands. The Rangitikei, Turakina, Whangaehu and Mangawhero areas were dominated by rimu, matai, hinau and rewarewa, with kahikatea in wetter areas.<sup>150</sup> Totara were also present along the river terraces and flats to the east of the Rangitikei River. Moving upland the vegetation became more dominated by scrub (manuka, toetoe) with kowhai and koromiko. In the extensive gully systems different assemblages of natives were found such as mahoe, ribbonwood, houhere, lancewood and five-finger with ponga and rewarewa. Prior to European settlement wetlands were more prominent and abundant, containing swamp coprosma, manuka, *Carex*, and other tussocks as well as raupo. All this changed from the late 19<sup>th</sup> century.
283. For most of the 19th century North Island forestry was dominated by kauri milling. The southern limit of kauri growth is roughly the 38<sup>th</sup> parallel well north of the inquiry district. While kauri remained king, central North Island podocarp forests were seen as a nuisance, and their destruction rather than their harvesting was a priority in opening up runs for pastoral farming. The opening up of the area for the main trunk line encouraged the establishment of farming runs. The Taihape district did not experience the wholesale and deliberate burning of forests which occurred in the Wairarapa and Manawatu, but the burning of bush was deliberately used not only to clear land for pasture, but to provide nutrients for newly established grasses.<sup>151</sup> Larger trees were felled and then in March, when the timber had dried, it was torched so that grass could be sown, to grow in the ashes. For the Taihape district the timber was simply too wet to allow forests to be burnt in order to create pasture.
284. From 1890 it became clear that the kauri industry was in decline and new areas began to be opened up with previously ignored species starting to meet the sawmill. With the

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<sup>150</sup> C.M. Lake, K.J. Whaley (1995). Rangitikei Ecological Regional NZ Protected Natural Areas Programme No. 32. Department of Conservation, Wanganui. p. 316

<sup>151</sup> Rollo Arnold, *New Zealand's burning, the settler's world in the mid-1880s*, Victoria University Press, Wellington, 1994

development of the railway into the centre of the island the local timber industry began to see growth. Maori concerns about preserving the resources of the swamplands and forests were soon overwhelmed by the market for timber and European preference for farm land over swamps and forest. By the early 20th century, timber milling around Taihape was facilitated by export possibilities provided by the introduction of the railway. The felling of indigenous timber would remain important until the industry started to decline from the 1960s due to exotic forests coming to maturity and popular concerns about the huge destruction of indigenous forest which had occurred over the previous century.

285. Cutting rights were gained from various sources including outright land purchase, the leasing of Maori land and purchasing licences to cut Crown land, although only a small proportion of Crown land was specifically made available for saw millers. One practice was to obtain rights from settlers prior to the arrival of the railway line. A miller would pay a down payment to the land owner promising to cut the timber and pay a royalty within a given timeframe, once the Main Trunk Line was accessible.<sup>152</sup> Because of the value of timber, settler demand for land was particularly strong in the bush areas and much of the later valuable river land was by-passed.
286. Despite this demand for timber, burning was still a common method of clearing land for pastoral farming once large trees were removed. Farmers obtaining Crown land on deferred payment were required to make improvements – which meant clearing and sowing – to their land or face eviction. At least one early 20<sup>th</sup> century settler forfeited his holding because he regarded its timber to be too valuable to burn.<sup>153</sup>
287. Land remaining in Maori ownership also faced loss of timber through leasing to timber millers. Cutting leases of Maori land became scrutinised by the 1903 parliamentary Native Lands Committee. Saw millers argued in front of the committee that the Native Land Act 1894 did not prohibit the selling of cutting rights. Forests were, it was argued, a chattel which could be sold without infringing native land law. The Government considered invalidating existing agreements to cut timber on Maori land but dropped the

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<sup>152</sup> Michael Roche, *History of New Zealand Forestry*, GP Books, Wellington, 1990, p. 120

<sup>153</sup> Michael Roche, *History of New Zealand Forestry*, GP Books, Wellington, 1990, p. 120

proposal. The member for Northern Maori, Hone Heke Ngapua, supported the proposal and criticised the Government for dropping it. He believed that speculative buying was increasing and that legislative restrictions would benefit both genuine saw millers and Maori owners.<sup>154</sup>

288. Forestry has always been viewed in New Zealand as an available option to utilise land that is unsustainable for pastoral farming. However exotic forestry has never been well established in the District due to plantations being created on land suitable for dairy conversion or other pastoral farming and the clay rich impermeable mudstone soils on steep slopes not being suitable for *Pinus radiata*. The current landscape, fluctuating water tables, extreme climates and variable sun conditions make it hard to find suitable forestry species. American Douglas Fir (genus *Pseudotsuga*) and Redwood (*Sequoia sempervirens*) have been trialled in the area yet not established as production forest due to economic competition from other species and relatively short term economic stability of sheep and beef farming. The only species known to thrive in the District is poplar yet there is currently no market for this. Currently with the lack of controls on scrub and farm planning to utilise agriculturally more suitable areas, manuka is becoming prominent yet there has been very little research into economic uses for the species.

## ACCLIMATISATION

289. After contact with Europeans, potatoes, wheat, maize, and tobacco would become important crops, along with meats like pork derived from introduced pigs. Europeans brought with them plants and animals which suited the economic and cultural aspirations of the colony, often completely unaware of the consequences of introducing species which had detrimental consequences on the environment. In some cases, such as the introduction of rabbits, the new species wreaked havoc with the economic aspirations of settlers, leading to equally damaging introductions of ferrets and stoats. However, few indigenous species were valued and many were seen as threats to valued introduced fauna. From the late 1860s, attempts to replace these indigenous species with those introduced for hunting became more formalised and systematic. Acclimatisation societies not only introduced new species, but sought to eliminate those indigenous species which

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<sup>154</sup> Ibid. p. 121

were seen, rightly or wrongly, as a threat to their aim of transforming the New Zealand wilderness into a British hunter's paradise. In discussions with researchers claimants still remembered the persistence of this colonising project and the values which underpinned it.

... the Acclimatisation [society] would come to the schools to liberate trout in certain places on the Rangitikei and they were tributaries and the talk would be about the danger of the big eels to the young trout. Well, to a young mind, those people were giving those stories and were valued as tutors maybe. So we had a tendency of any eel we saw, we wanted to kill it but in actual fact, for me as a Maori, when I think about it now, I was actually participating in the destruction of something that was inherited and valued ... that living thing. I wished I was killing a few of the trout.<sup>155</sup>

290. The Hawke's Bay acclimatisation society was liberating trout in the Ngaruroro from the late 1870s; the Wellington Acclimatisation Society was active liberating trout from a decade later.<sup>156</sup>
291. Birds, trout, salmon, coarse fish, and many plants were introduced quickly. As many as 30 different species were introduced in the first year of operation.<sup>157</sup> All manner of birds were introduced: sparrows, thrushes, finches, blackbirds, skylarks, starlings, magpies, doves, pigeons and seagulls were all early introductions. Possums were another intentional importation.
292. Introduction of exotic fish species, most notably trout, also resulted in the serious depletion of indigenous fish stocks.<sup>158</sup> Wendy Pond explains: 'Fresh water fisheries were a staple component of hapu economy: eels, piharau (lamprey), upokororo (grayling), kokopu, inanga, waikaka (spring eels, mudfish), papanoko (torrentfish), and so on. Since 1840 the upokororo has become extinct, populations of koaro have become greatly reduced, and the survival of the shortjawed kokopu and giant kokopu is at risk. Practices of agriculture, forestry, industry, drainage, culverting and roadworks, hydro-electric dam construction, and foreign fish introductions have impoverished and destroyed Maori fresh water fisheries. What remains is possibly 10 percent of forest and 10 percent of

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<sup>155</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

<sup>156</sup> David Alexander, 'The Rangitikei River, its tributary waterways, and other Taihape waterways', draft CFRT report, December 2011, p. 85.

<sup>157</sup> Roche, p. 67

<sup>158</sup> Ibid., p.233.

wetland habitat within which competition from introduced species and deteriorating conditions further deplete harvesting'.<sup>159</sup>

293. In these river systems eel weirs, or pa tuna, were of particular importance to Maori. As David Young has described, 'just how important eel were to Maori may be judged also by Elsdon Best's incomplete list of 166 different Maori names from throughout Aotearoa for varieties and conditions of eel'.<sup>160</sup> Incredibly Best would record eels measuring up to 1.8 metres in length and as heavy as 25 kilograms.<sup>161</sup> From the 1890s eel weirs were however, being forcibly removed from rivers to aid riverboat navigation and maintain river channels for this purpose. Using the Whanganui as his example, Young states that 'there were hundreds of [eel weirs]. But in so many places along the river they represented a point of collision between two technologies – the one age-old and self-sustaining, the other mechanical, in the form of Pakeha riverboats to which the pa tuna were an obstruction in the channel'.<sup>162</sup>

294. Extensive swamp drainage schemes and other land transformation activities were soon engaged in and fertile farmland was increasingly developed where swamp once existed. This process accelerated from the 1880s with the successful transportation of refrigerated pastoral goods to the imperial marketplaces of Britain. Transformation of landscapes to accommodate sheep and cattle became a national imperative. Park describes this aptly as an inherent conflict between Maori who utilised the wetlands as traditional food gathering resources and 'the settler-colonist imperative to drain and reclaim any low-lying land that could become fertile pastures and the Crown imperative to control waterways. Customary Maori rights to swamps and waterways – those which Article the Second of the Treaty of Waitangi terms "taonga", "fisheries", "forests", and "properties" – were primarily about use rights from which ownership derives. Under English law the reverse applied; the right to use and manage a resource flowed from ownership of it. The way Maori were forced to reconceptualise their customary resource rights and laws in

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<sup>159</sup> Wendy Pond, *The Land with All Woods and Water*, Rangahaua Whanui National Theme U, Waitangi Tribunal Rangahaua Whanui Series, Wellington, 1997, p.123.

<sup>160</sup> David Young, *Woven by Water: Histories from the Whanganui River*, Huia Publishers, Wellington, 1998, p.182.

<sup>161</sup> Elsdon Best, *Fishing Methods and Devices of the Maori*, Government Printer, Wellington, 1977, n.p. cited in Young, *Woven by Water*, p.183.

<sup>162</sup> Young, p.233.

order that they be recognisable under English common law is one of the key issues of the colonial encounter in New Zealand'.<sup>163</sup>

295. The passage of various laws through the New Zealand Parliament spelt the end to many wetland environments. Provincial councils and other local authorities were vested with the powers to augment large-scale drainage schemes. The Public Works Act 1876 formally vested the control of waterways into the hands of the Crown. Swamps could now be designated as 'a public drain'. The River Boards Act 1884 and the Land Drainage Act 1893 devolved power to ratepayer boards and councils 'to undertake large-scale drainage operations, and could take any land required for drainage purposes'. Maori were usually excluded from these processes as ratepayer status was reserved only for trustees of Maori landowner trusts and only when rates payments were up to date. Maori settlement land was made further alienable with the passage of the Swamp Drainage Act 1915, which provided for the transference of such lands to the Crown for large-scale drainage projects intended to make more land available for agricultural production.<sup>164</sup> However, often poor understanding of the nature of local soils resulted in erosion and other forms of environmental degradation.
296. P.W. Smallfield explained: 'Ragwort in common with most successful weeds, is a vigorous seeder; average plants produce from 50,000 to 100,000 seeds and...the bulk of the seed falls within a radius of 40 to 50 yards of the plant. However, any portion of the seed that is lifted high by wind may travel long distances. The main seedfall is in March and April, and the general prevalence of rain at this period may account for the bulk of the seed failing to become airborne. When ragwort seeds fall in water they sink, but after germination (and they germinate in water almost as readily as on a well-prepared soil) they rise to the surface and streams distribute the germinated seedlings along their banks'.<sup>165</sup> Smithfield surmised therefore that 'reasonable control could be given where weeds could be eradicated by cultivation but, on pastureland, the ones which could not be controlled through pasture sward improvement and were unpalatable to livestock were

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<sup>163</sup> Geoff Park, "'Swamps which might doubtless Easily be drained": Swamp drainage and its impact on the indigenous' in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, p.162.

<sup>164</sup> *Ibid.*, p.163.

<sup>165</sup> *Ibid.*, p.84.

a real problem. Ragwort on dairy farms was a typical example of such a weed; the only advice one could give was to pull the plants in full flower, collect and burn them'.<sup>166</sup> Smallfield noted that sodium chlorate had been used for ragwort control in the 1930s but had not been effective as 'regrowth occurred from small portions of the undestroyed roots of plants treated with sodium chlorate, [and] that these shoots often took months to appear and, if seen, were classed as seedlings'.<sup>167</sup> Despite its limited effectiveness, sodium chlorate remained in use until organochlorine herbicides appeared after the Second World War.<sup>168</sup>

## FISHERIES

### Introduction

297. The historical importance of freshwater fisheries to Maori cannot be exaggerated.<sup>169</sup> Tuna are among the largest indigenous food sources in New Zealand fresh waterways. Claimants have noticed a considerable decline in the quality and quantity of fish stocks, as well as a destruction of eel stocks and a limitation of access to remaining resources. As in much of the country, tuna were a vital food source for Maori prior to the 20<sup>th</sup> century, but so also were a range of other species, including kaoro and bullies.<sup>170</sup> Claimants mentioned koura and patiki as particularly important, placed in the river by Tamatea Moki Whenua, the koura at Tikirere and the patiki at the confluence of the Hautapu and Rangatikei rivers.

### Tuna

298. European taxonomy identifies two major species of indigenous eels. The smaller short-finned eel (*Anguilla australis*) is endemic to New Zealand, Australia and other parts of the South Pacific. The much larger New Zealand Longfin eel (*Anguilla dieffenbachia*) is

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<sup>166</sup> Ibid., p.82.

<sup>167</sup> Ibid., p.83.

<sup>168</sup> James Watson, 'The Significance of Mr. Richard Buckley's Exploding Trousers: Reflections on an Aspect of Technological Change in New Zealand Farming between the World Wars', *Agricultural History*, Vol 78, No. 3, 2004, pp.346-60.

<sup>169</sup> Alan Ward and Waitangi Tribunal, *National Overview* (Wellington: Waitangi Tribunal ; GP Publications, 1997).

<sup>170</sup> B.J. Hicks, 'Potential effects of the hydro-electric development on the fish and fisheries of the Rangatikei River', *MAFFish: Fisheries Environmental report No. 52*, Fisheries Research Division, NZMAF, Wellington, 1985, p. 16.

found only in New Zealand. Short-finned eels are found in lower lands and have been more affected by the loss of wetlands than the higher living longfin eel. The longfin has been adversely affected by dams and weirs.<sup>171</sup> A third species, the Australian Longfin Eel (*Anguilla reinhardtii*), was confirmed in New Zealand in 1997 and may have been present in the country since the early 1980s.<sup>172</sup> Maori taxonomy identifies tens of varieties of tuna, differentiating the eels based on colour, size, ear shape and other characteristics.<sup>173</sup> New Zealand eels spawn in the open ocean somewhere east of Tonga and the juveniles (larva followed by glass eels) are brought back to New Zealand's shores by ocean currents.<sup>174</sup> As they reach fresh water they become elvers (appearing like small eels) and make their way up rivers and streams where they grow to their full size, living for 15-35 years before returning to the distant ocean for spawning.<sup>175</sup>

299. Scientific understanding of eel behaviour and life-cycle only developed in the middle of the 20<sup>th</sup> century. Eel behaviour was considered a mystery by Europeans and the New Zealand press took some interest in the research undertaken overseas on eel behaviour.<sup>176</sup> Recent studies indicate that the decline in the number of glass eels returning to New Zealand is similar to declines felt elsewhere in the world.<sup>177</sup> The decline comes from a range of factors including the loss of wetland habitat through drainage and development, changes in ocean currents, exploitation of adult stocks, and downstream migration disruption and mortality due to hydroelectric dams.<sup>178</sup> The alienation of Maori land has arguably also caused reduction in access to tuna fisheries.
300. Official records viewed for this report show the Marine Department maintained interest in the tuna fishery from the 1920s onward. There also seems to have been a fair amount

<sup>171</sup> Don J. Jellyman, "Status of New Zealand Fresh-water Eel Stock and Management Initiatives," *ICES Journal of Marine Science*, no. 10.1093 (2007)., p. 1

<sup>172</sup> Australian Longfin Eel, (NIWA, 2008 [cited 24 September 2009]); available from [http://www.niwa.co.nz/our-science/freshwater/tools-old/fishatlas/species/australian\\_longfin\\_eel](http://www.niwa.co.nz/our-science/freshwater/tools-old/fishatlas/species/australian_longfin_eel).

<sup>173</sup> "Concerning Eels: Maori Fisherman Describes Native Lore," *The Dominion*, 12 June 1935.

<sup>174</sup> Long-finned eel Waikato/Poverty Bay (LFE21), (Ministry of Fisheries, 2009 [cited 25 September 2009]); available from <http://fs.fish.govt.nz/Page.aspx?pk=8&tk=31&stock=LFE21>.

<sup>175</sup> J.A.T. Boubée and E.K. Williams, "Downstream Passage of Silver Eels at a Small Hydroelectric Facility," *Fisheries Management and Ecology* 13, no. 3 (2006): 165-176., p. 165-168

<sup>176</sup> "Wealth in the Sea: Investigations of Danish Expedition," *The Dominion*, 18 January 1929.

"Mystery of the Eel," *Auckland Star*, 6 December 1928.

Wanderer, "No Rules Protect the Eels," *Freelance*, 5 November 1952.

<sup>177</sup> Boubée and Williams, "Downstream Passage of Silver Eels at a Small Hydroelectric Facility.", p. 165

<sup>178</sup> *Ibid.*

of press interest in tuna. Marine Department records contain decades of press articles about the fishery.<sup>179</sup> The Wellington, Marlborough, Canterbury and Otago regions receive the largest amounts of both press and public attention. The importance of tuna to Maori is acknowledged by officials and there were attempts to balance the interests of Maori with Pakeha fishers. However, the files do not acknowledge the damage done to the tuna fishery from drainage and pollution.

## **Decline of Eel Fishing During the 20<sup>th</sup> Century**

301. Press reports in the 1920s and 1930s express the belief that eel fishing by Maori had declined over the years. One report from the Evening Post in 1934 described a resurgence of eel fishing by Maori due to the depression.<sup>180</sup> The decline in the use of pa tuna (eel weirs) along the Whanganui River was noted in the evidence of fisheries officer Derisley Francis Hobbes at the 1950 Royal Commission of Inquiry on the Whanganui River:

The general New Zealand nature of the decline of Maori use of freshwater fisheries, can be shown in several ways. For instance, during 1935-6&7, in a field survey which occupied several months, I examined portions of over 70 streams in the Auckland province, including the Wanganui River and its tributaries at and above Taumaranui. In only one stream – that draining Lake Whangapae in the lower Waikato – did I see remains of an eel weir.<sup>181</sup>

302. The officer felt the decline in the use of eel weirs came from a greater variety of foodstuffs being available due to European settlement and from changes in the social and economic conditions of Maori. He felt that the lack of interest in eels as food by Pakeha or Maori had reached the point that no viable commercial eel fishery was possible in New Zealand. Arguably the need of Maori to collect eels declined in the 20<sup>th</sup> century due to the effects of urbanisation and an increase in formal employment. While eels ceased to be a staple of the Maori diet, they continued to be of strong cultural importance and continued to be eaten for hui and tangi. The continued importance of eels to Maori can be seen in the strong complaints made to Government officials about eel destruction.

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<sup>179</sup> M 1 68 1/7/5 Vol. 1, National Archives, Wellington

<sup>180</sup> "Back to Nature: Young Maoris and Eels: Natives Revert to Fish: Stimulus of Hard Times," The Evening Post, 30 May 1934.

<sup>181</sup> Evidence of Derisley Francis Hobbes at the 1950 Royal Commission of Inquiry on the Whanganui River, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

## Acclimatisation Societies and Indigenous Flora

303. For much of the 19<sup>th</sup> and 20<sup>th</sup> centuries acclimatisation societies attempted to control species they classed as vermin. Species favoured or missed by European settlers were introduced to New Zealand in order to recreate selective aspects of their home environments. Animals were desirable based on their value for production, game, for their decorative appearance or to control undesirable species. Indigenous animals were admired if they fitted within those categories or were otherwise charismatic to Europeans. New Zealand birdlife was often admired by settlers, even if habitats such as wetlands were not. Any animal that appeared to pose a threat to the animals the societies had introduced was considered vermin and attempts were made to limit its numbers.
304. The kahu (New Zealand Hawk) was one of the first to be targeted by the acclimatisation societies. The Auckland society placed a sixpence bounty on the hawk in 1867. The first year saw £32-19/6 paid out for the destruction of 659 birds.<sup>182</sup> Undesirable animals could be either native or introduced. Shags, eels, feral cats, wekas, and ruru (mopoke) were all considered a threat to game and therefore listed as vermin at one point in time. Claimants also believed that huia were treated as a pest as well. Hares were initially considered favourably as game until their damage to farming was realised and their status changed to vermin. The scourge of rabbits on farmland led to the intentional introduction of ferrets, stoats, and weasels in an attempt to control rabbit numbers. The folly of this endeavour was quickly recognised and those mustelids were also listed as vermin. Protection for desirable native species was also attempted. During this time pigs and goats were considered for control as vermin but this was due to the danger they posed to native birds, not to game.<sup>183</sup>
305. Indigenous eels were considered to be vermin as they were believed to be a danger to introduced trout fisheries. The acclimatisation societies across the country encouraged people to destroy eels to protect introduced game fisheries. As eel was not a popular food among non-Maori, strong promotion was required to get the public to hunt eels. The

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<sup>182</sup> R. M. McDowall, *Gamekeepers for the Nation : The story of New Zealand's Acclimatisation Societies, 1861-1990* (Christchurch: Canterbury University Press, 1994).p. 116

<sup>183</sup> *Ibid.*

belief that eels were a threat to trout started at least as early as 1903 – but probably began much earlier – and this belief was periodically backed up by examinations of eel stomachs.<sup>184</sup> In 1927 Wellington Acclimatisation Society noted scars from eel attacks on trout caught from the Upper Otaki River. Mr. A. Seed gave a description of the perceived eel problem at a meeting of the society:

While the river was slightly in fresh, I disturbed an eel in a pool, and half-an-hour later caught a 2lb trout in that pool with fresh eel scars across the back, close to the dorsal fin. The eel was caught later... In the stomach, which [Marine Department biologist] Mr. Hefford examined, were the remains of a 1½lb trout. We came to the conclusion that the fishing in this district would be better if we spent the money on destroying large eels instead of in liberating fish.

I am convinced that the eels are more numerous in the Wairarapa than in past years, because the Maoris no longer eat them in the former quantities.

Mr. Seed said it should be impressed on every license-holder that the destruction of eels is an obligation to himself and other anglers. Every angler should carry an eel line in his creel and should spend the evenings catching eels.

It was decided to order two dozen more eel baskets and to encourage the users to keep yearly records of takes.<sup>185</sup>

306. The Wellington Acclimatisation Society went on to advocate a range of methods for the destruction of eels. Prizes were awarded for the largest eels and to those who caught the most eels in a given month.<sup>186</sup> *The Evening Post* compared the problem of eels to the problems that rabbits caused farmers.<sup>187</sup> The Southland Acclimatisation Society planned to destroy up to 50,000 eels in 1928.<sup>188</sup> In 1930 *The Stratford Post* cast some doubt on the effect eels had on trout. It pointed out examinations of eel stomachs only occasionally found trout and that the trout was a threat to eels in their juvenile (elver) form.<sup>189</sup> That position may have originated from the Chief Inspector of Fisheries, Alfred Hefford, who also acknowledged the predation of elvers by large trout.<sup>190</sup>

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<sup>184</sup> Ibid.p. 120

<sup>185</sup> "Eels Eat Trout," *The Evening Post*, 3 February 1927.

<sup>186</sup> "Against the Eels: Anglers Declare War: Suggested Methods: Millions in the Sea," *The Evening Post*, 9 June 1927.

<sup>187</sup> Ibid.

<sup>188</sup> "The Eel Menace," *The Southland Times*, 11 November 1927.

<sup>189</sup> "The Eel : Is it Serious Enemy of Trout : Interesting Observations," *Stratford Post*, 2 October 1930.

<sup>190</sup> McDowall, *Gamekeepers for the Nation : The story of New Zealand's Acclimatisation Societies, 1861-1990.*, p. 120

307. Eel destruction continued over decades using various methods, often with questionable success.<sup>191</sup> Some compromises between Maori and the societies did occur, such as in Taranaki in 1949.<sup>192</sup> However, in 1952 concerns were raised by the Kawakawa Tribal Executive Committee that eels were to be killed using electro-fishing machines which can stun a large number of fish at once. The Marine Department assured the Authority that this would not be the case. Fishing using electrical means was only permissible with a permit and it was believed the Marine Department owned the only electro-fishing machine in New Zealand at the time. The Marine Department wished to assure the committee that it would not issue 'permits for waters where such measures could be used contrary to the good interests of the Maori people'.<sup>193</sup> Nevertheless, in the 1970s the Tauranga Acclimatisation Society did look to electro-fishing machines to commercially collect eels from rivers, despite evidence becoming available that eel destruction was detrimental to trout quality.<sup>194</sup>
308. Doubt over the detrimental effect of eels on trout started to grow after Marine Department experiments in the 1960s. Department scientist Max Burnet conducted experiments comparing trout numbers and sizes in several Canterbury rivers. After several years of study it was found that trout in eel free rivers were more numerous but considerably smaller than trout in rivers with undisturbed eel populations.<sup>195</sup> This meant that while eels did indeed have a negative impact on the number of trout in rivers, eels had a positive effect on the quality of trout in the same water. Anglers, preferring smaller numbers of larger fish, found that eels were not the menace that they had long assumed they were. By the late 1970s Acclimatisation Societies had generally accepted that eel destruction was not in their interest and had abandoned the practice.<sup>196</sup>

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<sup>191</sup> McDowall, *Gamekeepers for the Nation : The story of New Zealand's Acclimatisation Societies, 1861-1990.*, p. 121

<sup>192</sup> Ropiha to Secretary of the Marine, 9 June 1949, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

<sup>193</sup> Smith to the Under Secretary of Maori Affairs, 2 July 1952, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

<sup>194</sup> McDowall, *Gamekeepers for the Nation : The story of New Zealand's Acclimatisation Societies, 1861-1990.*

<sup>195</sup> *Ibid.* p. 123

<sup>196</sup> *Ibid.* p. 124

## Industry and Export

309. The history of New Zealand's commercial tuna fishery is largely one of failure. For much of the 20<sup>th</sup> century officials and interested members of the public were regularly frustrated in their attempts to export tuna to markets in the United Kingdom, mainland Europe, the United States and Japan.
310. During and after the Second World War there were several suggestions to commercialise the tuna fishery for the war effort, famine relief, fish oil, leather and several other uses. These were given varying degrees of support from the Government officials, although there was generally a degree of scepticism given the failures of previous efforts to supply European markets during peace time. The Chief Inspector of Fisheries gave this comment on a biologist's opinion that eel was a wasted food source in New Zealand:

I agree with this correspondent's opinion that at present our eel resources represent a very considerable amount of valuable food that is wasted, or at least not utilised. I also think the population would be better nourished if these fish were brought into general consumption instead of being eaten only by a few individuals.

However I cannot follow Mr McGregor in his suggestion "that the Government take the matter up with the object of providing food for the Allies." There are supplies of equally valuable fish available in Europe... I would suggest that while the department agree that the fresh-water eel resources of this country represent a valuable fish stock of food that up to the present has been insufficiently utilised, it is not considered practicable to arrange for their exportation under present conditions. *Previous attempts to exploit the eel fisheries by private enterprise have failed.*<sup>197</sup> [Italicised line handwritten addition to paragraph]

311. War time shortages increased the sense of frustration exhibited by officials and eel-advocates about the lack of Pakeha interest in tuna as food. Tuna was considered to be nutritious by government officials:

It would be beneficial to the health of the nation and especially its growing children, if more fish were eaten. That is the opinion of the highest nutritional authorities in the Dominion, an opinion that has been strengthened by recent researches. Sea-fish supplies are very inadequate at the present time and already people have dropped

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<sup>197</sup> Chief Inspector of Fisheries to Secretary of the Marine. 27 November 1939, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

some of their old prejudices and are prepared to take what they can get in the absence of the more popular kinds of fish that they used to insist on.<sup>198</sup>

312. Complaints from Maori arose periodically about the destruction of eels or Pakeha fishing operations.<sup>199</sup> A complaint to the Secretary of the Marine was made in November 1933 by Maori MP Taite te Tomo on behalf of Wairarapa Maori. A fishing inspector investigated the Wairarapa operation and found the description of wholesale slaughter to be an exaggeration. A shed had been constructed as alleged, but it was not at the lake but 30 miles<sup>200</sup> away at Greytown. At the time of inspection no operations had started and any efforts were experimental. The operation wished to sell smaller eels which were more desirable to the English market. The inspector noted that this would contravene the tapu on small eels known as hau. Traditional practice prohibited both the cutting of hau eels and any method of cooking other than grilling. Local Maori were concerned about younger Maori being employed by the exporters and taught techniques that contravened customary practice. The inspector noted that this seemed superstitious to 'our modern minds', but conceded that Maori practice could well have 'practical importance behind it'.<sup>201</sup>

313. The inspector did acknowledge customary rights of Maori to the resource:

...it is not the fear of detriment to the eels stock through the younger ones being caught that is exercising the minds of the local Maoris so much as the possible interference with their own fishery operations. There is generally one best position for the traps which are used for taking the eels as they migrate towards the sea. This position depends upon the location of the opening of the lake to the sea which is not always the same. It has been customary for the many generations for the local Maoris to conduct their big eel fishing operations at this time and place. I certainly think that this privilege should be preserved to them. This is a case where the covenant in the Treaty of Waitangi clearly applies.

Whether there will prove to be enough eels of the required kind to satisfy the Maoris and the Cannery Co. remains to be seen. So far as the Department is concerned I do not see that any action should be taken for the present although we ought, I think, to

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<sup>198</sup> Fisheries Branch, Marine Department to Secretary of the Rehabilitation Board, 17 September 1943, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

<sup>199</sup> M 1 68 1/7/5 Vol. 1, National Archives, Wellington

<sup>200</sup> This is an odd point as currently the distance from Greytown to Lake Wairarapa is only about 17 kilometres by road. The inspector may have meant the southern end of the lake, but there is no description in the file as to where the shed was alleged to have been constructed, other than on the edge of the lake.

<sup>201</sup> Chief Inspector of Fisheries to Secretary of the Marine, 25 November 1933, M 1 68 1/7/5 Vol. 1, National Archives, Wellington

give an assurance to the Maoris that if it should be necessary steps will be taken to safeguard their eel supplies.<sup>202</sup>

314. A successful commercial fishery began in the 1960s. The industry is centred on the northern North Island, Lake Ellesmere and Southland, with fyke netting being the most popular method of collection.<sup>203</sup> The industry experienced strong growth between 1965 and 1980, followed by a period of consolidation until the end of the century and has experienced rationalisation since then. Most of the catch was exported but prices were relatively low compared to other fish species. Initially there were few constraints on management as there was no catch limits or caps on the number of licences issued. The first cap on fishing – the total allowable catch (TAC) – was introduced for Lake Ellesmere in 1978. A minimum size of 150g was introduced in 1981 and increased to 220g in 1992.<sup>204</sup> Part time commercial fishers were excluded from the fishery in 1982 and a moratorium on new licences was imposed in 1988. By the early 1990s there were 23 processing factories operating in New Zealand.<sup>205</sup> By the end of the 1990s the commercial fishers were being encouraged to co-manage the industry with Maori.
315. Studies done in the mid-to-late 1990s found New Zealand eels migrate at a sustainably older age than other temperate commercial eel species. Longfins migrate at twice the age of shortfins. The estimated age of female North Island eels was found at the time to be the following:<sup>206</sup>

**Table 14: Age of Female North Island Eels**

Region (North Island)	Shortfin numbers aged	Shortfin mean age	Longfin numbers aged	Longfin mean age
Western	288	18.1	126	33.5
Eastern	150	15.3	25	27.6
Southern	140	16.4	123	29.0

<sup>202</sup> Ibid.

<sup>203</sup> Species Focus - Longfin and Shortfin Eels, (Ministry of Fisheries, 31 July 2008 [cited 7 December 2011]); available from <http://www.fish.govt.nz/en-nz/Publications/The+State+of+our+Fisheries+2008/Species+Focus/Longfin+and+Shortfin+Eels.html>.

<sup>204</sup> Jellyman, "Status of New Zealand Fresh-water Eel Stock and Management Initiatives.", p. 2

<sup>205</sup> Ibid.

<sup>206</sup> M. P. Beentjes and B. L. Chisnall. *Size, age, and species composition of commercial eel catches from market sampling, 1996–97.*, 29 NIWA Technical Report, 1998

316. Co-management provided the information base for the introduction of a quota management system (QMS) for the South Island in 2000 and the North Island in 2004. With the introduction of the QMS came further imposition of TACs and the introduction of individual transferable quotas (ITQs). As with other species, Maori received 20% of the quota and an allocation for customary purposes equalling 20% of the TAC. The North Island QMS for longfin was set 18% lower than the recently preceding commercial catches and 11% lower for recreational fishing.<sup>207</sup> Since the introduction of the QMS the industry has gone into period of strong rationalisation with large drops in the number of operators. Some operators have not taken their annual limits in recognition of the decline in the fishery and in the hope that moderation will help stocks recover.<sup>208</sup> The quota for North Island eels was reduced further in 2007 in an attempt to increase stocks and catch size.

317. The current limits are as follows:<sup>209</sup>

**Table 15:** *Current Eel Catch Limits*

Code	Species	Reported Commercial Catch (kg)	TAC (kg)	Customary Allowance (kg)	Recreational Allowance (kg)
SFE21	Short-finned Eel	125,276	134,000	24,000	19,000
LFE21	Longfin Eel	31,041	32,000	16,000	10,000

318. While controls have become increasingly strict the decline in the fishery continues. In September 2009 Massey University ecologist Dr Mike Joy publicly advocated a ban on the commercial fishing of longfin eel. He said not enough was yet known about eel reproduction and survival. He argued that as the eels only spawn once the Ministry of Fisheries is unable to model the fishery. It was insufficient to base quotas on previous catches as there is a minimum number of eels needed to spawn each year to continue the species. Joy believed that figure would not be known until the population crashed, possibly bringing about the extinction of the eel.<sup>210</sup>

<sup>207</sup> Ibid.

<sup>208</sup> Ibid.

<sup>209</sup> Fishery - Eels, (Ministry of Fisheries, 2008 [cited 25 September 2009]; available from <http://fs.fish.govt.nz/Page.aspx?pk=5&tk=96&fpid=29>).

<sup>210</sup> Jill Galloway, "Commercial Eel Ban Urged," *Manawatu Standard*, 8 September 2009

## KAIMANAWA WILD HORSES

319. The Kaimanawa Wild Horses are a population of feral horses residing in the Kaimanawa Ranges and alpine plateau at the northern end of the inquiry district. Their range has spread across land owned by the Defence Force, DOC, and private owners including Maori.<sup>211</sup> Wild horses are recorded in the area from 1876.<sup>212</sup> The population has been supplemented over the years by the release of horses from sheep stations and from the army base at Waiouru. The horses are an unusual example of a wild exotic species that is considered important by many Maori and non-Maori alike. The management of the horses has proved difficult for conservation authorities as they have to balance the protection of the animals with the need to protect the native flora of their alpine habitat and the needs of land owners including the Defence Force. The horses are of importance to the claimants who feel their interests have not been adequately represented in the management of the population.
320. Until 1981 there were no specific statutory protections for the horses and they were often harvested for breeding stock, meat, hides, hair and riding. Two requests to the Department of Native Affairs to hunt or capture horses were made at the turn of the 20<sup>th</sup> century but it appears these requests were made unnecessarily.<sup>213</sup> The late 1970s saw an increase in Crown and public interest in the horses as it became clear that the population was being depleted. In 1974 the Ministry of Defence became concerned about the loss of horses but believed that they would be better protected due to new lands having been acquired by the Ministry.<sup>214</sup> In 1978 the Kaimanawa Wild Horse Committee was formed to discuss the issue of protection. The committee was made up of representatives from the NZ Forest Service, the Ministry of Defence, Massey University, and R.A.L Batley and R. Haynes representing local land owners.<sup>215</sup>

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<sup>211</sup> 'Kaimanawa Wild Horse Plan', Department of Conservation, Wanganui, December 1995, p. 27

<sup>212</sup> 'Wild Horses of the South-West Kaimanawa Range, R.A.L. Batley, c. 1977, AFIE W5683 6905 190, National Archives, Wellington

<sup>213</sup> Still to Healey, 15 July 1907, MA1 920, National Archives, Wellington

Pereha to Native Land Court, 23 December 1892, MA1 890, National Archives, Wellington

<sup>214</sup> Robertson to Morris, 26 March 1974, AFIE W5683 6905 190, National Archives, Wellington

<sup>215</sup> Minutes of the Kaimanawa Wild Horse Committee, 13 September 1978, AFIE W5683 6905 190, National Archives, Wellington

321. The following year a survey by Massey University was presented to the committee which found there were only 174 horses remaining and some of those may have been counted twice.<sup>216</sup> The survey also concluded, contrary to later analysis, that the horses were not a major threat to native or exotic plant life. However this was considered to be due to their low numbers and wide distribution. The report strongly recommended the preservation of the horses.
322. The horses were given official protection on 31 August 1981 by an Order in Council amending regulations under Section 8 of the Wildlife Act 1953.<sup>217</sup> From a review of the files available in National Archives from this period it would appear that there was no specific attempt to involve Maori perspectives in the decision to protect the horses.
323. Over the next decade horse numbers would increase and by the early 1990s concerns were beginning to be raised about the effect the horses had on the indigenous flora of their range and whether their population had grown beyond the capability of the land to support them. In 1990-1991 management practices were introduced which moved the horses out of some of the northern areas of their range and DOC commissioned reports investigating the effect of this practice. Over the next five years DOC would develop a formal management plan involving consultation with interested parties and public submissions. By 1994 the horse population had increased to 1576.<sup>218</sup>
324. Directing the process was a DOC working party made up of several regional representatives from the department and several animal welfare organisations (Kaimanawa Wild Horse Protection Society, Forest and Bird, RNZSPCA and the International League for the Protection of Horses), but no specific Maori representation.<sup>219</sup> The working party concluded there were four aspects that needed resolving: eliminating the impacts of horses on conservation values; ensuring humane treatment of the horses; establishing a preservation and control method to ‘eliminate the negative and retain the positive values they have’; and to decide who is best to carry out

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<sup>216</sup> Minutes of the Kaimanawa Wild Horse Committee, 18 April 1979, AFIE W5683 6905 190, National Archives, Wellington

<sup>217</sup> Order in Council, 31 August 1981, AFIE W5683 6905 190, National Archives, Wellington

<sup>218</sup> ‘Kaimanawa Wild Horse Plan’, Department of Conservation, Wanganui, December 1995, p. 38

<sup>219</sup> ‘Kaimanawa Wild Horse Plan’, Department of Conservation, Wanganui, December 1995, p. 16

long term management.<sup>220</sup> The resulting plan involved the reduction of horse populations from certain sensitive areas, further monitoring of their population and effects, and exploration of humane methods to control their population.

325. The plan also recommended the creation of a trust to advise DOC and take over the management of any herd not on army land. In place of a trust the Minister agreed to the creation of the Kaimanawa Wild Horse Advisory Group. In 2004 the group reviewed the 1995 plan and created a plan to guide the management of the horses up to 2009.<sup>221</sup> This revised plan included the maintenance of the horse population at around 500 and it still appears to be in effect. The group consists of representatives from:

- Department of Conservation (DOC)
- Kaimanawa Wild Horse Preservation Society (KWHP)
- Royal New Zealand Society for the Prevention of Cruelty to Animals (RNZSPCA)
- Royal Forest and Bird Protection Society (F&B)
- NZ Veterinary Association (NZVA)
- Taranaki/Whanganui Conservation Board
- Batley Family
- Oruamatua Kaimanawa Trust (Representing Maori land owners)
- NZ Army

326. From a limited review of the published information relating to the management plans for the wild horses, it would appear that the role of Maori in the management regime was limited to the Maori owners of land on which the horses roam. A better examination of Maori participation in the management of the horses could be achieved by a review of the current DOC files which were not available for this report and a more in depth discussion with claimants. One claimant put their desires for research and Crown action this way:

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<sup>220</sup> 'Kaimanawa Wild Horse Plan', Department of Conservation, Wanganui, December 1995, p. 11

<sup>221</sup> 'Kaimanawa Wild Horses Working Plan 2004-2009', Department of Conservation, 2004, <http://www.doc.govt.nz/publications/conservation/threats-and-impacts/animal-pests/kaimanawa-wild-horses-working-plan-2004-2009/>

I think just basically a collection of our stories and our narratives that connect us to those horses and then the process that happened after. No culling, culling. No culling, culling. One minute we're in, next minute we're out. We're not entirely sure what's going on there with the horses. The government seems to keep changing their mind, whether they're pro or anti and we haven't kind of let it go.

Some of us might be for it and some might be against it but to me that's not even the point. The point is that we don't get asked as a people, as an iwi.<sup>222</sup>

## CULTURAL IMPACT OF RESOURCE LOSS

327. The claimants' iwi and hapu had developed a traditional economy which drew on the resources of their inland environment, conscious of the resources which could supply their needs and which could be traded with Maori from other regions, with complementary resources.

You probably do understand that we're inland Maori. We're not blessed like coastal Maori that have got all the kaimoana and all those other yummy things, if you are a coastal Maori. Now, for us, we inland Maori, yes we had our traditional food but when the European came in and milled, that also took our food. So for example, it was our kiore - they brought the domesticated rat in, introduced, the possums, ... rabbits and killed our natural, traditional food. So now we're hanging on barely to what we've got. ... [Our ancestors were] really quite healthy, a healthy race....They were goats. They walked up and down the lands, no problem. Because you're talking about our traditional food. Well, I'm sorry, we haven't got any, any more.<sup>223</sup>

328. One of the claimants could remember as a child being taken fishing at a variety of places, fishing not just for indigenous species but also for trout. With his uncle he caught large amounts of inanga and pihirau. Other forest resources were also important, such as pikopiko and kawakawa. In some cases, resources have not so much disappeared, but were made inaccessible or 'altered somewhat, one way or another, to the detriment of our needs'. This includes the spraying of watercress on drains and waterways and puha on roadsides. Other claimants noted the dramatic decline in the numbers of particular resources in their lifetimes.

I've still seen them, the inanga I still see them but not the numbers that they used to. I remember them in millions, in the shallows above the rapids, in the shallows

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<sup>222</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>223</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

there'd be schools just going everywhere. We used to catch them, we used to bring them home and dry them.<sup>224</sup>

329. The loss of bush and swamplands and the associated plants and other resources had a significant cultural impact on the claimants, separating them not only from the resources themselves, but also from the cultural uses associated with them:

Practices like the paharekeke that has no harakeke, bit like waikakeke that has no kakehe. We got them all over the place so I guess it's the impact that it's had on lifestyle, for example on weaving. We spoke about that so there's been a loss of tradition I guess in terms of that. We've had a rejuvenation in terms of that a lot of the aunties now going and learning those practices but of course they've had to find their own little stashes of where they can find those fibres or they have to go for two hour treks to find specific plants to undertake traditional dying. That type of thing and then also we're lucky that we've had connections with iwi and with whanau where those traditional practices are still strong and they've come here to be able to re-teach those skills. So they're still avidly practising those traditional methods and we're just lucky that we've been able to bring them here through other whanau connections to be able to carry that on. However, accessibility to those certain types of plants, trees still requires a bit of effort because they're not on hand. They're not just across the creek as they used to be.<sup>225</sup>

330. Some of these threatened resources had been part of the decoration of marae. The diving shag, the kawau, which had once fished up and down the river, but was no longer present, was the name of the wharepuni at Rata. Claimants considered that the shag no longer fished the river because of the growth of willows, preventing the shag from seeing fish in the shallows.

We spoke about the kawau, the shag, before but also things like kereru, tui, other native birds and I only say that because the kowhaiwhai pattern, one of the kowhaiwhai patterns out at Whitikopeka out at Moawhango is the kowhai ngutukaka and it's a plant which isn't seen in the region anymore and in particular what Moawhango people have told me what Moawhango was noted for was the white kowhai ngutukaka which isn't seen out there and of course with the kowhai trees you get the native bird life....<sup>226</sup>

331. Claimants identified areas which had once been forested, where tupuna would go to gather bird life, including waterfowl. But they also were hunting weka, tui, huia, titi and kereru, preserving them all for future use and particularly to present to manuhiri on the

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<sup>224</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

<sup>225</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>226</sup> Mokai Patea claimant, Taihape, 22 November 2011

marae. Preserved birds were a delicacy that was highly valued and traded for kai moana. Kioere were highly prized. Fern root and cabbage trees were used for food and one claimant described a grove of cabbage trees that was strategically located on the trail to the East Coast, providing food, clothing and warmth. One claimant remembers netting large numbers of wax eyes.

332. Huia were particularly prized and the last of these birds was probably located in Mokai Patea, although after the birds had become extinct there was a prolonged series of “sightings”, followed by hasty but ultimately fruitless expeditions from Marlborough to the Bay of Plenty. One of the most reliable accounts records seeing the birds during the survey of the Awarua Block around 1904.<sup>227</sup> There were unsuccessful expeditions in 1909 and 1912 by the National Museum, to Te Papa a Tarinuku and Aorangi, accompanied by Piri Batley, Pehira Kingi and Kohatu.<sup>228</sup>
333. Some claimants describe having access to sea resources, through their whakapapa connections to those on the coast, some down the Rangitikei river and others across to the East Coast. Individualisation and the Native Land Court's exclusive title had weakened these whakapapa connections, no longer giving these claimants customary access to the coast and its resources.

### Scoping report issues covered

334. ‘Flora and Fauna’ includes discussion on the loss of **wetlands, indigenous forests, plants and fisheries, and the introduction of exotic plants and animals by acclimatisation societies**. This section utilised a number of secondary sources on forestry history and environmental history as well as using previous reports written as part of the Treaty settlements process. **Management of mahinga kai including wetland resources notably harakeke, other plants and fisheries, (excluding rivers)** have been explored, but harakeke has been considered in the mana wahine section. **Mana Wahine** issues have been raised in the claims, in the brief, and by counsel at research hui. Mana Wahine issues are very difficult to address through scientific and archival sources. Maori

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<sup>227</sup> Wanganui Chronicle, 24 July, 1929, IA1, 1946, 47/22/1 Wildlife, Birds, Huia, Protection of, National Archives, Wellington.

<sup>228</sup> AAZU W3619 Box 22, 31/6/74, Aorangi-Awarua Maori Trust Block, Taihape – Indigenous Forest Logging, National Archives, Wellington.

and women's perspectives are rare in Crown archives on environmental management and so Mana Wahine issues are almost entirely absent from the Crown record. To address this problem the research team has produced a review of the academic literature on Mana Wahine issues generally and have supplemented this with discussions with claimants. **The loss of harakeke and other customary resources** have been discussed as part of this section.

335. The section on eels includes also utilised scientific literature but found no useful data from the inquiry district. The section on the Kaimanawa wild horses used government reports, records from National Archives, and discussion with claimants on the **important of the horses**. This chapter ends with a section using discussion with claimants on their **cultural and spiritual environmental values**, especially in regard to resource loss.



# HISTORY OF ENVIRONMENTAL LAW AND PLANNING

## INTRODUCTION

336. Dramatic environmental change was made possible by changes to the legal regimes for the management of natural resources. New Zealand has long had legal systems to regulate environmental management and allocate resources. In pre-contact times, Maori customary law regulated water supplies and resource collection, and managed waste. As Maori customary law was replaced by English common law, the onus shifted away from preserving water and other resources to individualising and protecting collection rights. Over the century that followed the Treaty of Waitangi, English common law was replaced by statutes that attempted to solve issues of resource management and environmental protection. In this period the aim was to protect environments for economic, public health and scenic purposes. While these aims continue today, the legal frameworks for environmental management have become more nuanced and demanding. This more recent movement has occurred in response to a change in the public's understanding of the environment; a change from seeing the environment as a source of scenery and an input to production, to seeing the environment as a complex system that needs to be maintained regardless of its economic capacity. The current regime under the Resource Management Act 1991 (RMA) tries to balance the needs of economic development with the effect of that development on the environment, and also recognise the need to make decisions that 'take into account' the principles of the Treaty of Waitangi.

## MAORI CUSTOMARY LAW

337. There is not a large body of writing on Maori customary law, however there are bodies of work which argue that indigenous societies had systems of law, albeit systems that were distinct from European systems of common or civil law.<sup>229</sup> While such law can be indistinct from religious or ethical beliefs, Maori had a system of rules which, if breached, would result in punishment by the community. Customary law differed by

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<sup>229</sup> Richard Boast and The Waitangi Tribunal. *The foreshore, Rangahaua whanui national theme ; Q Waitangi Tribunal*, Wellington, 1996.

region and changed over time to adapt to circumstance.<sup>230</sup> Despite differences there were unifying cultural features such as mana, utu and tapu.<sup>231</sup>

338. Maori environmental management stemmed from the application of matauranga Maori. Matauranga Maori can be defined as 'the knowledge, comprehension or understanding of everything visible and invisible existing in the universe'.<sup>232</sup> This knowledge or values framework attempts to understand the world through observation, experience and studying the interconnectedness of the world. In contrast western science frameworks attempt to classify and categorise aspects of the environment focusing on the differences that occur in the environment.
339. By the time of European contact, Maori had developed a system of regional economies between which flowed a large amount of communication and trade. These systems allowed for a detailed knowledge of the life-cycle and seasonal patterns of fish, birds and plants. This combined with an understanding of geographic, climatic and astrological patterns which, in turn, was bound in religious beliefs that featured in customary law.<sup>233</sup> Knowledge of the environment was grounded in traditional Maori beliefs and values. This cosmology acknowledged interconnectedness in ecological, human and spiritual elements which gave priority to environmental sustainability.<sup>234</sup> Protection of resources could be done by placing rahui on a resource which would restrict access. The rahui could then be lifted once the protection was no longer required.<sup>235</sup>
340. A legal emphasis on sustainability was crucial to maintaining the various food, timber and mineral resources necessary for economic survival.<sup>236</sup> Large varieties of resources were utilised to make the necessities of tribal life. As many as two to three thousand

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<sup>230</sup> Cathy Marr, Robin Hodge, Ben White and The Waitangi Tribunal. Crown laws, policies, and practices in relation to flora and fauna, 1840-1912, Waitangi Tribunal, Wellington, N.Z., 2001.

<sup>231</sup> Angela Ballara. Iwi : the dynamics of Maori tribal organisation from c.1769 to c.1945, Victoria University Press, Wellington [N.Z.], 1998.

<sup>232</sup> (Buck 1949; Best 1924a)

<sup>233</sup> Cathy Marr, Robin Hodge, Ben White and The Waitangi Tribunal. Crown laws, policies, and practices in relation to flora and fauna, 1840-1912, Waitangi Tribunal, Wellington, N.Z., 2001.

<sup>234</sup> Nicola R. When. 'A Natural Flow - A History of Water Law in New Zealand' in Otago Law Review, vol. 9, No. 1.

<sup>235</sup> Ibid.

<sup>236</sup> Cathy Marr, Robin Hodge, Ben White and The Waitangi Tribunal. Crown laws, policies, and practices in relation to flora and fauna, 1840-1912, Waitangi Tribunal, Wellington, N.Z., 2001.

species of plants and animals were used to create food and goods.<sup>237</sup> Depleting a resource could be dangerous as it could have a detrimental effect on other resources. This is not to say that Maori were passive users of the environment. Conscious attempts were made to adjust the environment to improve resources. There were examples of intentional introduction of plants, eels, and shellfish from other parts of the country. In the Nelson region, areas were burned off to promote fernroot growth.<sup>238</sup> Maori customary law placed an importance on sustainability due to an understanding of the fragility of these resources and the economic disaster that would occur if they failed.

341. Sustainability was not only important for survival, it was also important for maintaining property rights. By utilising and sustaining natural resources Maori maintained their economy and use rights under customary law. As it was put in the Muriwhenua Land Report:

The fundamental purpose of Maori law was to maintain appropriate relationships of people to their environment, their history and each other. In this it was by no means unique amongst the laws of the world but the emphasis was different... For Maori, the benefits of the lands, seas, and waterways accrued to all of the associated community and the individual's right of user was as a community member... Maori law described how people should relate to ancestors as the upholders of old values, to the demigods of the environment as the providers of life's necessities, to their hapu, which was the primary support system, and to other peoples as necessary for co-existence. Precise rules were made for respecting other people, ancestors, and deities, and genealogies were kept to show the connections.<sup>239</sup>

342. As this quotation points out, distribution of rights to resources under customary law depended not on individual property rights but on communal rights which sprang from the continued utilisation of resources. Individual property rights for resources did exist, such as to a particular garden, berry-tree or a small fishing spot, but these were always subject to community recognition: they extended from the community.<sup>240</sup> An individual's right to use a given resource came from relational ties to various whanau and hapu which

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<sup>237</sup> James Belich. *Making peoples: a history of the New Zealanders: from Polynesian settlement to the end of the nineteenth century*, Allen Lane; Penguin Press, [London] Auckland, N.Z., 1996.

<sup>238</sup> Cathy Marr, Robin Hodge, Ben White and The Waitangi Tribunal. *Crown laws, policies, and practices in relation to flora and fauna, 1840-1912*, Waitangi Tribunal, Wellington, N.Z., 2001. 50

<sup>239</sup> The Waitangi Tribunal. *Muriwhenua land report (Wai 45)*, Waitangi Tribunal report ; Wai 45 GP Publishers, Wellington, N.Z., 1997.

<sup>240</sup> Cathy Marr, Robin Hodge, Ben White and The Waitangi Tribunal. *Crown laws, policies, and practices in relation to flora and fauna, 1840-1912*, Waitangi Tribunal, Wellington, N.Z., 2001.

could become complex. This complexity is shared in the way customary law established protection of rights to resources such as water, which were related to the right to occupy land.<sup>241</sup> These rights were communal, although those communal rights could be used by hapu members living in other areas. Customary law supported a complex system of environmental management which directly related to rights of occupation. The system of property rights would lose its impact on sustainability as customary law was supplanted by English common law and then statute and regulation. One of the claimants expressed it this way:

I come into the claims process with a very simplistic view that our society, our decision making processes were destroyed and replaced, exactly what you were saying before, councils, government, whatever. That is now what we follow. It has destroyed our own society and the way that we were set up and the way that we would make decisions and the way that we would lead our society forward. To me that's actually enough...<sup>242</sup>

343. Legal marginalisation did not just occur nationally through the replacement of Māori customary law by English common law and New Zealand statutes, but was also linked to the marginalisation of iwi on the ground. As one of the Ngati Hinemanu and Ngati Paki claimants maintained:

... long before resource consent ever came about, long before - Ngati Hinemanu and Ngati Paki were part of everything on all the land and over the times we've been fragmented away to just being in that bit. The Native Land Court says you can have that bit there and over time the councils have used that, right down to right now today .... What makes them think that Ngati Hinemanu and Ngati Paki don't have the right everywhere. They do ...<sup>243</sup>

## ENGLISH COMMON LAW

344. From 1840 English common law began to be imposed in place of Maori customary law, although the process was long term and far from complete. In the Crown's view legal rights to use resources such as flora, fauna and water were directly tied to land ownership. Under English common law, those who had title to land were able to utilise exclusive but not total rights of use. In the case of wild animals land owners did not have

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<sup>241</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in Otago Law Review, vol. 9, No. 1

<sup>242</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>243</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

absolute ownership over game but did have exclusive rights to hunt animals on their property. Once an animal was dead it was considered the absolute property of the land owner.<sup>244</sup>

345. Water law was comprised of the two torts of trespass and nuisance as well as law relating to riparian rights.<sup>245</sup> Riparian owners were said to have a right to their land even where water crossed over it. The principal of *ad medium filum aquae* extended riparian rights to the mid-point should the river form the edge of the property.<sup>246</sup> Only land beneath the waterway could be owned, not the water that flowed through it. The Crown had ownership of waterways only to the extent they were tidal. Beyond that point the Crown's rights to rivers only extended to the public's general right to fish, bathe and travel on a river.<sup>247</sup> Ownership of the land allowed for the use of water, the discharge of water and natural drainage.<sup>248</sup> English common law did not see resources such as water as a public good, other than for navigation or bathing. Water was seen as an exploitable resource for the benefit of riparian owners.

346. While English common law began to be followed in New Zealand from 1840, it needs to be remembered that the shift to English common law was a vague process. Customary law continued to be followed by Maori and in many instances is still practised as part of cultural tradition.<sup>249</sup> Maori customary law is also in constant development. But Maori customary law ceased to be protected by the state. This did not have an immediate impact on Maori legal systems of use of resources, and until there was competition between settlers and Maori over resource use, Maori systems continued largely unaffected by English common law or by statute. Many of the cases that reinforced, if not created, the principles noted above occurred after 1840. To a large extent common

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<sup>244</sup> G. W. Hinde, D. W. McMorland and P. B. A. Sim. Introduction to land law, Butterworths, Wellington, 1979.

<sup>245</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in Otago Law Review, vol. 9, No. 1.

<sup>246</sup> The Waitangi Tribunal, "The Mohaka River Report 1992 (Wai 119)," in Waitangi Tribunal report. (Wellington: Brooker and Friend, 1992), viii, 113., Section 3.7

<sup>247</sup> Geoff Park and The Waitangi Tribunal, "Effective exclusion? : An Exploratory Overview of Crown Actions and Maori Responses Concerning the Indigenous Flora and Fauna, 1912-1983," (Wellington: Waitangi Tribunal, 2001), ix, 693., p. 182.

<sup>248</sup> Ibid.

<sup>249</sup> The Waitangi Tribunal. Muriwhenua land report (Wai 45), Waitangi Tribunal report ; Wai 45 GP Publishers, Wellington, 1997.

law recognised Maori customary law as the basis for customary title. Maori gained rights to resources through generations of occupation and use, which in turn was recognised by common law as the basis for Maori land tenure.

347. One of the critical problems for Maori today is that despite the increasing recognition of Maori rights in legislation, ever increasing demand for intensive use of water and other resources is putting even more pressure on Maori access to and control of resources than at any point in the past.

## **THE ENCROACHMENT OF STATUTE**

348. The structures (kaumatua, karakia, tohunga etc) that Maori utilised to undertake the Maori “science” of resource management became gradually eroded with European settlement. With the formation of local authorities and western environmental management this traditional knowledge was subsumed by western engineering techniques. Statute began to supplant common law from the earliest days of colonisation. The first legislative measure that related to environmental management was probably the Harbours Regulation Ordinance 1842, which empowered the Governor to make regulations regarding the discharge of ballast. While the discharge of ballast can have negative, sometimes catastrophic, environmental effects, at this time the measure was to protect navigation in waterways from silting due to the sand and gravel in ballast water.<sup>250</sup>
349. Much of the early environmental legislation was enacted to protect public health or property rights, or to guard against economic perils such as pests or navigation hazards. The statutes that replaced common law often continued under the same principles of the previous common law, but added criminal offences and administrative structures to the law. The Goldfields Act 1862 set in place regulation to license individuals to mine and use water for mining within a certain area. Over time various licences developed to permit various activities such as building dams or water-races, or taking water from

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<sup>250</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1.

springs, lakes or waterways.<sup>251</sup> This regulation allowed miners to take water for the 'extraordinary' purposes limited under common law. Prior to 1874 a licensing system was used to cut forests on Crown land. This was not to preserve the forestry but to protect the rights of those who had made capital investment in logging.<sup>252</sup> Trees were seen as an impediment to farming which was considered the most desirable form of development; forests were a single crop which provided an economic resource and cleared the land for agricultural production.<sup>253</sup> In the late nineteenth century, as we have seen, thousands of acres of native forests in Taihape were logged and burnt and tussock lands were planted in grass to open the way for pastoral farming.<sup>254</sup> In this period resource management law was not about creating sustainable systems; it was about producing the most economically desirable outcomes. Massive changes to the environment were permitted and were even considered adventurous provided the colonists' desired economic inputs were maintained.

350. The need to conserve forests for environmental reasons began to be acknowledged by the 1860s and 1870s. The damage done by illegal and indiscriminate logging was beginning to be appreciated and notions of 'scientific' (sustainable) logging gained popularity, as did fears of a 'timber famine'.<sup>255</sup> This shift in thinking produced the New Zealand Forests Act 1874. The Act aimed to:

make provision for reserving the soil and climate by tree planting, for providing timber for future industrial purposes, for subjecting some production of the native forests to skilled management and proper control.<sup>256</sup>

351. Until the mid-twentieth century the emphasis was on economic or recreational use of the environment rather than the protection of whole ecosystems. For example the Salmon and Trout Act 1867 allowed for regulations to be enacted which prohibited lime or any other harmful material being introduced into any waterway in which young salmon or

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<sup>251</sup> Ibid.

<sup>252</sup> Wendy Pond and The Waitangi Tribunal. *The land with all woods and water*, 1st release. ed. Rangahaua whanui national theme, Waitangi Tribunal, Wellington, 1997.

<sup>253</sup> Ibid.

<sup>254</sup> Rollo Arnold and New Zealand Electronic Text Centre. *New Zealand's Burning: The settlers' world in the mid 1880's*, New Zealand Electronic Text Centre, Wellington, 2005.

<sup>255</sup> Wendy Pond and The Waitangi Tribunal. *The land with all woods and water*, 1st release. ed. Rangahaua whanui national theme ; U Waitangi Tribunal, Wellington , 1997.

<sup>256</sup> M. M. Roche. *Forest policy in New Zealand: an historical geography 1840-1919*, Dunmore Press, Palmerston North, 1987

young trout were deposited.<sup>257</sup> There was no similar protection for the indigenous koaro. That fish was caught by Maori in the Rotorua and Taupo lakes and was being out competed by trout.<sup>258</sup> The importance of local species began to be recognised in the law by the 1930s. A warrant issued in 1935 under The Native Plants Protection Act 1934 protected all but a small number of indigenous New Zealand plants. The Act made it an offence to take any indigenous plant growing on Crown lands, forests, reserves, or public spaces or from private land without the consent of the owner.<sup>259</sup> Importantly for Maori there was an exception which permitted the taking of plants for medical purposes provided it did not exhaust the species in any given habitat.<sup>260</sup> This Act has never been tightly enforced and its penalties are minimal.<sup>261</sup> Pests were controlled by Acclimatisation Societies and to some extent by direct Crown action. The Rabbit Nuisance Act 1882 established rabbit districts each with inspectors and agents. A national committee was appointed to investigate solutions to the damage caused by rabbits.<sup>262</sup>

352. Water supply and discharge have, to varying degrees, always been in the control of local authorities. The Municipal Corporations Act 1867 gave borough councils the ability to enact by-laws prohibiting the use of council managed waterways for washing people or animals, or for the disposal of animals, rubbish or filth.<sup>263</sup> Local health boards had parallel powers to empty sewers under the Public Health Act 1876.<sup>264</sup> Further Acts of Parliament in 1886, 1920, 1974, and 1991 provided local authorities with authority to manage sewers, wastewater and storm-water in the territories.<sup>265</sup> With the introduction of the Town-planning Act 1926, councils with populations over 1000 were required to prepare schemes for the present and future water supply needs of the borough. The

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<sup>257</sup> Wendy Pond and The Waitangi Tribunal. *The land with all woods and water*, 1st release. ed. Rangahaua whanui national theme ; U Waitangi Tribunal, Wellington, 1997.

<sup>258</sup> Ibid.

<sup>259</sup> Native Plants Protection Act 1934 23 October 1934.

<sup>260</sup> David A. R. Williams. *Environmental law in New Zealand*, Butterworth, Wellington, 1980.

<sup>261</sup> Nicola R. Wheen. 'New Zealand Environmental Law' in *Environmental Histories of New Zealand* (Pawson and Brooking eds.), Oxford University Press, Auckland, 2002.

<sup>262</sup> Peter Holland, Kevin O'Connor, and Alexander Wearing, "Remaking the Grasslands of the Open Country," in *Environmental Histories of New Zealand*, ed. Eric Pawson and Tom Brooking (Auckland: Oxford University Press, 2002), 69-83.

<sup>263</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1, p. 83

<sup>264</sup> Ibid.

<sup>265</sup> Ibid.

legislation included concepts of natural resource conservation and coordination of public services. However, most councils were unable to comply with its provisions.<sup>266</sup> It was not until the Water Pollution Act 1953 that there was general legislation to protect the public right to water free of pollution or to reduce pollution in waterways.<sup>267</sup> The Act allowed regulations to be created which, when introduced in 1963, became New Zealand's first water quality classification regime.<sup>268</sup>

## **THE BEGINNINGS OF HOLISTIC RESOURCE MANAGEMENT**

353. The displacement of common law by statute was initially done in an ad hoc fashion, responding to problems as they emerged. By the turn of the twentieth century numerous systems of local boards had been created to manage various aspects of environmental management such as rivers, water-supply, drainage, wastewater, flood control, roads, and pests such as rabbits. These competing boards operated under a range of overlapping legislation with overlapping functions. In 1908 the system's failure to control river channel and erosion damage led to a series of commissions to investigate the problem.<sup>269</sup> Slowly a move was made to more comprehensive legislation such as the Soil Conservation and Rivers Control Act 1941 and the Water and Soil Conservation Act 1967.
354. The Soil Conservation and Rivers Control Act 1941 recognised the significant amount of erosion that had been caused by deforestation.<sup>270</sup> The Act created the Soil Conservation and Rivers Control Council (SCRCC). The Council was made up of representatives of government departments, local authorities and agricultural groups. This legislation would become particularly important in the Taihape district because of the erosion caused by inappropriate land use on the steep and poor soils of the region. The legislation empowered the Council to investigate soil erosion and conservation; co-ordinate central

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<sup>266</sup> Graham William Arthur Bush. *Local government & politics in New Zealand*, 2nd ed. Auckland University Press, Auckland, N.Z., 1995.

<sup>267</sup> David A. R. Williams. *Environmental law in New Zealand*, Butterworth, Wellington [N.Z.], 1980., EC Adams. 'The Waters Pollution Act, 1953' in *The New Zealand Law Journal*, vol. 31, No. 11, 21 June 1955.

<sup>268</sup> Nicola R. When. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1.

<sup>269</sup> *Ibid.*

<sup>270</sup> Michael Roche. 'The State as Conservationist, 1920-60' in *Environmental Histories of New Zealand* (Pawson and Brooking eds.), Oxford University Press, Auckland, 2002.

and local government; create and maintain watercourses, natural or otherwise; create defences from flooding; oversee the activities of catchment boards; and designate and manage soil-conservation areas.<sup>271</sup> As part of the Act new regional bodies known as catchment boards were set up on a voluntary basis. They worked to educate farmers on the best practice for soil conservation rather than to regulate land use. These new boards could levy rates, raise loans and make by-laws in relation to soil conservation.<sup>272</sup> There was some opposition to the boards<sup>273</sup> and the system was only partially successful and was implemented in a way that emphasised works to control water.<sup>274</sup>

355. The Water Pollution Act 1953 came out of an interdepartmental committee on pollution.<sup>275</sup> Officials recognised several problems with common law controls and various ad hoc controls on water pollution. The cost of enforcing common law pollution controls was considered too high for farmers and land owners found it difficult to protect their property values from water degradation. There was a sense that regulation had not kept up with industrial development and that multiple pieces of legislation and regulation were not effective in preventing the degradation of river and coastal waters:

Existing legislation is inherently partial in that, for instance, it permits the discharge of mining wastes, proscribes sawdust and sheep dip and requires proof of actual damage to fisheries or danger to health in the case of other wastes often at least as objectionable. Some such legislation is obsolete and has not been changed to meet [the] change in emphasis of industrial activity.<sup>276</sup>

356. To some extent the problem of pollution was seen as an economic problem. Wastes such as sawdust, dairy whey, and cowshed effluent were considered failures of utilisation. In 1948 the direct economic loss from 'cowyard manure' pollution was thought to be over half a million pounds, a concern to officials in a time of fertiliser shortage.<sup>277</sup> Coal and

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<sup>271</sup> Nicola R. When. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1.

<sup>272</sup> *Ibid.*

<sup>273</sup> Michael Roche. 'The State as Conservationist, 1920-60' in *Environmental Histories of New Zealand* (Pawson and Brooking eds.), Oxford University Press, Auckland, 2002

<sup>274</sup> Nicola R. When. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1

<sup>275</sup> Smith to Higgins. 26/7/1949. 6/26/28, AATJ 6090 113, National Archives, Wellington

<sup>276</sup> Legislative Programme 1951 – Pollution Control Bill 1951, AAOQ W3305 14 4/3 1, National Archives Wellington

<sup>277</sup> Pollution of Rivers and Coastal Waters : Report of the Inter-departmental Committee on Pollution, 5 November 1948, AAOQ W3305 14 4/3 1, National Archives Wellington

gold mining wastes were recognised as not having much value but their danger to river navigation and flood control was recognised.<sup>278</sup>

357. The 1953 Act established a Pollution Advisory Council and gave it certain powers for the prevention or mitigation of pollution of waterways. The Council had twelve members who were representatives of the following interests:

- Ministry of Works
- Department of Scientific and Industrial Research (DSIR)
- Department of Health
- Marine Department
- Municipalities Association
- Counties Association
- Drainage Board
- Harbour Board
- Dairy Board
- Meat Industry
- Manufacturers Association
- Recreational Interests<sup>279</sup>

358. The Council was to carry out surveys and investigations; organise and encourage research; compile and publish information and codes; compile model by-laws for local authorities; investigate conflicts of interest; and advise local and central government. The Act made it a crime to pollute or knowingly dump refuse into any water. Polluting was defined under the Act as contamination of the water that changed its physical and chemical condition in such a manner that made the water:

- 1 Unclean, noxious or impure or as to be detrimental to the health, safety or welfare of persons using the waters, or
- 2 As to render the water undrinkable to farm animals, or

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<sup>278</sup> Ibid.

<sup>279</sup> R. N. Kerr. Address by the Chairman of the Water Pollution Control Council to a Meeting of the Aggregate Association of New Zealand, Wellington, 20 October 1971. 6/26/28, AATJ 6090 113, National Archives, Wellington.

- 3 As to be poisonous and harmful to animals, birds or fish around or in the waters.<sup>280</sup>

359. The Water Pollution Act constituted a major increase in the attempts of the state to control water pollution. It brought together a number of Acts and regulations and provided one agency to control water pollution efforts. There was still a patchwork of authorities and legislation but the Act went some way in strengthening and streamlining environmental legislation.

## **GROUND WATER AND GEOTHERMAL STEAM ACTS**

360. Common law did not protect ground water resources from pollution or depletion in the same limited way it did for surface waters. It was not until the 1940s that serious concerns over groundwater abstraction and pollution were raised in New Zealand. In 1949 an amendment to the Soil Conservation and Rivers Control Act 1941 was drafted in order to allow the SCRCC to regulate the use of underground water in certain areas.<sup>281</sup> Water intensive industries such as freezing works and cement works opposed the law change. The amendment was shelved but the concerns remained. Urbanisation and industrial development had led many cities to collect water from artesian sources and local authorities wanted assurances of quality and supply.<sup>282</sup> The Government decided on legislative action in 1953, despite opposition from Federated Farmers, the Manufacturing Association, and the North Island Freezing Companies Association.<sup>283</sup> The Underground Water Act 1953 did not allow the SCRCC to manage groundwater but instead provided for territorial authorities to be made underground water authorities by an Order in Council. Territorial authorities were then able to pass by-laws regulating abstractions and preventing pollution.
361. The SCRCC was replaced by a new body under the Water and Soil Conservation Act 1967. This Act created the National Water and Soil Conservation Authority (NWSCA)

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<sup>280</sup> R. N. Kerr. Address by the Chairman of the Water Pollution Control Council to a Meeting of the Aggregate Association of New Zealand, Wellington, 20 October 1971. 6/26/28, AATJ 6090 113, National Archives, Wellington.

<sup>281</sup> Alexander, "Some Aspects of Crown Involvement with Waterways in the Whanganui Inquiry District.", p. 14

<sup>282</sup> Ibid. p. 15

<sup>283</sup> Ibid.

which was to promote water planning and management.<sup>284</sup> The Act made the NWSCA the central authority to advise the Government on water and soil issues as well as make directives to administrative bodies. Those bodies were the SCRCC, the Catchment Boards and Catchment Commissions, the National Parks Authority, all regional Water Boards, River Boards, Drainage Boards, Water Boards, Harbour Boards, Irrigation Committees, Borough Councils, County Councils and any other public authority in so far as they related to water and drainage.<sup>285</sup> The Act empowered the NWSCA to examine problems concerning, and make plans in respect of:

the allocation and quality of natural water, the control of erosion on the banks of the rivers, the shores of lakes, and the seashore, and the control of natural water, all enactments and rules of law relating to natural water and the needs of fisheries and wildlife and all other recreational users of natural water; and to control the damming, diversion, taking and use of natural water, and the discharge of anything into any natural water so far as any such act may affect the quality and availability of natural water for other purposes, and also to promote the best uses of natural water, including multiple uses, and to allocate natural water between competing demands.<sup>286</sup>

362. However, in *Environmental Defence Society Inc v National Water and Soil Conservation Authority* 1976 it was held that water allocation plans made under this provision had no backing in statute and were not binding.<sup>287</sup> The SCRCC, now simply known as the Water Resources Council, continued in its function to investigate water needs, quality, records, and best practice as well as education. It was disbanded in 1983 and its functions were transferred first to the NWSCA then to the Minister for the Environment.<sup>288</sup> The Water and Soil Conservation Act 1967 nationalised all the development rights to natural water and created a new scheme to distribute rights to water. Section 261 vested in the Crown the right to manage water sources and discharges. This expropriated the water rights of all land owners, Maori and non- Maori alike:

The sole right to dam any river or stream or to divert or take natural water, or to discharge natural water or waste into natural water [or to discharge natural water containing waste on to land or into the ground in circumstances which result in that

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<sup>284</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1,

<sup>285</sup> David A. R. Williams. *Environmental law in New Zealand*, Butterworth, Wellington, 1980.

<sup>286</sup> *Ibid.*

<sup>287</sup> *Ibid.*

<sup>288</sup> Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in *Otago Law Review*, vol. 9, No. 1

waste, or other waste emanating as a result of natural processes from that waste, entering natural water,] or to use natural water, is hereby vested in the Crown.<sup>289</sup>

363. Crown control of water management was continued under s.354 of the Resource Management Act 1991. From the 1967 Act new uses of water had to be approved by water authorities. However, there was no system in the legislation for granting applications and the courts developed a system of balancing interests for water use.<sup>290</sup> In 1971 the Act was amended to include the functions of the Waters Pollution Act 1953. This consolidated the process of water quality classification with erosion and flood control.<sup>291</sup> Water management, flood control and pollution regulation had become integrated into the one piece of legislation. However, there were other areas of environmental management that were still managed under separate legislation.

## SCENERY PRESERVATION

364. The preservation of wilderness was done historically to preserve aesthetic features rather than preserve ecosystems. However, preservation did aim to protect economically important parts of the environment. The Public Reserves Act 1881 introduced the ability to reserve land in the interests of water conservation. Initially mountainous regions were the first to receive protection, partly due to their natural beauty and partly due to their lack of economic usefulness. The shift in the law from an aesthetic to ecologically based conservation can be seen in the change from the National Parks Act of 1954 to that of 1980. The 1954 legislation aimed to preserve 'in perpetuity... for the benefit and enjoyment of the public, areas of New Zealand that contain scenery... or natural features of such quality or... so beautiful or unique that their preservation is in the national interest'.<sup>292</sup> The 1980 legislation adds the "ecological systems" and "scientific importance" to the list of reasons for preservation. The system of visual preservation has been augmented by an additional need to preserve the unseen and even visually unappealing ecological systems present in National Parks.

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<sup>289</sup> Ibid.

<sup>290</sup> Ibid.

<sup>291</sup> Ibid.

<sup>292</sup> Quoted from: Nicola R. Wheen. 'A Natural Flow - A History of Water Law in New Zealand' in Otago Law Review, vol. 9, No. 1

## THE RESOURCE MANAGEMENT ACT 1991

365. It was not until the passing of the Resource Management Act 1991 that environmental assessment was integrated into decision making on the use of natural resources.<sup>293</sup> It was also an attempt to rationalise the system of environmental and resource management regulation into one structure which complemented both the economic reforms of the late 1980s and the shifts in environmental ethics. The Explanatory Note to the Bill when it was introduced to Parliament in 1989 identified the failure of the then existing system of resource management to provide a cohesive and integrated system which took into account the interests of Maori and the Treaty of Waitangi. The system failed to address the physical connections between air, water and the land, and did not achieve good environmental outcomes.<sup>294</sup> In passing the Act, a total of 69 previous environmental management statutes were repealed and 19 regulations were revoked.<sup>295</sup> In their place the Act created an integrated system for local and regional councils to approve consents to interact with the environment in accordance with council planning.

366. The RMA, for the first time in New Zealand resource legislation, requires that resource management be based on the principle of sustainability and with the specific inclusion of Maori interests. Section 6 of the Act imposes a list of matters of national importance that must be recognised and provided for to achieve the purposes of the RMA in relation to managing the use, development and protection of natural and physical resources:

- The preservation of the natural character of the coastal environment, wetlands, and lakes and rivers and their margins.
- The protection of those and other areas with outstanding natural features from inappropriate subdivision, use, and development.
- The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

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<sup>293</sup> Jenny Boshier. '25 years of impact assessment in New Zealand' in *Planning Quarterly*, No. 180, September 1998.

<sup>294</sup> David A. R. Williams, Derek Nolan and Simon Berry. *Environmental and resource management law in New Zealand*, 2nd ed. Butterworths, Wellington, 1997.

<sup>295</sup> Resource Management Act 1991 (1991 No. 69), enacted 22 July 1991.

- The maintenance and enhancement of public access to and along coastal marine areas, lake and rivers.
- The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.
- The protection of historic heritage from inappropriate subdivision, use, and development.
- The protection of recognised customary activities.<sup>296</sup>

367. Section 7 goes on to explain the list of issues that must be taken into account by those exercising functions under the Act:

- Kaitiakitanga.
- The ethic of stewardship.
- The efficient use and development of natural and physical resources.
- The efficiency of the end use of energy.
- The maintenance and enhancement of amenity values.
- Intrinsic values of ecosystems.
- Maintenance and enhancement of the quality of the environment.
- Any finite characteristics of natural and physical resources.
- The protection of the habitat of trout and salmon.
- The effects of climate change.
- The benefits to be derived from the use and development of renewable energy.<sup>297</sup>

368. The list has changed since the Act was first introduced. The ethic of stewardship was first introduced in 1997. Protection for historic sites was introduced in 2003, the provisions on energy efficiency, climate change and renewable energy in 2004, and the recognition of customary activities in 2005. These inclusions have, in theory at least, strengthened the role of Maori in resource management. Section 8 of the Act says that decision makers must take into account the principles of the Treaty of Waitangi in

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<sup>296</sup> Ibid.

<sup>297</sup> Ibid.

achieving the purpose of the Act. The relevance of the principles of the Treaty to a decision will depend on the circumstances.<sup>298</sup> Where the principles are relevant they must affect the discretion of the decision maker.<sup>299</sup> A number of authors note practical difficulties in implementing section 8. Stephenson points out ‘there does not yet appear to be a consistent line on how Treaty principles should be incorporated into resource management practice’.<sup>300</sup> In applying the Treaty principles, the courts have resorted to mechanisms such as consultation and resource consent conditions and in rare cases, refusal of consent. While positive, Stephenson suggests that these instruments are limited in the extent to which they can provide Maori with a meaningful role in resource management decision making, and protect Maori values. Local authorities need to explore additional ways of giving practical expression to the principles of the Treaty.

369. There are a number of other provisions in the Resource Management Act that relate specifically to Maori people and interests. These are sections 33, 36, 39, 61, 62, 66, 74 and clause 3(1)(d) of the First Schedule. These concern the involvement of iwi and hapu in resource management at practical and governance levels.
370. Section 6 requires decision makers to recognise and provide for certain matters of national importance in promoting the sustainable management of resources. One of these matters is the ‘relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu and other taonga (section 6 (e)). Three points are important in respect of section 6(e). First this provision requires local authorities to first recognise the ancestral relationship of Maori with resources, and then provide for it.<sup>301</sup> Positive action is required, rather than passive acknowledgement.<sup>302</sup> Second, matters in section 6 are of national importance and, as such, are to be given more weight in decision

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<sup>298</sup> D. Nolan (ed.), *Environmental and resource management law*, Wellington, LexisNexis, 2005.

<sup>299</sup> Parliamentary Commissioner for the Environment. *Kaitiakitanga and local government: tangata whenua participation in environmental management*. Report, Wellington, 1998.

<sup>300</sup> Stephenson, J. (2001). *Consultation is not enough - the principles of the Treaty in resource management*. *Butterworths Resource Management Bulletin*(5), pp. 153-157.

<sup>301</sup> *Haddon v. Auckland Regional Council*, Planning Tribunal, 1993.

<sup>302</sup> D. Nolan (ed.), *Environmental and Resource Management Law*, Wellington, LexisNexis, 2005.

making than local objectives (ibid.).<sup>303</sup> Third, ancestral lands do not have to be owned by Maori.<sup>304</sup>

371. Under section 7, decision makers must have particular regard to certain other matters in carrying out the purpose of the Act. These matters include kaitiakitanga (section 7(a)). Kaitiakitanga is defined in the Act as the exercise of guardianship by the tangata whenua of an area in accordance with tikanga Maori in relation to natural or physical resources, and includes the ethic of stewardship (section 2(1)). The requirement to ‘have particular regard’ to a matter is less than the duty to ‘recognise and provide for’.<sup>305</sup> Decision makers must consider section 7 matters where relevant and accord them such weight in decision making as reflects their inclusion in Part 2 of the Act. However, in the end, decision makers do not have to provide outcomes that include the exercise of kaitiakitanga.<sup>306</sup>
372. Section 33 allows a local body authority to transfer any of its functions, powers or duties under the Act to another public authority such as an iwi authority. As of 2003 there had not been a transfer of powers to an iwi authority. Reasons given by councils for this include insufficient knowledge about which functions or powers might be transferred and uncertainty about the implications of such transfers.<sup>307</sup>
373. Recent amendments to the Act to facilitate joint management agreements between local authorities, iwi authorities and groups representing hapu (sections 36B-36E) may provide a viable alternative to section 33 transfers. A joint management agreement may be made in respect of any function or power of local authorities.<sup>308</sup> In establishing an agreement, a local authority must satisfy itself on three matters: one, the parties to the agreement represent the relevant communities; two, the partners to the agreement have the capacity

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<sup>303</sup> Ibid.

<sup>304</sup> Royal Forest and Bird Protection Society v. Habgood Limited, High Court, 1987.

<sup>305</sup> D. Nolan (ed.), Environmental and resource management law, Wellington, LexisNexis, 2005.

<sup>306</sup> Parliamentary Commissioner for the Environment. Kaitiakitanga and local government: tangata whenua participation in environmental management. Report, Wellington, 1998.

<sup>307</sup> Maynard, K. (1998). He tohu whakamarama: a report on the interactions between local government and Maori organisations. Wellington: Ministry for the Environment.

<sup>308</sup> Ministry for the Environment. (2005). Resource Management Amendment Act 2005 - improving natural resource allocation. Wellington: Ministry for the Environment.

to exercise the function or power concerned; and three, the agreement is an efficient way of implementing that function or power.

374. When preparing a proposed policy statement or plan, a local authority must consult with the tangata whenua who may be affected through iwi authorities (clause 3(1)(d), First Schedule). In 2005, the Act was amended to define the consultation procedure. Under new clause 3A of the First Schedule a council must: consider ways it may foster the capacity of iwi authorities to respond to an invitation to consult, establish and maintain processes for iwi authorities to consult it, enable iwi authorities to identify resource management issues of significance to them, and indicate how those issues have been, or are to be, addressed. Consenting authorities are also able under Section 91 to direct a consent application to an iwi authority when appropriate. Applicants for resource consent do not need to consult with Maori, although they may choose to.
375. In addition, councils must keep records of iwi authorities and groups representing hapu on resource management matters (where the council is notified of such groups) in the district or region (section 35A). The records must include: the contact details of each iwi authority or hapu group, any planning documents recognised by each iwi authority and lodged with the council, any area of the region or district in which one or more iwi or hapu exercise kaitiakitanga. The Crown must assist councils to keep such records.
376. A council must take into account any relevant planning document recognised by an iwi authority when preparing or changing a regional policy statement or plan, or district plan (sections 61(2A)(a), 66(2A)(a) and 74(2A)(a)). Such planning documents are commonly referred to as iwi management plans. Bell describes the nature and scope of iwi management plans:

iwi management plans may be a formal planning document similar to council policy documents, or they may be a statement of iwi policies in a less formal and detailed memo or report. Iwi management plans are usually developed by iwi, whanau or hapu for their iwi, whanau or hapu. They provide a statement on the position of tangata whenua on a range of issues so that these can be heard and considered by councils and other stakeholders. In some instances, iwi management plans provide a holistic document of the iwi's

concerns and may go more broadly than RMA requirements ... Or they may be a statement on the iwi's interests in relation to one resource area ...<sup>309</sup>

377. As the RMA is implemented by regional and district councils there are differences between regions in how the Act is implemented. These differences are reflected in the differences in relationships between councils, consent seekers and tangata whenua. Many difficulties in consultation processes were identified in the 1990s. Local Government New Zealand published a survey of council practices in regard to Maori liaison and consultation. Seventy-five percent of councils took part in the survey. The report did not assess the attitudes and experiences of Maori in the consultation process but it did identify several concerns in the responses from the councils. These included the lack of solid national guidelines; a lack of consensus over the responsibilities of the local government in regard to the Treaty; a lack of confidence in identifying those with the mana to represent tangata whenua; uncertainty over urban Maori; and concerns over the costs burden for councils. In her analysis of the research done into Maori and the RMA, Ronda Cooper identifies the issue of who should be consulted as the most common issue arising from the literature. Others include the fragmentation of Maori and local government structures; the compartmentalisation of environmental systems; lack of consistency between council staff, management and elected members; and differences in approaches taken by consent seekers.

378. As the system of resource allocation became more complex under the RMA, the need arose to strengthen the system of judicial appeals against allocation decisions. The Resource Management Amendment Act 1996 created the Environment Court as the judicial body responsible for hearing cases concerning planning and resource consent applications. It replaced the Planning Tribunal which had been created from the Appeal Boards set up under the Town and Country Planning Act 1953. Other than the RMA the Court hears cases relating to the following legislation:

- Historic Places Act 1993 - appeals about archaeological sites
- Forests Act 1949 - appeals about felling beech forests
- Local Government Act 1974 - objections to road stopping proposals

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<sup>309</sup> Bell, K. Whakamau ki nga kaupapa: making the best of iwi management plans under the Resource Management Act 1991. Wellington: Ministry for the Environment, 2001.

- Transit New Zealand Act 1989 - objections regarding access to limited access roads
- Electricity Act 1992 - disputes over access to private land to maintain existing electrical transmission lines
- Crown Minerals Act 1991 - administration of existing privileges
- Maori Commercial Aquaculture Claim Settlement Act 2004 - appeals against allocation decisions of regional councils
- Biosecurity Act 1993 - appeals about regional pest strategies
- Public Works Act 1981 - objections to notices of taking of land
- Public Transport Management Act 2008 - appeals about controls and/or contracting requirements within Regional Public Transport Plans<sup>310</sup>

379. The Court has wide powers to enforce orders to comply with the Act and can issue abatement notices.<sup>311</sup> The Court is required by the Act to recognise tikanga Maori where appropriate.<sup>312</sup>

To a limited extent Maori representation and Maori values have been brought to environmental management by new methods of Maori engagement. Initiatives such as iwi environmental policy statements, community collectives and support from private agencies in relation to RMA resource consents have, in an *ad hoc* and undirected manner, provided representation in environmental management and the incorporation of Maori values, albeit in limited and reactive ways. These strategies while interpreted through the RMA by local authorities to fulfil kaitiakitanga do not fulfil the sense of kaitiakitanga and rangatiratanga perceived by the claimants. Changes from the 2003 amendments of the Resource Management Act have seen the strengthening of iwi Environmental Planning Documents (from authorities having to “give regard” to “take into account”). However, this combined with recommendations from findings of the Treaty of Waitangi Tribunal’s “Wai 262” claim to balance the responsibilities of kaitiaki and remove obstacles in the RMA/National Policy Statements may provide a greater

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<sup>310</sup> Copied from: Environment Court of New Zealand. Website. How Cases Come to Court, Viewed on 17 October 2008. <http://www.justice.govt.nz/environment/about/how-cases-court.asp>

<sup>311</sup> David A. R. Williams, Derek Nolan and Simon Berry. Environmental and resource management law in New Zealand, 2nd ed. Butterworths, Wellington, 1997.

<sup>312</sup> Resource Management Act 1991 (1991 No. 69), 22 July 1991.

awareness of generic Maori values. More direct methods would be required to enable iwi/hapu/whanau to effectively manage their lands and natural resources fully, participate in decision making and achieve better representation in (remote and rural) local authorities.

## **STATE OF THE ENVIRONMENT REPORTING**

380. State of the Environment reporting is a requirement under section 35(2)(a) of the Resource Management Act 1991. The four yearly reports are to report on the quality and changes within the environment. While the Ministry for the Environment uses the reporting in an analysis of a national State of the Environment there are no standard methods of measurement or reporting. Horizons Regional Council produced the last State of the Environment Report which contained regional level data in 2001. While annual reports have been produced, the 2005 report was consumed by the 2004 floods, implementation of the Sustainable Land Use Initiatives and the development of the second generation Regional Policy Statement, the “One Plan”. The focus of these reports and activities has been at regional level rather than providing specifics about the environment in the Taihape Inquiry District.
381. The Rangitikei District Council last produced a State of the Environment report in 2004. This report focused primarily on land development and measured change through consent activity. Very little quantifiable data was collected on agricultural developments or land use change.
382. Of the State of the Environment reports produced in the Inquiry District none consider Maori values or understanding of environmental processes and none attempt to report on impacts to cultural and heritage matters. Horizons Regional Council has focused primarily on relationship building with iwi/hapu and historical buildings.



Figure 9: DOC Land Cover Database

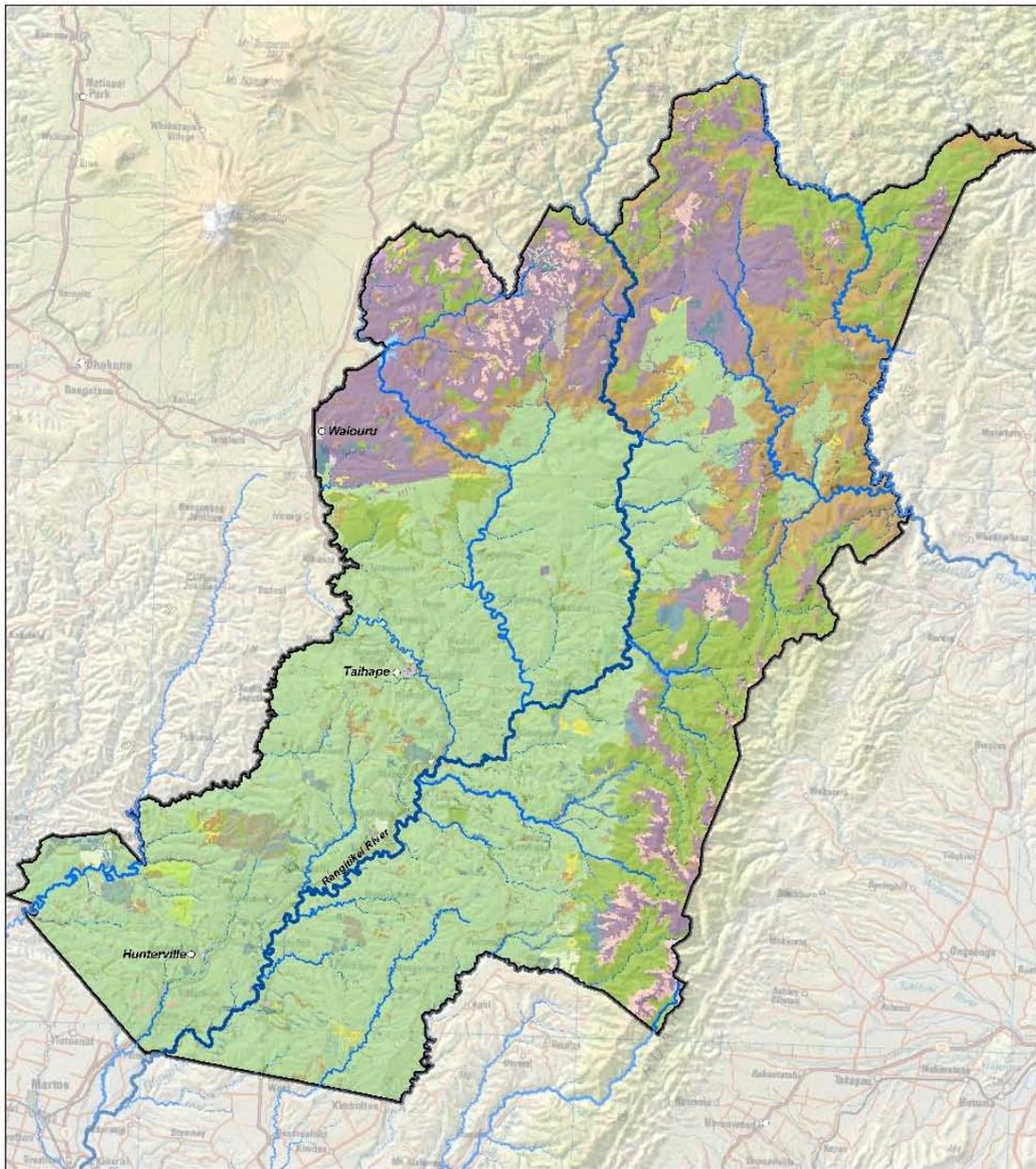
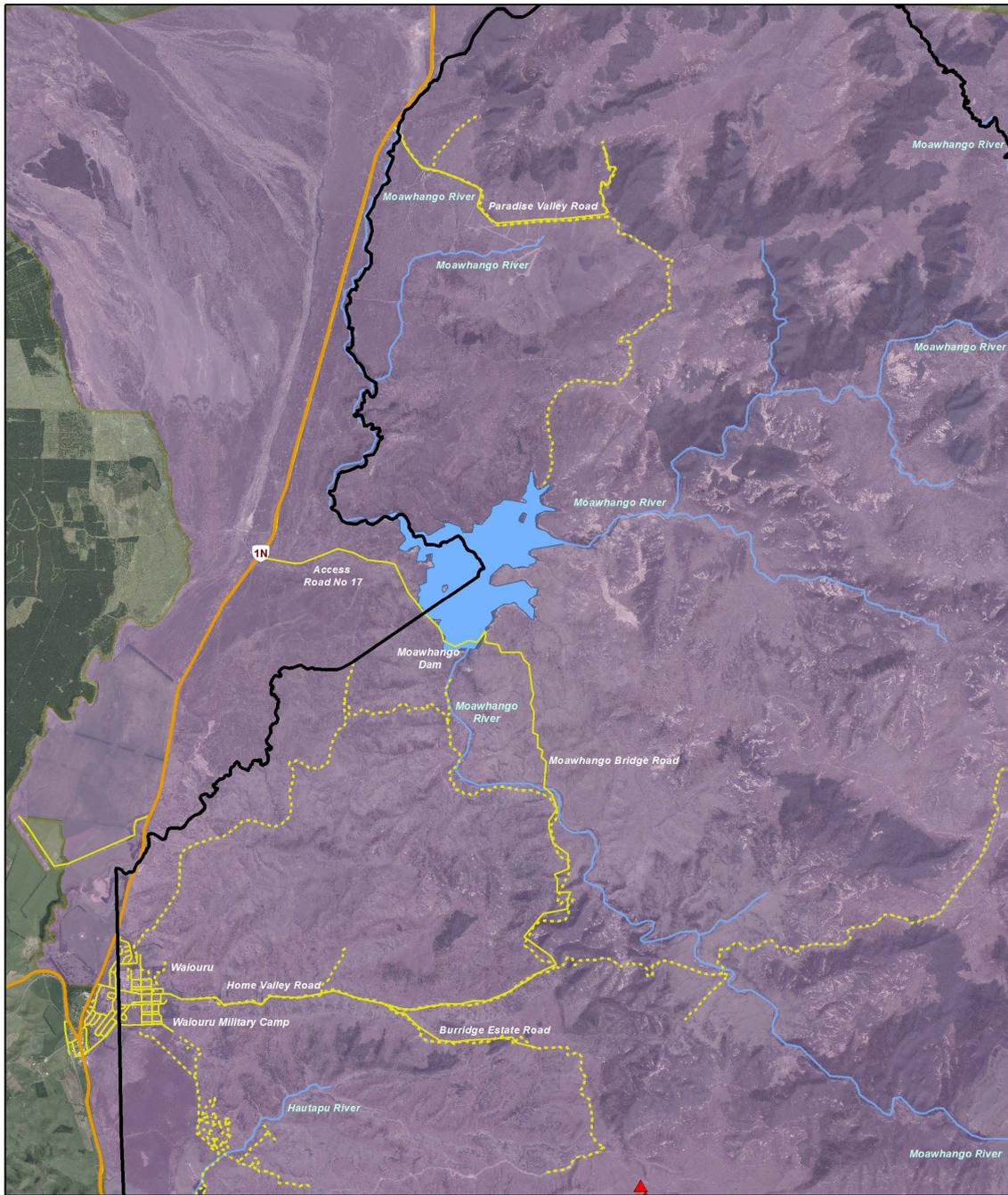


Figure 10: Lake Moawhango



Lake Moawhango	
<b>Legend</b>	
▲ Pa Site	■ Lake Moawhango
— State-highway	■ Waiouru Defence Lands
- - - Restricted access road	▭ Taihape boundary
— Public road	

Data Sources:  
Local Government boundary data and  
Topo Raster imagery sourced from  
Land Information New Zealand.  
Crown Copyright reserved.  
NZ Archaeological Association data sourced March 2012  
Date Created: 11/04/2012  
Projection: NZTM  
Author: Opus International Consultants Ltd

0 1 2  
Kilometres

1:100,000

383. The Taihape Inquiry district has approximately 20 per cent of its land cover in remnant indigenous forest. The remaining native forest is primarily in remote, inaccessible areas on mountainous terrain, areas not easily accessible for clearing for farming during the early twentieth century. The underlying ownership of the native forest is primarily under the administration of the Department of Conservation (DOC). Claimants or hapu/whanau groups also own and administer a significant portion of land containing indigenous forest adjacent to many DOC lands, resulting in formal relationships and mutually beneficial agreements being developed over time.
384. Prior to European settlement the iwi/hapu groups had full access to, management and control of the abundant native species associated with the tussock lands, beech and podocarp/broad leaf forests. Claimants had a strong association with the native forests and species of the area and have noted the rapid decline of abundant species such tuna, koura, kereru and tui since agricultural developments began to dominate the region. The claimants made particular note of the huia (*Heteralocha acutirostris*) and the moa (*Dinornis novaezealandiae*) that were of value to iwi/hapu and provided a sense of identity for some hapu. Both species are now extinct with the huia becoming extinct through European settlement and forest clearance. Other species of note are the kowhai (*Sophora spp.*) and a rare ngutukaka or kakabeak (*Clianthus spp.*) with a white flower which is known as the *Clianthus* white heron in commercial botanical terms.
385. DOC has since the development of the Whanganui/Taranaki Conservancy managed the Inquiry District in separate regimes: the Rangitikei Ecological area, the Moawhango Ecological Area and the Ruahine Forest Park. Combined, these areas encompass the Inquiry District and similar landscapes over to Whanganui and down to the Manawatu.
386. The Rangitikei Ecological Region, which is primarily focused on the middle reaches of the Rangitikei, Turakina, Whangaehu and Mangawhero areas, was dominated by rimu, matai, hinau and rewarewa, with kahikatea in wetter areas.<sup>313</sup> Totara were also present along the river terraces and flats. Most significantly the abundance of divaricating shrubs and the variety of species originally found in northern areas around Taihape resulted in

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<sup>313</sup> Lake and Whaley, 1995

the development of the Paengaroa Reserve where today 30 species still remain, such as the *Olearia gardneri*. In total there were approximately 27 areas within the Rangitikei Ecological Region that were suggested for protection/management on top of the existing reserves.

387. The Moawhango Ecological Region is separated from other ecological regions due to the plateau, rolling hill country and sub-alpine conditions of the area between the Kaimanawa and Ruahine Ranges.<sup>314</sup> The area is characterised by the native (red) tussock that encompasses the steep gullies containing native wetlands, shrublands and podocarp forests. The forests generally consist of matai, kahikatea, totara, timu, maire, titoki, hinau, putaputaweta as well as kowhai, lace bark and ribbonwood in areas. The region also has significant black beech forests in cold climate locations with kaiwakawaka. The area is most recognisable for its red and snow tussock lands, patotara and grasses which may have regenerated after forest was burned off by early Maori. Mountain flaxes are also present in steep fertile areas. The adjacent Tongariro Volcanic Centre has contributed to the fertility and soil development of the area. Ecologically significant wetland areas recognised by DOC and Horizons in the region are the Moawhango headwaters, Repora Bog and Makirikiri Tarns. The headwaters of the Moawhango were identified by the claimants as being a significant cultural and spiritual site as a source of mauri, wai-maori and residing kaitiaki.
388. The region was also recognised by Claimants as being culturally significant for its interconnected spiritual and ecological values. Because of the extent to which the Moawhango Ecological Region is also part of the defence lands, claimants were particularly concerned about the problems of access, to what they regard as a really important wahi tapu and pa site:

I think from an environmental aspect as well, I think from an iwi perspective it was about being able to have some self-determination where there is none when you're dealing with the Army. There isn't. So access of course, if you take a step back from that, access for us is a big thing. Access to the upper end of the Moawhango River, access to the lake, access to the pa sites, that's something that we have to fully negotiate ...<sup>315</sup>

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<sup>314</sup> Rogers, 1993.

<sup>315</sup> Mokai Patea claimant, Taihape, 22 November 2011

389. It is the claimants' understanding that preference over access was given to members or ex-members of the defence force, rather than to tangata whenua.
390. In all there are nine areas recognised as needing protection, combined with the four existing protected areas.
391. The Department of Conservation through section 4 of the Conservation Act 1987 recognises the connection tangata whenua have with the indigenous species of New Zealand, and attempts to give effect to the Treaty of Waitangi. In this context a number of relationships have developed between hapu/whanau groups to jointly manage land primarily under Maori ownership with the most recognisable being the Te Potae o Awarua joint initiative between the Aorangi Awarua Trust and the Department of Conservation. The project was established to work towards an integrated pest management area of 20,000ha centred on the North West corner of the Ruahine Ranges which is recognised for its biodiversity values. The partnership attempts to capitalise on the knowledge and understanding of both DOC and the Trust.
392. Claimants were conscious of the importance of this relationship, but had clear reservations:

If I don't have that relationship with them I won't have any relationship with our whenua and our rohe that they administer, manage, own, whatever. That's my way of becoming a part of what they've got that's ours. ... A large part of our combined rohe is actually DOC estate.<sup>316</sup>

393. Where iwi were able to work well with DOC, there was a feeling of partnership. Claimants certainly feared that restructuring or a decline in funding would reduce the department's ability to respond to the environmental and wahi tapu needs of the district. However, at the same time, claimants had significant concerns about the difficulties in working with the department on a day-to-day basis. Changes in personnel, redundancies and new and inexperienced staff made it difficult to maintain important personal relationships, so crucial in developing a common purpose. There was also a clear imbalance in resources and expertise. The department's full-time scientific staff did not

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<sup>316</sup> Mokai Patea claimant, Taihape, 22 November 2011

necessarily produce research that was accessible or relevant to claimants, and claimants felt an inability to assess such research critically:

... we have to do all these relationships... we have to do all this extra work and we've got day jobs. Whereas other people come in and that is their day job and that's what they're doing. Twenty years or longer that these guys especially have been doing, of trying to move forward on two hours a day...<sup>317</sup>

394. The imbalance in expertise undermined claimants' confidence in their own abilities to manage their own environmental and wahi tapu resources in their own region.

This is our whenua and we know how to run it, it's very belittling when you always get oh well, you don't want to get all the DOC estate back do you because yous won't know how to run it...<sup>318</sup>

395. This claimant accepted that DOC did have a major role in the management of the district, but believed that the relationship between the department and the tangata whenua did not appropriately recognise partnership between the Crown and Maori.

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<sup>317</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>318</sup> Mokai Patea claimant, Taihape, 22 November 2011



## MAORI ENVIRONMENTAL MANAGEMENT

396. Maori environmental management as a recognised and applied system of monitoring, decision making and maintenance has developed from the concepts of kaitiakitanga and the Resource Management Act 1991. Understanding of the differences between the underlying philosophical and scientific basis for indigenous and western science approaches to environmental management has been best described by Harmsworth, Tipa and Teirney.<sup>319</sup> King et al. make the point that environmental knowledge is not just traditional but also contemporary as it now represents the totality of experiences from generations of Maori.<sup>320</sup> Science and engineering management techniques over the last 50 years have met limitations in New Zealand's environment and today there is a need to better understand our unique environment and at the same time incorporate traditional knowledge, experience and techniques into environmental management.
397. The consideration of matauranga Maori has been given recognition in the Resource Management Act 1991 in sections 6(e), 7(a) and 8 through the identification of primarily waahi tapu, kaitiakitanga and the Treaty of Waitangi. Sections 66 and 74 require regional councils and local authorities, in developing or changing their plans, to take into account any relevant planning documents recognised by iwi authorities affected by the plan/policy. Commonly referred to as iwi environmental management plans, they are seen as a tool to help streamline the process to incorporate Maori and iwi values into environmental management decisions by providing a generic set of values rather than responding to issues on a case by case basis.
398. The Ministry for the Environment has produced "Te Raranga a Mahi"<sup>321</sup>, a manual that seeks to provide whanau, hapu and iwi with tools to prepare Iwi Environmental Management Plans. This combined with other publications – such as 'Talking constructively: A practical guide for building agreements between iwi, hapu and whanau, and local authorities.' (2000) – has not resulted in the resourcing, capacity and encouragement from local authorities to actively pursue the creation of these

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<sup>319</sup> Harmsworth (2002), Tipa and Teirney (2003) and Harmsworth and Tipa (2006)

<sup>320</sup> King et al. (2007)

<sup>321</sup> "Te Raranga a Mahi" (2000)

relationships or plans. This problem is also witnessed in the lack of reference to cultural monitoring in State of the Environment Reports.<sup>322</sup> In general the production of iwi plans has been relatively slow with very few iwi producing them while those that are produced are poorly adopted or even used by councils.<sup>323</sup>

399. While having a generic understanding of Maori values can be of benefit, to be consistent with tikanga or rangatiratanga, iwi/hapu need to also participate on a case by case basis on certain issues. Claimants in the Taihape Inquiry District repeatedly (at all of the meetings with clustered claimants) made mention of responding to individual resource consents from local and regional authorities, while complaining that these authorities lacked knowledge of iwi/hapu structures and representatives. Claimants explained that this was not just because of the ignorance of non-Maori, but reflected the lack of structures to represent iwi and hapu interests in the region. While the problem is seen as persisting, the claimants have adopted formal structures and relationships to make their position much clearer. Ngati Haurua has an Iwi Environmental Management Plan created by Te Runanga o Ngati Haurua in 1996. Entitled 'Kaupapa Taiao: Environmental Policy Statement', the plan has not been officially adopted by any local or regional authority and hence has not been considered or fully taken into account in plans, policy and environmental decisions.
400. Representation and decision making relating to environmental developments, in particular large nationally significant engineering projects such as the Genesis hydro-electric power generation scheme, have caused some concern for the inability of iwi/hapu to articulate impacts on their culture and have them recognised, mitigated, remedied or avoided as per the Resource Management Act 1991. Ngati Whiti and Ngati Tama described the 12 years of engagement with Genesis as harrowing. Issues of self-determination, representation of Maori in (local) government and the ability of Maori to take advantage of windows of opportunity to realise aspirations for cultural, social and economic advancement are best discussed by Durie<sup>324</sup>. However we see throughout the European settlement of the Taihape Inquiry District that the claimants' iwi/hapu/whanau

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<sup>322</sup> 'Talking constructively: A practical guide for building agreements between iwi, hapu and whanau, and local authorities.' (2000)

<sup>323</sup> (Jefferies et al. 2004)

<sup>324</sup> Durie (1998)

have adapted (whether voluntarily or involuntarily) to take advantage of opportunities for self-determination. This is exemplified by significant participation in saw-milling, agriculture (wool production) and business/tourism. Despite this significant contribution to the development of the community, representation at the decision making level has been absent.

## **CLAIMANTS AND THE RMA IN THE TAIHAPE INQUIRY DISTRICT**

401. Recently iwi along the Rangitikei River have joined together to form a collective with a goal to better manage the River and incorporate Maori values into that management. This collective has been named Nga Pae O Rangitikei and in partnership with Horizons Regional Council will aim to improve tangata whenua engagement with council in relation to management of the Rangitikei River. While this group exists as a partnership there is no formal recognition or requirement for the Council to adopt or take into account the collective's recommendations or views.

### **Have things improved?**

402. Claimants from the two clusters described the impact of the RMA, as they attempted to take control of their wahi tapu and have a say in the management of resources in the region. They described the experience as traumatic and having a fundamental impact on the way that iwi saw themselves and were organised. In general, they considered the legislation, and the statutory need to consult with Maori, as a positive change from what had occurred before:

Basically [it] started with the RMA, when the RMA came in to being there was a requirement to consult with tangata whenua and we, I think individually, as individual hapu, marae and iwi, had to try and figure out how do we manage consultation processes. Very much *ad hoc* originally, but what we did notice, there were a number of issues which came out of the consultation with resource consents and the like. It led to us, particularly Ngati Hauati making a standpoint if you like about what our initial position was with regards to environmental matters, but it also eventually led to the establishment of some working parties.<sup>325</sup>

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<sup>325</sup> Mokai Patea claimant, Taihape, 22 November 2011

403. However, positive improvements in the ability of Maori to have a say in resource management and the protection of wahi tapu still fell far short of what claimants considered was appropriate in exercising their rangatiratanga. 'Our full tino rangatiratanga, our full rangatiratanga status is not being upheld and for us that's at least a 50/50 share in the decision making level':

It's really good that we've got a bit of a part in it but at the end of the day, what I think that whanau and hapu really, really want is to be equal at the table with the management of all of these resources. Not just like - I know we've got a step there being an advisory or whatever it is, but that's not enough. So in a nutshell, we're playing a game.<sup>326</sup>

404. Some claimants indicated that they had been reluctant to participate because participation was not at a policymaking level. As one commented, 'we still haven't got any say at a decision making level' and:

The relationship I think is really through the resource consents process more than anything, so it's not necessarily about policy, it's about process and consents and part of the consultation with individual consents.<sup>327</sup>

405. One claimant complained about being bogged down in the detail of local government, not engaging in large scale decision making, avoiding issues which are fundamentally important to Maori, and being:

... concerned in local issues, like building footpaths, where are you going to put the toilets. I just sit there and I'm not here for that. That's what we've got our councils up here and the borough councils - we put them there to look after those issues. Who spits on the footpath, who skates on the footpath, where are the liquor laws. We're spending probably 80% of our time going through council and a lot of us sit there and wonder what the heck. All we want to talk about is things pertaining to Maori.<sup>328</sup>

406. Yet, while participation in local government often dissipated the energies of those involved, there was a strong feeling by claimants that their involvement in the RMA was significantly under resourced, making it difficult for them to protect wahi tapu and other resources in the consent process.

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<sup>326</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

<sup>327</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>328</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

The big thing as always is having the resources to be able to deal with it ....Even if that goes to the point of joint ventures like Ngati Hauiti did with Historic Places. At least we are part of the decision making process and you are being proactive instead of reactive. There's some very important places that we really do need to protect but haven't got the resources to do it so you just hope, let's hope that no-one goes there. Luckily we're mainly a mountain people ....<sup>329</sup>

407. It was significant, that most of the concerns about the desecration of specific urupa and other wahi tapu were concerned with events prior to 1991 or illegal actions after 1991, where sites had been destroyed by landowners attempting to subvert the RMA. Claimants also expressed fears that future tampering with the RMA would make the situation even worse, and undermine the ability of iwi/hapu to use the processes that are currently available to protect wahi tapu and influence environmental decision making.

### **Challenges to participation**

408. Claimants in the cluster groups had similar responses about engaging in the RMA as they did about dealing with the Department of Conservation. They were conscious of the impact of one and a half centuries of land loss, which marginalised their ability to exercise their traditional rangatiratanga over their rohe. Not only had this made them a much smaller player in environmental management, it also damaged the collective tribal structures which had exercised responsibility for resource management traditionally. Individualism had replaced collective responsibility:

we need to see it in the big picture of the impact of the selling of the land, the partitioning of it, the fragmenting of it and now we don't even get spoken to or only one person in the hapu does. The rest of the hapu doesn't even know what the hell's going on. It's total alienation really.<sup>330</sup>

409. For some, this history of loss and marginalisation made it difficult to participate at all, particularly on the terms laid down by legislation or by local authorities. The past had left a high level of bitterness, which made it difficult to communicate effectively, particularly when the current process tended to throw up many obstacles over long and protracted negotiations.

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<sup>329</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>330</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

410. The negotiations with Genesis had been particularly difficult, extending over 12 years. The resulting resource consent was for 35 years, after which one claimant, speaking for Ngati Whiti and Ngati Tama, commented:

We spent twelve years talking to Genesis so luckily their resource consent was for thirty five years because we can't afford to spend twelve years every ten years. Very time consuming process for us. We learnt a lot in that twelve year process, we've since had a relationship with Meridian and we managed to tie [the negotiations] up in one year so things are getting faster and faster.<sup>331</sup>

411. Ngati Whiti and Ngati Tama did not have the capacity at the beginning to engage effectively with the planning process. They needed to establish runanga, Te Runanga o Ngati Whitikaupeka and Te Runanga o Ngati Tamakopiri, to have an organisational base to negotiate with the power company. Existing marae committees proved unable to manage such complex negotiations. But these organisational structures also needed to rest on a reconsideration of iwi history and identity. The tribes had to 'effectively reconstruct who we were first before we could even move forward'.<sup>332</sup> They consider that they needed to recover from the damage of marginalisation and individualisation of colonisation: 'if we can't remember who we are and we're in a process of rebuilding who we are, how on earth are they ever going to know who we are'.<sup>333</sup> In the end, despite the challenges and frustrations and remembering the 'real bitterness of our people about what happened to the Moawhango and its flow on into the Rangitikei',<sup>334</sup> iwi emerged much stronger, and more able to respond effectively to the consultative environment of the RMA and dealing with other Crown, local government and private interests.

412. An emerging issue of major significance was resolving different customary interests over resources, particularly because of the very large number of relationships that had to be maintained, often in consultative bodies that were encompassed within boundaries that cut across tribal interests. In some cases, working together had been of major benefit as iwi/hapu were able to work with each other to avoid conflicts. Others felt excluded from the processes through lack of representation. Working together also greatly increased the

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<sup>331</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>332</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>333</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>334</sup> Mokai Patea claimant, Taihape, 22 November 2011

authority of representative bodies. Expertise and experience had to be developed over time:

Because I can say this without the input of Te Ropu Ahika and the support of the what, thirty tribes that sit on there, all pushing the same thing. I went in there at a time right from the beginning really. We started off in there without any [thing] - we set up the structure. We had our own lawyer, ... but there was limitations of how far we could go, what we could do. We sorted all that out. How far can we [could] go, and so we sat with those limitations, but over the years we have slowly broken down, broken down, broken down - this is just the process of that breaking down of those barriers.<sup>335</sup>

413. For iwi with limited resources, the number of agencies involved, or requiring some form of relationship was very substantial. There were Crown agencies, such as government departments, and the New Zealand Historic Places Trust. There were consultative bodies such as Conservation Boards, which have changing boundaries and cut across iwi boundaries, forcing iwi to deal with a number of different boards. Then there were the different local bodies, not to mention private interests. All of these relationships require work and time, much of it underfunded, if it is funded at all.

### Scoping report issues covered

414. 'History of Environmental Law and Planning' covers the changes in the Crown regime for managing resources and the environment. It looks at how pre-European Maori managed resources and how that regime was supplanted by **English common law and then by legislation**. It looks at the ad-hoc responses to problems like the **management of pests and noxious plants** during the 20<sup>th</sup> century and **the lack of accommodation for Maori resource use**. The shift in approach taken by the Government during the 1970s and 1980s is explored. These changes culminated in the Resource Management Act which is given its own section. The role of Maori **participation in environmental management** is explored in the chapter 'Maori Environmental Management'. Post-RMA developments were of particular importance to clustered claimants and a section of their perspectives on the RMA has been included for this reason.

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<sup>335</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

415. Any lengthy discussion **of claims by the Crown to ownership of non-land based resources would not be applicable** to this district in any meaningful way. A small number of geothermal sites do exist on the outer edge of the district to the east and west but are not subject to exploitation for energy. Crown ownership of geothermal steam has been noted in the 'History of Environmental Law and Planning' section.

## WAHI TAPU AND PORTABLE TAONGA

### LEGISLATIVE MANAGEMENT OF HISTORIC PLACES, PORTABLE TAONGA AND WAHI TAPU

416. The Maori Antiquities Act 1901 was the first attempt by government to control the export of taonga.<sup>336</sup> However, the Act was not aimed in any way to protect the Maori ownership of valued possessions, but to prevent their export on the one hand and to ensure that the Dominion Museum's collection could be developed from indigenous material. The 1901 legislation was amended in 1904, to give it more teeth and to include a wider range of artefacts, however, when the legislation was passed there was no intention to provide a blanket export prohibition for every Maori artefact. The politicians were primarily concerned to ensure that large items, in particular whare, were not sold and exported and therefore not available for the Dominion Museum. The Act required the minister to approve the export of Maori artefacts, enabled him to acquire them through purchase or to have copies made of those which were not deemed suitable for purchase but still required some representation in New Zealand museums. The objectives of the legislation were initially focused on the development of a single, major collection for New Zealand. Over time, however, the interpretation of the legislation became more comprehensive. At the beginning of the century the politicians argued that small portable artefacts would not be covered:

The Hon. Mr. George referred to people coming here and taking away Maori charms on their watch-chains, and so were unwittingly offending against the law. I do not think this law is made for the restriction of that sort of thing, but merely for the protection of large and notable curios, as, for instance, the Maori house which was sold the other day, and which is the sort of thing which should be kept in the colony, if possible.<sup>337</sup>

417. By the 1920s, the legislation was being used to prevent the export of every sort of Maori artefact.
418. The collecting of artefacts for museums was based on very different criteria for determining significance, than would a policy which emphasised the relationship

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<sup>336</sup> Moira White, 'The trouble about your combs arose this way....Changing interpretations of the Maori Antiquities Act 1908', *Tuhinga*, 18, 1-10, 2007.

<sup>337</sup> New Zealand Parliamentary Debates, 1904, p. 711.

between taonga, the people that created them and those who are responsible for caring for them in the present. Protecting taonga for museums meant ensuring objects of rare artistic quality or simple rarity were retained, while those objects which were seen to be numerous or not representative of a high degree of skill were less protected, irrespective of the significance that may have been given them by the people who made them and their descendants. The focus on a single national museum was also short lived as regional museums sought to develop their own collections, and their interests were included in the approvals process.

419. The difficulty was not so much in preventing private collections from exporting artefacts, as the illegal export of artefacts continued with very little constraint, but in the desire of museums to broaden their collections internationally. Where museums had a wide range of artefacts including duplicates with varied quality, as they judged it, they negotiated international exchanges with overseas museums to strengthen their collections of Pacific, Asian, African or European works. The Maori Antiquities Act 1901 was reformed by the Historical Articles Act 1962, which broadened the scope of the legislation to include non Maori material. Under this Act New Zealand assumed ownership of any artefacts whose owners were unknown. The Antiquities Act 1975 followed growing Maori unease about the failure to protect taonga and the Maori Council campaigned for a separate Maori regime for taonga, leaving the Act to cover European material only. The legislation ignored this submission and while it continued to provide a prohibition on export of ‘any antiquity from New Zealand’, exemptions could be sought for ‘classes’ of antiquities if they were well represented in New Zealand public ownership or for the public good. The provision for found objects to be referred to the Maori Land Court for their ownership to be determined does not appear to have been utilized. There was no recognition in the legislation, beyond this, that antiquities were taonga.<sup>338</sup>

420. The operation of the Historical Articles Act 1962 was highlighted in its deficiencies through a landmark case in the United Kingdom. In the 1970s spectacular carved panels, hidden during the musket wars in Taranaki swamp land, were dug up and smuggled out of the country illegally. Under the legislation, the artefacts were owned by the Crown. In

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<sup>338</sup> David Armstrong, Philip Cleaver, Dr Terence Green, James Taylor, Heretaunga-Tamatea Environment Overview, CFRT, 2011, pp. 568-9.

1978, this taonga, with a bogus provenance describing them as having long been out of New Zealand, became available for auction in Sotheby's in the United Kingdom on behalf of a Mr Ortiz. Ortiz had bought them from a Mr Enwhistle, who had been responsible for removing them from New Zealand. Largely through accident, the New Zealand government was notified of the possible sale and attempted to intervene. The Protected Objects Act 1975, which reformed the 1962 legislation, did not apply, because the panels had been smuggled prior to the Act coming into force.

421. The resulting court case was a major test of both the legislation and the actions of New Zealand in the United Kingdom as another sovereign country. Lord Justice Denning, in the Court of Appeal, argued that the actions of the Crown in New Zealand, in asserting ownership of an item in the United Kingdom, were an act of sovereignty and therefore unenforceable in the United Kingdom:

I am of opinion that if any country should have legislation prohibiting the export of works of art and providing for the automatic forfeiture of them to the state should they be exported, then that falls into the category of 'public laws' which will not be enforced by the courts of the country to which it is exported or any other country: because it is an act done in the exercise of sovereign authority which will not be enforced *outside* its own territory.<sup>339</sup>

422. This decision, of course, raised major difficulties for the New Zealand government's attempt to assert ownership of illegally smuggled taonga, and whether this assertion of ownership was contrary to the Treaty of Waitangi, or merely a transition phase to allow the return of the taonga to its original owners, was of little practical significance.

423. The result of this case, and the international attention drawn to it, meant that items smuggled from New Zealand, or elsewhere, could only be protected if there were agreements between the sovereign states involved. There are two international treaties dealing with these issues and providing countries with some assurance that the domestic law of other signatories can be used to ensure the return of illegally exported items. However, these protections only apply when the countries concerned are signatories to the relevant treaty. The 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Cultural Property was one such

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<sup>339</sup> Jeannett Greenfield, *The Return of Cultural Treasure*, 3rd edition, CUP, Cambridge, 2007, pp. 146-7.

treaty and UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects 1995 was another. The Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples and the UN Declaration on the Rights of Indigenous Peoples also have implications for the return, preservation and care of taonga. New Zealand is not as yet a signatory of the UN Declaration on the Rights of Indigenous Peoples.<sup>340</sup>

424. The Protected Objects Amendment Act 2006 belatedly ratified the 1970 UNESCO and 1995 UN declarations. New Zealand is one of only two countries to ratify both. This legislation has been considered too little too late, dealing with loopholes when so much Maori taonga has already left the country.<sup>341</sup> While the legislation replaces the idea of antiquity with “taonga tuturu”, the legislation still seems to have much in common with earlier measures dealing with taonga as antiquities. New Zealand has accepted, along with most third world countries, that the primary objective of such agreements is to see the return of indigenous objects from the museums of the developed world. European and North American countries, however, have often been reluctant to agree to the wholesale return of what in many cases makes up the bulk of their museum collections. While it has been easier, but not easy, to argue successfully for the return of human remains, bringing back other taonga is still a major challenge.

## **WAHI TAPU PROTECTION**

425. The protection of wahi tapu was largely limited to the protection of cemeteries until the passing of historic places legislation in 1954. The Crown did provide some provision for protecting urupa, as long as urupa could be understood as similar to European cemeteries. This involved small plots of land allocated for burials. Burials which extended over larger areas were ignored. The Maori Land Administration Act 1900 permitted the Native Land Court to set aside inalienable reserves on Maori owned land for urupa, and this provision was carried into subsequent Maori land legislation. Three years later, the Maori Councils Amendment Act 1903, in section 11, made it an offence for 'Every person who knowingly and wantonly without due and lawful authority

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<sup>340</sup> Piers Davies and Paul Myburgh, 'The Protected Objects Act in New Zealand: Too Little, Too Late?', *International Journal of Cultural Property*, 15, 321-45, 2008.

<sup>341</sup> Piers Davies and Paul Myburgh, 'The Protected Objects Act in New Zealand: Too Little, Too Late?', *International Journal of Cultural Property*, 15, 2008, p. 339.

trespasses on or desecrates or interferes in any manner with any Maori grave, cemetery, burial-cave, or place of sepulture'. The maximum fine was set at £25 and could be applied on information laid by the chairman of Maori Council. In 1931 the court was given power to re-vest Crown land in Maori ownership for use as urupa, although this provision appears to be little used and was repealed in 1953. With the passing of the Maori Social and Economic Advancement Act 1945, tribal executives were given the authority to make bylaws protecting Maori burial grounds. As with the provisions for Maori councils four decades earlier, the legislation relied on executives to be appropriately funded, but this was not the case. Under section 439 of the Maori Affairs Act 1953, urupa on Maori land could be made inalienable without being publicly identified.

426. Without a review of block files from other research, it is impossible to consider how effective these limited provisions were in the Taihape Inquiry District.

## **HISTORIC PLACE LEGISLATION**

427. The Historical Places Act 1954 provided for some degree of protection of historical places as did the reserves and Domains Act 1953 and the Town and Country Planning Act 1953.<sup>342</sup> The 1954 Act aimed to identify and keep a permanent record of a wide range of places, including those associated with Maori and the country's early history. There were few powers or resources to achieve this. A 12 member board was created for the trust, which included the provision (Section 5(d)) that one member be a Maori and be appointed to "represent the Maori race".<sup>343</sup> By the 1970s this regime was considered out of date and out of step with similar statutory protection available for heritage in other developed countries. The Historical Places Act 1980 allowed for a greater degree of consultation between Maori tribal authorities and archaeologists, at the discretion of the trust. It also gave the trust the power to classify buildings in historic areas and create a register of archeologically significant sites.

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<sup>342</sup> This legislation was considered by Janet Davidson, Wahi Tapu and portable taonga of Ngati Hinewaka: Desecration and loss; protection and management A report prepared for the Ngati Hinewaka Claims Committee, February, 2003.

<sup>343</sup> Janet Davidson, Wahi Tapu and portable taonga of Ngati Hinewaka: Desecration and loss; protection and management A report prepared for the Ngati Hinewaka Claims Committee, February, 200, p. 11.

428. The Act also allowed for the trust to declare a place or site a “traditional site”. It defined a traditional site as ‘a place or site that is important by reason of its historical significance or spiritual or emotional association with the Maori people or to any group or section thereof’ (section 2). Although the board was expanded from 12 to 15 members, there remained a provision for only one Maori member, but this time to be appointed by the New Zealand Maori Council.

429. The Historical Places Trust legislation was significantly revamped in 1993, partly because of ongoing criticisms of the ability of the trust to protect heritage generally and Maori heritage specifically. Statutory reform was also required to bring the legislation into conformity with the Resource Management Act 1991. By 1989 there was considerable criticism again of the legislation, reflecting the greater emphasis being placed on things Maori and the Treaty of Waitangi in the late 1980s. The Historic Places Legislation Review Working Group reported in 1989 and their report became known as the Coad Report. The report recommended that the trust’s activities be made to give effect to the principles of the Treaty of Waitangi. The report also acknowledged the importance of the 1980 legislation’s recognition of traditional sites. The Historic Places Act 1993 was substantially influenced by the Coad report.

430. The following definitions are given in the Historic Places Act 1993 (s.2):

“Archaeological site” means any place in New Zealand that –

(a) Either –

(i) Was associated with human activity that occurred before 1900; or

(ii) Is the site of the wreck of any vessel where that wreck occurred before 1900; and

(b) Is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand:

“Historic place” –

(a) Means –

(i) Any land (including an archaeological site); or

(ii) Any building or structure (including part of a building or structure); or

(iii) Any combination of land and a building or structure, –

that forms part of the historical and cultural heritage of New Zealand and lies within the territorial limits of New Zealand; and

(b) Includes anything that is in or fixed to such land...

431. Wahi tapu and wahi tapu and wahi tapu areas are defined as:

“Wahi tapu” means a place sacred to Maori in the traditional, spiritual, religious, ritual, or mythological sense:

“wahi tapu area” means an area of land that contains one or more wahi tapu:<sup>344</sup>

432. The register was reformed to include all historic places, historic areas, wahi tapu and wahi tapu areas. (Sections 22-37). By this time, the board created by the legislation had 11 members and at least three were to be Maori.
433. The Resource Management Act 1991 also provided for greater environmental recognition of tikanga Maori, culture and traditions. It identified the principle of kaitiakitanga and proposed to take into account the principles of the Treaty of Waitangi. While the legislation did give much greater recognition of Maori interests in the environment than had been the case in any previous legislation, these interests were not given the degree of supremacy which had applied in section 9 of the State Owned Enterprises Act. The Environment Court and those acting under the legislation were required to take into account a variety of Maori interests, but to do so in a way that balanced these interests with environmental, historical and other considerations.
434. One important consideration of both pieces of legislation was the lack of specific definition of wahi tapu. While this creates problems of uncertainty, the problems that would flow from defining wahi tapu are considerable. The term can be used in a variety of different settings and also must be responsive to hapu and iwi definitions that are specific to different localities. A statutory definition, or even one developed through precedent in the courts, would pose a major risk of imposing a national standard on local communities, with their own historical and cultural associations with wahi tapu.
435. Despite the attempts in the RMA and the Historical Places Act 1993 to take greater notice of the needs of Maori in environmental management and in the protection of wahi tapu and taonga, the criticisms of both regimes continued through the 1990s. In 1996 the Parliamentary Commissioner for the Environment, Helen Hughes, released a substantial report on environmental management which was particularly critical of issues relating to

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<sup>344</sup> See, Janet Davidson, *Wahi Tapu and portable taonga of Ngati Hinewaka: Desecration and loss; protection and management* A report prepared for the Ngati Hinewaka Claims Committee, February, 200, p. 9.

Maori.<sup>345</sup> The commissioner identified a number of issues which she considered important to Maori:

- The purpose of any information collection or assessment carried out by relevant public authorities;
- The degree of confidentiality that can be maintained when necessary while still providing for effective protection of particular sites;
- Whether legal provisions to protect confidential information are sufficiently clear and effective;
- The kind of evidence which might be required, for example by the Maori Heritage Council (MHC) or the Courts about the existence or nature of wahi tapu;
- Whether it is appropriate for sites including wahi tapu to be given a ranking, and if so how and by whom;
- How far systems of assessment reflect Maori priorities and ways of doing things.<sup>346</sup>

436. The commissioner argued that the Historic Places Act was less protective of Maori interests than the Resource Management Act. Whereas the Resource Management Act incorporates the Treaty of Waitangi, no such provision is included in the Historic Places Act. The Historic Places Act must have regard to Maori relationships with ancestral sites; however, the Resource Management Act must treat these as an issue of national importance and act accordingly. Maori heritage is given more significance in the RMA than in the HPA.<sup>347</sup>

437. The 1993 Act included provision for the establishment of a Maori Heritage Council (sections 84-96). There had been an earlier Maori Buildings Committee and a Maori Advisory Committee, but the new legislation gave greater power to the new Council, included management of the processes for registering wahi tapu. Although there were fewer bureaucratic procedures involved in having places identified, major difficulties remained in particular in dealing with the tension between identifying sites and ensuring their protection. Maori inevitably face a Hobson's choice. To achieve the protection of sites, sites need to be identified and registered, and therefore to some extent publicly known. While there are provisions for information to be held confidentially, in what are

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<sup>345</sup> Office of the Parliamentary Commissioner for the Environment, Historic and Cultural Heritage Management in New Zealand, Wellington, June 1996.

<sup>346</sup> Office of the Parliamentary Commissioner for the Environment, Historic and Cultural Heritage Management in New Zealand, Wellington, June 1996, p. 56.

<sup>347</sup> Office of the Parliamentary Commissioner for the Environment, Historic and Cultural Heritage Management in New Zealand, Wellington, June 1996, p. 38.

called “silent files”, the Historic Places Trust is still subject to the Official Information Act.

438. Even if information about sites is maintained in a confidential form, the very identification of the sites can increase the risk of damage or desecration. Sites then become known and can be located by outsiders. The management of such sites does not give primacy to Maori in protecting them. One of the major examples of this dilemma occurred in a planning case involving Raglan Harbour, in *Greensill & Ors v Waikato Regional Council & Anor*. The case was an appeal from a decision of the regional council to grant consent to the development of an oyster farm at Paritata Bay in Raglan harbour. The Court made it clear that Maori had no veto of development and that the final decision would be made by whichever Court had jurisdiction. In this case, the location of the oyster farm had been shifted 50m from the shore, to deal with identified Maori concerns. However, this did not appease the Maori applicants, who considered the entire harbour a wahi tapu. They did not provide evidence to the Court on the impact of the proposal on more specific aspects of the development's relationship with wahi tapu at the proposed site. The Court considered that without this information it could not make a decision in favour of the Maori applicants. The Court also made it clear that responsibility to consult, did not require the local council to accede to all of the requests made by tangata whenua:

It appears that various members of the tangata whenua are entrusted with details of waahi tapu but that information is not generally shared with iwi or hapu. Thus a kaumatua may be aware of areas of importance within the concept of waahi tapu and may pass that information on to a person or persons whom he selects but the reasons for, and the importance of, any particular waahi tapu may not be generally known. The tangata whenua as between themselves accept without question the concept of waahi tapu and further accept without question the word of a person who has particular knowledge of a particular site or area. Thus if a kaumatua simply says that a place is waahi tapu then that is the end of the matter.<sup>348</sup>

439. The Parliamentary Commissioner for the environment made a number of recommendations about improving the relationship between Maori heritage and statute. She argued that there needed to be a much stronger national strategy that was well

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<sup>348</sup> See The Maori Law Review, April 1995, <http://www.bennion.co.nz/mlr/1995/apr.html>, viewed 10 October 2009; Office of the Parliamentary Commissioner for the Environment, Historic and Cultural Heritage Management in New Zealand, Wellington, June 1996, p. 60.

supported, to "link all aspects of the management of Maori heritage, and its implementation needs". Existing mechanisms were not being used as effectively or completely as possible. She identified some major deficiencies in the Historic Places Act:

It contains no reference to the Treaty of Waitangi, and while the Act requires persons exercising functions and powers under it to recognise the relationship of Maori and their culture and traditions with their ancestral lands, waters, sites, waahi tapu and other taonga, as does the RMA, the structure and procedures of the act do not fully support this requirement. Other than in the registration of waahi tapu and wahi tapu areas, the Maori Heritage Council has insufficient authority and decision-making affecting Maori.<sup>349</sup>

440. She also noted that the ranking of sites was culturally inappropriate for Maori and that there needed to be greater protection of confidentiality of information supplied on wahi tapu. These recommendations were sufficient to require a very substantial overhaul of the Historic Places Act after considerable national consultation with Maori.<sup>350</sup>

441. In 1998 the Minister of Conservation, Nick Smith, initiated a review of heritage management as a direct response to the report of the Commissioner for the Environment. The review also flowed from the agreement with Ngai Tahu to settle their treaty claims and also reflected the ability of Maori MPs in the last years of the National coalition government to influence policy-making. Smith argued that:

I also feel strongly that we have not properly valued the heritage of Maori as the first people of this land. I want to achieve significant advances in the protection of Maori heritage, to [allow] Maori to participate effectively in systems and methods for protection with proper references to Treaty obligations. Effective consultation with Maori will be critical to making progress.<sup>351</sup>

442. The review identified a series of options, based largely on the recommendations of the Parliamentary Commissioner for the Environment. All of the discussion around Maori involvement with heritage stressed the need, under article 2 of the treaty, for Maori to manage their own heritage and have control over wahi tapu. This was a fundamental

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<sup>349</sup> Office of the Parliamentary Commissioner for the Environment, *Historic and Cultural Heritage Management in New Zealand*, Wellington, June 1996, p. 95.

<sup>350</sup> Office of the Parliamentary Commissioner for the Environment, *Historic and Cultural Heritage Management in New Zealand*, Wellington, June 1996, p. 95.

<sup>351</sup> *Historic Heritage Management Review, a Discussion Paper for Public Comment*, Department of Conservation, January 1998, p. 5.

theme of the submission of the New Zealand Historic Places Trust, which stressed the positive development of over 30 Iwi Resource Management Units, working in partnership with local authorities and the Historic Places Trust to manage Maori resources.<sup>352</sup> While the trust accepted that the present system did not provide sufficiently for Maori needs, its recommendations fell far short of the suggested absorption of the trust's activities under the RMA, which had been the general tenor of the Commissioner's report. The New Zealand Historic Places Trust submission emphasised the need for the RMA to be reformed to reflect the processes, such as registration, which were the trust's responsibilities.

443. The trust argued that:

Maori assert that the Crown has an obligation under the Treaty of Waitangi to assist them with and provide for the conservation and protection of their ancestral lands, waters, wahi tapu, sites and taonga. Maori also acknowledge that they have a traditional kaitiaki role to protect and manage those heritage resources to the benefit of the generations to come.

Maori believe that they can manage their own historic heritage better than current agencies. As a consequence of demands from developers and councils to consult and carry out responsibilities under the RMA, iwi have become familiar with the processes available and have already begun to make good use of existing processes, mechanisms and tribal structures to manage their taonga (environmental resources).<sup>353</sup>

444. Of the 637 responses which were received, 34 were identified as from Maori. These Maori submissions were strongly in favour of the Commissioner's 1996 recommendations and anticipated the trust's replacement by a body seen as more responsive to treaty responsibilities.<sup>354</sup>

445. Over the decade after this review was undertaken, there is little evidence of statutory change. Minor amendments have been made to the Historic Places Act, but none have addressed the substance of the concerns which had emerged in the mid 1990s. These

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<sup>352</sup> NZHPT, *Building on the Best. Submissions of the New Zealand Historic Places Trust*, Wellington, 1998, p. 15.

<sup>353</sup> NZHPT, *Building on the Best. Submissions of the New Zealand Historic Places Trust*, Wellington, 1998, p. 15.

<sup>354</sup> *Historic Heritage Management Review: Summary Analysis of Submissions of the Report of the Ministerial Advisory Committee*, Wellington, May 1999, p. 7.

issues may well be addressed in the second round of revisions to the Resource Management Act currently underway. A decade on, however, it will be necessary to review again the effectiveness of both regimes for managing heritage, in the light of the experience of Maori. In 1996, when the Commissioner's report was completed, the Historic Places Act 1993 had been in effect for only three years and the RMA for only five. It cannot be assumed that the issues are the same today as they were then, although Maori concern regarding control over heritage certainly continues to the present. Ideas about how these concerns can be addressed within the statutory processes may well have varied from those of a decade ago. The Maori Heritage Council does have an exclusive jurisdiction to deal with wahi tapu, whereas the RMA must balance heritage issues with other environmental and economic concerns. At the same time, the review processes for the Historic Places Act may be considerably more cost-effective and straightforward for Maori than those under the RMA.

### **The RMA and wahi tapu**

446. Claimants were well aware that simply having Maori terms and concepts included in legislation did not guarantee that they would be understood and respected in the way that claimants themselves understood them. The term wahi tapu was particularly problematic, and one that some claimants refused to use, since they had lost control of its meaning. Instead, they used terms like wahi tupuna and wahi kainga, because these were terms where 'we've got complete control over what that means to us'. It was not simply that the term wahi tapu had been confined in its interpretation in the Environment Court, to limited and specific places. They were also concerned that using the term to protect places of significance to hapu/iwi would give them a degree of sacredness which was inappropriate, preventing access for iwi/hapu to the sites.
447. Protecting wahi tapu sites involved far more than simply getting a yes or no to a consent application. Claimants were clearly reluctant to provide a list of sites, and not just because it took the information into the public domain, and out of their control, even where there were processes to protect confidentiality. They also objected to a process whereby information was handed over and the right to decide whether a site would be protected or not was out of iwi hands. External bodies would determine what was worth

saving and what was not. For claimants, identifying sites and understanding their significance involved research and consideration, something that the claimants wanted to do alongside applicants:

We haven't done the research. The applicant has brought in - we've said right, bring in your archaeologists or experts and together we [will] go and look at this and work [on] it and we come out with a story at the end. But we all understand exactly what we're talking about. We're not left having said there's something over there, they've gone away and got knowledge and we're left then not knowing anything.<sup>355</sup>

448. Claimants identified the best way forward as working alongside iwi, undertaking research that benefited iwi: 'We need help more than anyone else to know the exact story. We're never going to know the exact story on a thousand plus sites'.<sup>356</sup> Claimants were acutely aware that so much information had been lost and needed to be recovered. This concern applied to working with the New Zealand Historic Places Trust, as well as to DOC and local authorities.
449. Claimants were also concerned about the competing claims of different groups to present the stories related to particular wahi tapu. They gave examples where others, with interests that they regarded as peripheral, had been able to claim a dominant relationship with particular wahi tapu and with portable taonga which ignored their stronger relationship with the sites. These issues of competing customary interest provide a major challenge to the RMA and to the preservation of wahi tapu in particular.

### **Portable taonga in the Taihape District**

450. Claimants were particularly proud of the artistic expression and capabilities of their ancestors and conscious that so many taonga had been lost to them, to museums, private ownership and overseas. The loss of portable taonga from this district was considerable. An early example, well-documented, involved panels from Hauiti, built around 1885 by Utiku Potaka, but not surviving in Maori ownership much into the 20th century. In 1918, the panels were taken to Wellington, being on land that had been alienated. The panels were used as garden decorations in Wadestown, where they were still to be seen in

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<sup>355</sup> Mokai Patea claimant, Taihape, 22 November 2011

<sup>356</sup> Mokai Patea claimant, Taihape, 22 November 2011

1955.<sup>357</sup> Carving and whareniui building developed distinct styles in Mokai Patea that reflected the resources and landscape of these river and mountain peoples.

451. Claimants mentioned a wide range of portable taonga, including koiwi, korowai, patu and taiaha, fishing traps, guns used by ancestors in the 19th century, huia feathers and even paintings of tupuna. They discussed examples of individuals who had plundered urupa and the health consequences for those who had been involved in such desecration. Claimants from Ngati Hinemanu and Ngati Paki were concerned about the possible looting of taonga when Winiata Te Wharo and his whanau were forcibly evicted from their homes at Mangaohane. In general, claimants wanted control over the interpretation of these taonga and recognition of the ancestral association with them. More significantly they wanted them returned. Individualisation of the ownership of taonga has meant that taonga which had been handed down to individuals, but were collective tribal treasures, could be alienated out of tribal ownership, or had to be repurchased by tribal members for very substantial sums of money.
452. While the responsibilities of Crown and local government museums provided the opportunity of negotiating future regimes of management which could eventually lead to their return, the problem of dealing with taonga in private hands was much more difficult and one requiring a great deal of sensitivity.
453. The Taihape district has a unique history of creating taonga which represents the experience of tupuna in the landscape of the rohe, particularly in taonga narrowly defined as works of art and cultural objects. The objects themselves are distinctive and many have survived, but are now in public or private hands, outside of tribal control. Many of these taonga have become part of a private museum in Taihape. This collection is particularly valuable to claimants. It includes taonga which have been found in the district in the past and presented to this museum, as well as items that were acquired directly from the claimants' tupuna. As the collection is privately owned, both of the clusters feel that a further research relating to portable taonga has the potential to create tensions between the owners of this collection and claimants, particularly in the contested

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<sup>357</sup> William J. Philips, *Carved Maori houses of western and northern areas of New Zealand*, Dominion Museum Monograph, R.E. Owen, government printer, Wellington, 1955, p.63.

environment of quasi-judicial or judicial inquiries. For this reason we are reluctant to recommend further research on this issue. Further research would clearly highlight the difficulties that exist in the present regime will for managing the Crown's responsibilities to Maori. These difficulties are experienced by claimants, but also to some extent by the holders of private collections.

454. While at this stage we do not to recommend research, we suggest that this issue be revisited at a later date. (This would also allow the views of non-clustered claimants to be taken into account.) It was suggested that research could involve some degree of mediation between the owners of the private collection and claimants. However, the role of mediator goes well beyond the boundaries appropriate to this form of research. Such an approach would also direct attention away from the Crown towards the actions of private individuals, which would also be inappropriate. If further research is undertaken, it should focus only on the Crown's responsibility. Further research project, if undertaken, should also be planned with some degree of consultation with the current owners of these important taonga.

### **Scoping report issues covered**

455. The section 'Wahi Tapu and Portable Taonga' address the second section of the project brief. The chapter starts with an outline of the **legislation** the Crown has passed affected sacred sites or objects and the **ability of Maori to participate in their management and the protection (or otherwise) of wahi tapu and other sites of significance (including maunga)** has been considered but not specifically in relation to specific maunga. The **Maori Councils Act 1900 (and its 1903 amendment)**, the **Maori Antiquities Act 1901 and 1975**, the **Maori Social and Economic Advancement Act 1945**, **Historical Articles Act 1962**, **Protected Objects Act 1975**, **Protected Objects Amendment Act 2006**, **Historical Places Acts 1954, 1980 and 1993**, and the **Resource Management Act 1991** have been discussed. The problems with a **definition of Wahi Tapu, attitudes to urupa**, are explored in this section. A subsection has been written on the ramifications of the RMA on Wahi Tapu. Archival or secondary sources on wahi tapu and portable taonga specific to the inquiry district are almost non-existent. Local information has come from the claimants and female claimants in particular. Issues relating to Maori

attempts to manage and retain wahi tapu in the 19th and early 20th centuries have not been covered in this report. The evidence is substantially decentralised, and most likely located in block files, hopefully to re-emerge once research on land blocks within the district has been completed. Similarly, Maori regimes for protecting wahi tapu within the district can only be explored from the perspective of claimants themselves.

## MANA WAHINE

456. Mana wahine issues have been raised primarily in Wai 2091, but were referred to extensively at the early meeting with claimants on 25 October 2011 at the Taihape Town Hall. We were able to discuss Wai 2091 with claimant counsel and as a result have included the following literature survey. Mana wahine has developed an extensive literature within an academic environment and this survey attempts to make this literature more accessible to claimants. We have also discussed the issue with both clusters, although neither the Wai 2091 claimant nor her counsel was present at these discussions.

### MANA WAHINE MAORI – A BRIEF LITERATURE SURVEY

457. Many authors have acknowledged that it is difficult to translate or define mana wahine in English.<sup>358</sup> As such, there are various (often intersecting or overlapping) definitions and descriptions of Mana Wahine. It is a “concept”<sup>359</sup>, a ‘framework through which we can develop theories that will support the projects of Māori<sup>360</sup> women’,<sup>361</sup> ‘a connective highway’,<sup>362</sup> a ‘movement ... a specifically Māori form of women’s activism with links to feminism, anti-colonialism and ecocriticism’,<sup>363</sup> ‘a way of my being and the blueprint by which I live’,<sup>364</sup> ‘Māori feminism’<sup>365</sup>, and/or ‘the dignity of Māori women’.<sup>366</sup> Mana wahine has been described as something that can be challenged, undermined or

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<sup>358</sup> See: Naomi Simmonds, ‘Mana wahine: Decolonising politics’, *Women’s Studies Journal*, 25:2 (2011), p.12; Tariana Turia, ‘Mana Wahine Launch: Mana Wahine in Politics’ [address given at Whakatane Ware Memorial Hall, 6 April 2006], Press Release: The Maori Party; and Briar Wood, ‘Mana Wāhine and Ecocriticism in Some Post-80s Writing by Māori Women’, *ISLE: Interdisciplinary Studies in Literature and Environment*, 14:1 (2007), p.108.

<sup>359</sup> Rosemary Madden, *Dynamic and Different: Mana Wahine*, [from a MA Thesis in Philosophy written in 1992], Palmerston North, N.Z.: Campus Press, 1997, p.6

<sup>360</sup> Please note that the use of macrons for Māori words is not standardised throughout this essay – while the body of this essay will use macrons where possible, the quotations will retain their original format, which may not include macrons or may use them in an irregular manner.

<sup>361</sup> Leonie E. Pihama, ‘Tīhei Mauri Ora: Honouring Our Voices: Mana Wahine as a Kaupapa Māori Theoretical Framework’, PhD Thesis in Education, University of Auckland, 2001, p.232.

<sup>362</sup> Hine Waitere & Patricia Johnston, ‘Echoed Silences: In Absentia: Mana Wahine in Institutional Contexts’, *Women’s Studies Journal*, 23:2 (2009), p.17.

<sup>363</sup> Wood, 2007, p.108

<sup>364</sup> Waitere & Johnston, 2009, p.18.

<sup>365</sup> Simmonds, 2011, p.13

<sup>366</sup> Herd, Ruth, ‘Mana Wahine Me Te Tino Rangatiratanga: Māori Women’s Dignity and Self Determination’, *Social Work Review*, 18:2 (2006), p.14.

reinterpreted,<sup>367</sup> but also as something resilient and flexible. It can be redefined, it can be protected and sustained, and it is transportable, transformable and adaptable.<sup>368</sup>

## **‘Mana’ and ‘Wahine’**

458. Naomi Simmonds contends that ‘[p]roviding a concise and accurate definition of mana wahine... is problematic. Much of this difficulty lies in trying to convey the multifarious nature of ‘mana’<sup>369</sup>. This point is also made by Rose Pere who ‘maintains that mana is fundamentally beyond translation.’<sup>370</sup> ‘Dictionary translations of ‘mana’ most commonly refer to it as authority, prestige, power or control’.<sup>371</sup> For Pere mana is ‘multi-dimensional’ and related to notions of ‘psychic influence, control, prestige, power, vested and acquired authority and influence, being influential or binding over others, and that quality of the person that others know she or he has’.<sup>372</sup> Henare refers to mana as ‘generative power’ and emphasises that it ‘is a quality which cannot be generated for oneself; neither can it be possessed for oneself’.<sup>373</sup> Māori Marsden notes ‘that mana is a ‘divine authority’ that is bestowed upon a person to fulfil particular functions. It is bestowed by the people and enhances a person’s prestige to undertake obligations in social and political matters’.<sup>374</sup> In the context of discussing Māori women’s theories, Linda Tuhiwai Smith notes that mana is a ‘concept related to notions of power, strength, status, and collective acknowledgement of merit’.<sup>375</sup> Mana is also related to tapu, whakapapa, and whenua<sup>376</sup>.
459. On the surface, translating the concept ‘wahine’ appears simpler. It is generally directly translated as ‘woman’, but Pihama offers this elaboration:

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<sup>367</sup> Ngahuia Te Awakotuku, in Amy Brown (ed.), *Mana Wahine: Women Who Show The Way*, Auckland, N.Z.: Reed Books, 1994.

<sup>368</sup> Winitana, Mei, ‘Contemporary Perceptions of Mana Wahine Māori in Australia: A Diasporic Discussion’, PhD Thesis Proposal, *Mai Review*, 3 (2008), p.6-7.

<sup>369</sup> Simmonds, 2011, p.12.

<sup>370</sup> Cited in Pihama, 2001, p.260.

<sup>371</sup> For example: Moorfield, 2005; Ngata, 1993; Williams, 2006; cited in Simmonds, 2011, p.12.

<sup>372</sup> Cited in Pihama, 2001, p.260.

<sup>373</sup> Cited in Pihama, 2001, p.261

<sup>374</sup> Cited in Pihama, 2001, p.261.

<sup>375</sup> Cited in Pihama, 2001, p.261.

<sup>376</sup> Tui Cadigan, ‘Restoring Mana Wahine’, in *Overcoming Violence in Aotearoa New Zealand: A Contribution To The World Council of Churches Decade to Overcome Violence 2001-2010*, Wellington, N.Z.: Philip Garside Publishing, 2002, p.69.

Conceptually we can see wahine as being the intersection of the two words; wā and hine. Wā relates to notions of time and space, hine relates to a female essence. The term wahine designates a certain time and space for Māori women but is by no means a universal term like the term woman in English.... There are varying terms that relate to times in our lives and relationships.<sup>377</sup>

460. Wood also breaks down the term ‘wahine’, and states that ‘... by extension it becomes the ‘time and place of Hine.... The word wāhine can be read as referring to the time and place between Māori women, between the different representations of Hine’<sup>378</sup>. Pihama also argues that ‘wahine’ should not be seen as the opposite of the term ‘tāne’ as there is not ‘a simplistic dualistic or oppositional relationship between Māori women and Māori men but there are varying ways in which roles and relationships are negotiated’.<sup>379</sup>
461. This illustrates the interconnected nature of mana wahine, which is a common theme in the discussion of ‘mana’ and ‘mana wahine’. Mana Wahine ‘...is premised on the argument that pre-colonisation, mana wahine and mana tāne existed as complementary parts.’<sup>380</sup> Hinewirangi declared that ‘...mana has linkages. Mana has a link with mana tane... It links on to mana whenua, mana tangata, mana tamariki, mana pepi.’<sup>381</sup> Ruruhira Robin maintains the same view, and adds that mana wahine cannot be separated from ‘mana whānau’, ‘mana hapu’, and ‘mana iwi’ too.<sup>382</sup> These inherent links are not just incidental to mana wahine. ‘The fact that mana wahine is intimately woven with mana tāne, mana whānau, mana whenua, and mana atua is one of the its distinguishing features and it vitally important to any theoretical considerations.’<sup>383</sup> For Hinewirangi, to attempt to separate mana wahine, and mana tane (for instance) goes against her own body, and she describes it as straying into ‘the danger of pakeha feminism.’<sup>384</sup>

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<sup>377</sup> Pihama, 2001, p.261.

<sup>378</sup> Wood, 2007, p.109.

<sup>379</sup> Pihama, 2001, p.262.

<sup>380</sup> Simmonds, 2011, p.13.

<sup>381</sup> Hinewirangi & Sonia Hibbs, ‘Mana Wahine... What Does It Mean to You?’, *Social Work Review*, 18:2 (2006), p.9.

<sup>382</sup> Cited in Waitere & Johnston, 2009, p.18.

<sup>383</sup> Simmonds, 2011, p.12.

<sup>384</sup> Hinewirangi & Hibbs, 2006, p.10.

## Defining ‘Mana Wahine’

462. As illustrated above, mana wahine is a multi-faceted term – it is the inherent dignity and status of women; it is also attributed to Māori women with specific authority and influence; and it is a theoretical concept that is used as a framework for discussion and research. This is summarised by Hutchings: ‘Mana wahine is a way of being. It is also a theory and a tool of analysis that can be adopted by Maori women to enable them to have space to develop their own idea about situations and events.’<sup>385</sup> In *Mana Wahine: Decolonising Politics*, Simmonds makes reference to the fact that Mana wahine is ‘often referred to as Māori feminist discourses’ and is ‘often understood to be a type of Māori feminism.’<sup>386</sup>, though she goes on to show that it ‘is not quite as straightforward as this’<sup>387</sup> in her discussion of Mana wahine and other feminisms (i.e Western, Indigenous). ‘There are many meeting points between mana wāhine [and] feminism... but there is also a legacy of misunderstanding between them.’<sup>388</sup> For Te Awekotuku in *Mana Wahine Maori* there is no inherent contradiction between being Māori and feminist, as ‘feminism is what you make it’<sup>389</sup>. In *Mana Wahine Theory: Creating Space for Maori Women’s Theories*, Pihama asserts that ‘Mana Wāhine stands irrespective, and often in spite of, the existence of Western feminist frameworks.’<sup>390</sup> She is one of many Māori women who have criticised ‘Western’ feminism, and highlighted the distinct characteristics of mana wahine<sup>391</sup>. ‘Ripeka Evans... states that there are real differences between Māori feminism and Pākehā feminism. Māori feminism, she argues, is distinctive in that it is founded in Māori philosophies and values and because the outcomes for Māori women are not solely located in gender but lie in much wider political change.’<sup>392</sup> Kathie Irwin’s

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<sup>385</sup> Hutchings, Jessica, ‘Te Whakaruruhau, Te Ukaipo: Mana Wahine and Genetic Modification’, PhD Thesis in Environmental Studies, Victoria University of Wellington, 2002,p.2.

<sup>386</sup> Simmonds, 2011, p.11.

<sup>387</sup> Simmonds, 2011, p.13.

<sup>388</sup> Wood, 2007, p.109-110.

<sup>389</sup> Ngahuia Te Awekotuku, *Mana Wahine Maori: Selected Writings on Maori Women’s Art, Culture and Politics*, Auckland, N.Z.: New Women’s Press, 1991, p.10.

<sup>390</sup> Leonie Pihama, ‘Mana Wahine Theory: Creating Space for Maori Women’s Theories’, in Pepi Leistyna (ed.), *Cultural Studies: From Theory to Action*, Malden, MA: Blackwell Publishing, 2005, p.361.

<sup>391</sup> For example, see Irwin, 1992; Jahnke, 1997; Johnston, 1998; Johnston & Waitere, 2009; Whiu, 1994; cited in Simmonds, 2011, p.18.

<sup>392</sup> Pihama, 2005, p.363.

*Towards Theories of Māori Feminisms* also explores the tools of analysis that feminism can offer Māori women<sup>393</sup>.

463. After highlighting the interchangeable use of ‘Māori feminism’ and *mana wahine*, Simmonds goes on to define *mana wahine* as ‘a theoretical and methodological approach that explicitly examines the intersection of being Māori and female.’<sup>394</sup> For her it is an extension of Kaupapa Māori theory, and ‘a space where Māori women can, on our own terms and in our own way, (re)define and (re)present the multifarious stories and experiences of what it means, and what it meant in the past, to be a Māori woman in Aotearoa New Zealand.’<sup>395</sup> In her thesis *Mana Wahine Geographies*, Simmonds writes that *mana wahine* ‘is about making visible Māori women’s knowledges and making heard our voices and *herstories*. It has emerged to describe and analyse Māori women’s lived realities.’<sup>396</sup> While Simmonds focuses on *mana wahine* as theory, she also acknowledges that *mana wahine* ‘is not new; it has existed in the minds, actions and spirits of *tūpuna wahine* for thousands of years’<sup>397</sup>, and has predominantly been ‘represented and enacted largely in ‘non-academic’ ways’<sup>398</sup>, though recently ‘[i]mportant progress has also been made to promote *mana wahine* as a valid and necessary theoretical framework’<sup>399</sup> in academia, one that ‘grows from and is supported by Kaupapa Māori (Māori centred) theory’<sup>400</sup>.
464. Pihama’s 2001 thesis *Tīhei Mauri Ora: Honouring Our Voices: Mana Wahine as a Kaupapa Māori Theoretical Framework* is an important development in that articulation of *mana wahine* within the university. In this thesis, *mana wahine* is used ‘as an umbrella term under which Māori women’s theories can be located.’<sup>401</sup> Other names used and concepts drawn on by Māori women in theory include ‘*Mana Wahine*, *Kaupapa Wāhine*,

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<sup>393</sup> Cited in Pihama, 2001, p.231.

<sup>394</sup> Simmonds, 2011, p.11.

<sup>395</sup> Simmonds, 2011, pp.11-12.

<sup>396</sup> Naomi Beth Simmonds, Naomi Beth, ‘*Mana Wahine Geographies: Spiritual Spatial and Embodied Understandings of Papatūānuku*’ Master of Social Sciences Thesis, The University of Waikato, 2009, p.3.

<sup>397</sup> Simmonds, 2011, p.14.

<sup>398</sup> Simmonds, 2011, p.13. For example, “through the creative arts, through flax roots political activism, through *iwi*, *hapū*, *marae* and *whānau* projects, and in the lived and embodied struggles of individual Māori women.”

<sup>399</sup> Simmonds, 2011, p.13.

<sup>400</sup> Simmonds, 2011, p.13.

<sup>401</sup> Pihama, 2001, p.262.

[and] Māori Feminism’<sup>402</sup>. Pihama sees Mana Wahine theory as building on ‘an incredibly strong foundation that reaches from mana wahine as expressed within whakapapa through to the development of Māori women’s movements as a means of engaging issues.’<sup>403</sup> Mana wahine as expressed within whakapapa is strengthened by the reclamation of Māori women’s knowledge - particularly knowledge about the roles and responsibilities of Māori women. Pihama asserts that ‘our women have always held key, central positions in Māori society, within their own whānau, hapū and iwi’, and that this not only affirms mana wahine today but that of tūpuna wāhine<sup>404</sup>, helping to counteract what Pihama sees as the misrepresentations of tūpuna wāhine by earlier writers<sup>405</sup>. This (re)description and redefinition of Māori women appears to be both a quality of mana wahine and an outcome, stemming from the fact mana wahine is ‘a theoretical framework that enables Māori women to engage critically with how we see ourselves and how we consider our position in a colonised society.’<sup>406</sup> In *Mana Wahine Theory: Creating Space for Maori Women’s Theories* she reiterates this: ‘Mana Wāhine as a theoretical framework asserts that Māori women must be recognised in the many roles that are ours, and that includes our leadership, *rangatira* positions. Mana Wāhine is an assertion of our intrinsic *mana* as descendents of our ancestors, as holders and maintainers of knowledge.’<sup>407</sup>

465. Like Simmonds, Pihama sees Mana Wahine theory as ‘a particular form of Kaupapa Māori theory that validates the mana of Māori women’ that has developed out of a move ‘towards validation and affirmation of our positions, understandings and theorising from a distinctly Māori foundation’, as Western feminist analyses proved inadequate.<sup>408</sup> She goes on to suggest what she considers the basic elements for the ongoing development of these mana wahine theories: ‘Mana Wahine; te reo me ōna tikanga, whakapapa; whānau; recognising diverse realities; wairua; te tiriti o Waitangi; decolonisation; mātauranga

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<sup>402</sup> Pihama, 2001, p.260.

<sup>403</sup> Pihama, 2001, p.256.

<sup>404</sup> Pihama, 2001, p.263.

<sup>405</sup> Pihama, 2001, p.255.

<sup>406</sup> Pihama, 2001, p.260.

<sup>407</sup> Pihama, 2005, p.371.

<sup>408</sup> Pihama, 2005, p.361.

wahine and reclaiming cultural space'.<sup>409</sup> This highlights the decolonising intention of mana wahine theory.<sup>410</sup>

466. Another important voice in the discussion surrounding mana wahine is Linda Smith. In *Getting Out From Down Under: Maori Women, Education and the Struggles for Mana Wahine*, she defines mana wahine as '[t]he current term used by Maori women to explain what it means to be Maori women in a Pakeha society and to be women in a Maori Society....a strong cultural concept which situates Maori women in relation to each other and upholds their *mana* as women of particular genealogical groupings. It also situates Maori women in relation to the outside world and reaffirms their *mana* as Maori, indigenous women. Mana Wahine Maori is the preferred Maori label for what counts as Maori feminism.'<sup>411</sup> In other works, Smith has expanded the framework of mana wahine theory, outlining three key 'discourses' or 'projects' within mana wahine: the whānau discourse, spiritual discourse, and state discourse; encompassing the various facets of mana wahine and the lives of Māori women.<sup>412</sup>
467. Other authors have put forward their own mana wahine framework in their writings. Morrison-Ngatai explains the 'He Mana Wahine Tuku Iho' framework, which 'is based in Maori cosmology and customary society and affirms the importance of whakapapa, te reo, tikanga and wairuatanga to Maori' and incorporates mana wahine theory through two of its three components: 'He Whakapapa o Mana Wahine', and 'He Tikanga Rangatira o Mana Wahine'.<sup>413</sup> Hutchings proposed the 'Mana Wahine Conceptual Framework' as illustrated in Figure 4.<sup>414</sup>

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<sup>409</sup> Pihama, 2001, p.260.

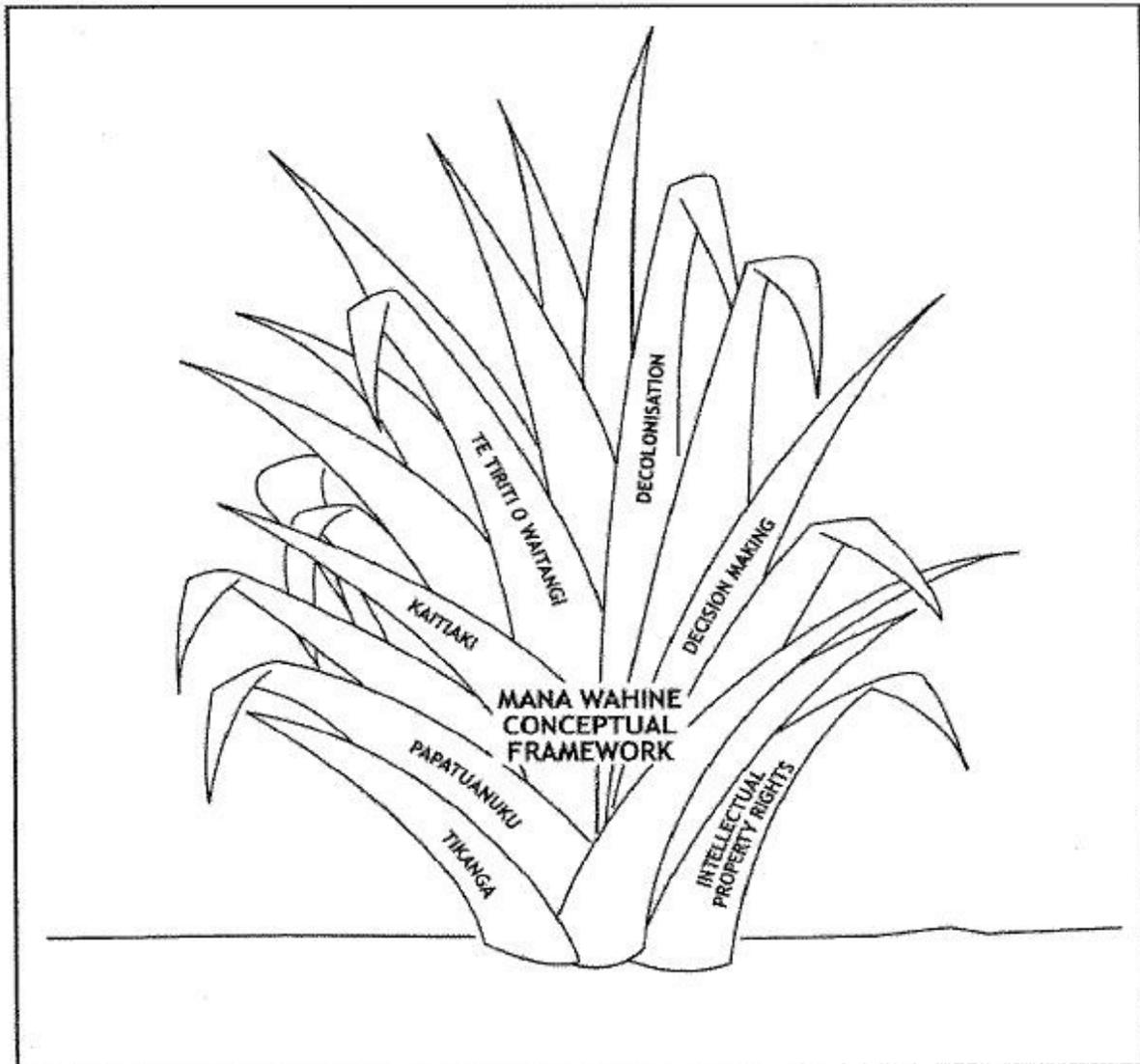
<sup>410</sup> Pihama, 2005, p.361.

<sup>411</sup> Linda Smith, 'Getting Out From Down Under: Maori Women, Education and the Struggles for Mana Wahine', in Madeleine Arnot, Kathleen Weiler (eds.), *Feminism and Social Justice in Education: International Perspectives*, London: The Falmer Press, 1993, p.61.

<sup>412</sup> See Linda Smith, 1992, p.35-51, cited in Pihama, 2001, p.259. See also Simmonds, 2011, p.12.

<sup>413</sup> Erina Morrison-Ngatai, 'Mai i muri ka haere whakahaere: Maori Woman in Mental Health Nursing', MA Thesis in Nursing, Massey University, Palmerston North, 2004, p.ii.

<sup>414</sup> Hutchings, 2002, cited in Simmonds, 2009, p.25.



**Figure 11: Mana Wahine Conceptual Framework**

468. In her PhD thesis *Mana Wahine in Information Technology*, Hamilton-Pearce provides the following definition of mana wahine that informs what she describes as ‘Mana Wāhine discourses, principles, theories and practices’: ‘Mana Wāhine is the power, legitimacy, authority and spirituality of Māori women as determined by mātauranga wāhine (Māori women’s knowledge and epistemology....) Mana wāhine is about theorising, analysing and conducting research for, by, and with Māori women...’<sup>415</sup> Turner describes mana wahine as ‘a theory and ideological framework which is centred on Māori world views and ways of knowing’ and ‘a tool for analysing situations and

<sup>415</sup> Jannette Hamilton-Pearce, ‘Mana Wāhine in Information Technology: Ngā Kaiwhatu Kākahu Me Te Kākahu’, PhD Thesis (School of Computing and Mathematical Sciences), AUT University, 2009, p.E.

events [that] has been adopted to create space for Māori women to tell their stories and develop ideas.’<sup>416</sup> Tomlins-Jahnke sees mana wahine as defining and describing ‘what counts in relation to Maori women’<sup>417</sup>. Winitana frames ‘Mana Wahine Māori...[as] a social construction of many layers of thought, embedded traditionally not only from te āo Māori, but also informed by Western perspectives. .... the meld of creative personality traits, intrinsic qualities, and cultural beliefs and practices, inhere in Māori women...’. She also identifies the karanga, waiata, poi, and the use of moko and pukana as ‘public and unique expressions of mana wahine’<sup>418</sup>.

## **Mana Wahine in Tikanga and Te Ao Maori**

469. The position and role of Māori women in society (and in the Māori cosmology) has been described as ‘one that attributed high value and significance’<sup>419</sup> and a ‘traditional position of equality and power... alongside Maori men’.<sup>420</sup> However, as Simmonds points out, this is ‘not to suggest that pre-colonial Māori gender relations were a utopia of equality.... Power (or rather mana) existed, as did hierarchy; however, it was likely to be through claims to whakapapa rather than gender...’ An understanding and ‘articulation of the traditional roles of wahine in Maori society’ is necessary for mana wahine, and provides a ‘knowledge base’ for discussion and engagement with other discourses<sup>421</sup>. Te Awekotuku’s *Mana Wahine Maori* includes several pieces written over the decades of her involvement with what could be termed the ‘mana wahine movement’, which allows an examination of the changing landscape of mana wahine discourse. In a 1971 article, Te Awekotuku describes Māori society as ‘basically patriarchal’ and ‘governed by tapu’ which culminated in ‘the belief that women were the negative and destructive element, the inferior, the passive.’<sup>422</sup> However, in her 1978 piece she surmises that Māori society, at the time of European contact, was undergoing ‘the dynamic transition from a

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<sup>416</sup> Tairawhiti Veronique Turner, ‘Tu Kaha: Nga Mana Wahine: Exploring the role of Mana Wahine in the Development of Te Whare Rokiroki Māori Women’s Refuge’, Master of Development Studies Thesis, Victoria University of Wellington, 2007, p.i.

<sup>417</sup> Tomlins-Jahnke, 1996, cited in Morrison-Ngatai, 2004, p.28.

<sup>418</sup> Winitana, 2008, p.5.

<sup>419</sup> Simmonds, 2011, p.14.

<sup>420</sup> Morrison-Ngatai, 2004, p.27.

<sup>421</sup> Cadigan, 2002, p.71.

<sup>422</sup> Ngahuia Te Awekotuku, ‘He Wahine, he Whenua, e Ngaro ai te Tangata: By Women, by Land, Men are Lost’ [Written in 1971, published in Craccum, 14 September 1972], in Ngahuia Te Awekotuku (ed.), *Mana Wahine Maori: Selected Writings on Maori Women’s Art, Culture and Politics*, Auckland, N.Z.: New Women’s Press, 1991, p.45.

matriarchy – women-oriented culture – to a patriarchal system’<sup>423</sup>. However, she also notes that across the various tribal traditions there are many contrasting attitudes towards the roles and responsibilities of women, as well as to the concepts of tapu and noa as they impact on women and mana wahine<sup>424</sup>.

470. The concepts of mana, tapu and noa are explored by Madden’s *Dynamic and Different: Mana Wahine*, where she addresses the idea that ‘personal tapu is regarded largely (or even solely) as male while noa is distinctively female’, which is often taken to mean that ‘[w]omen do not have it except in special circumstances’<sup>425</sup>. Madden vehemently refutes this assumption as ignoring ‘the mana of the female atua and the tapu associated with that mana’, and she suggests that perhaps such efforts to deny the existence of mana wahine (and promote notions of female inferiority) could be explained by a desire to ‘attempt to reduce the (collective) mana wahine by ignoring its value’<sup>426</sup>, born from a fear of the ‘power and influence attributed to the female within the [Māori] tradition’<sup>427</sup>. However, mana wahine is not about ‘elevating the status of women above men’<sup>428</sup>, but about ‘restoring a balanced view of gendered hierarchies in Māori life where custom ‘did not perceive relations between men and women in terms of gendered hierarchies of power that privilege men over women’.<sup>429</sup>
471. This description of pre-European Māori society relying on a ‘balance of roles between female-ness and male-ness’<sup>430</sup> is in opposition to the pervasive view of Māori society as responsible for the ‘loss of dignity and the right to be involved with decision making’<sup>431</sup> experienced by Māori women. However, the blame for this is now being laid on colonisation, for ‘promoting the activities and perspectives of knowledge held by Maori

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<sup>423</sup> Ngahuia Te Awekotuku, ‘Whakaaro Noa Iho: Some Ideas for Maori Women’ [Paper read at Piha Women’s Congress, January 1978], in Ngahuia Te Awekotuku (ed.), *Mana Wahine Maori: Selected Writings on Maori Women’s Art, Culture and Politics*, Auckland, N.Z.: New Women’s Press, 1991, p.60.

<sup>424</sup> Te Awekotuku, 1978, in Te Awekotuku, 1991, p.61.

<sup>425</sup> Schwimmer, 1966, p.20, cited in Madden, 1997, p.61.

<sup>426</sup> Madden, 1997, p.61.

<sup>427</sup> Madden, 1997, p.7.

<sup>428</sup> Turia, 2006.

<sup>429</sup> Huia Tomlins-Jahnke, cited in Wood, 2007, p.109

<sup>430</sup> Linda Tuhiwai Smith, *Mana Wahine, Mana Maori: A Case Study*, Auckland, N.Z.: Maori Education Research and Development Unit, Education Department, University of Auckland, 1990, p.17.

<sup>431</sup> Pere, 1982, p.95, cited in Waitere & Johnston, 2009, p.26.

men at the expense of Maori women'<sup>432</sup>. Waitere & Johnston describe the impact of hegemonic discourse as a 'tool of colonisation' that has 'subvert[ed] the customary positions of Māori women' and 'subjugated women while trivialising its own catalytic subordinating role.' Instead, these discourses have 'relocated' the blame 'within reinterpreted Māori cultural precepts.'<sup>433</sup>

## Mana Wahine and Colonisation

472. Colonisation has been described as 'one of the reasons behind the development of Mana Wahine theory'<sup>434</sup>, and responsible for the 'deprivation of cultural knowledge' and the 'erosion of essential cultural elements' which has in turn damaged mana wahine<sup>435</sup>. Mikaere's *The Balance Destroyed: The Consequences for Māori Women of the Colonisation of Tikanga Māori* examines the position of women in tikanga Māori and the past and present consequences of colonisation on this<sup>436</sup>. Pihama argues that 'the colonial imposition of race, gender and class have culminated in the construction of the belief that Māori women hold an 'inferior' 'lesser' position in Māori society to Māori men.'<sup>437</sup> Colonial ideologies have been imposed and manifested through the documentation of Māori society by early ethnographers and colonial historians, and are perpetuated by the 'unproblematic use' of this early material, for example, in Native Schools documentation<sup>438</sup>. In the colonisation of Māori history, 'Māori women became invisible, written out of our own 'stories'...Māori history became Māori 'mythology' with Māori women portrayed in non-consequential unimportant roles'<sup>439</sup>. Liddell's thesis *Mahuika: He Ahi Komau: The Post-Colonial Invisibilisation of Mana Wahine in Maori Mythology* explores this in greater detail<sup>440</sup>.

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<sup>432</sup> Smith, 1990, p.17.

<sup>433</sup> Waitere & Johnson, 2009, p.26.

<sup>434</sup> Pihama, 2001, p.257.

<sup>435</sup> Cadigan, 2002, p.68.

<sup>436</sup> Ani Mikaere, *The Balance Destroyed: The Consequences for Māori Women of the Colonisation of Tikanga Māori*, in Leonie Pihama (ed.), *Mana Wahine Monograph Series: Monograph One*, Auckland, N.Z.: The International Research Institute for Maori and Indigenous Education, and Ani Mikaere, 2003, p.11.

<sup>437</sup> Pihama, 2001, p.ix.

<sup>438</sup> Pihama, 2001, p.ix.

<sup>439</sup> Smith, 1992, cited in Waitere & Johnston, 2009, p.24. See also: Aroha Yates-Smith (1992), cited in Simmonds, 2001, p.15.

<sup>440</sup> Toni-Kristin Liddell, 'Mahuika: He Ahi Komau: The Post-Colonial Invisibilisation of Mana Wahine in Maori Mythology', MA Thesis, University of Auckland, 1999.

## Mana Wahine and Te Tiriti o Waitangi

473. Mana wahine can also be seen as applicable to the Treaty of Waitangi. While Māori women signed Te Tiriti (thereby ‘affirming the mana of Maori women’), Sykes contends that many ‘more women of high rank and standing could and should have been signatories if they had been allowed by government agents’.<sup>441</sup> Mikaere argues that the Crown has then continued to define ‘Māori women as political non-entities’, ‘powerless and of secondary importance to men’<sup>442</sup>. In response to the Crown’s ‘continued determination to negotiate with Māori men while ignoring Māori women’, the Particulars of Urgent Claim (also known as the ‘Mana Wahine Claim’) was lodged in 1993 before the Waitangi Tribunal regarding the undermining of Maori women’s status and power as a result of the Crown’s actions and policies<sup>443</sup>. It addresses the ‘exclusionary practices which inhibit and prevent participation by Maori women in the tribal models for self-determination that have been erected under New Zealand legislation, and the erosion this has had on te mana wahine in te ao Maori’<sup>444</sup>, and seeks for the tribunal to make a clear statement regarding the ‘rangatiratanga of Maori women’<sup>445</sup>. According to Simmonds: ‘[s]ome 16 years later, this claim is still yet to be heard.’<sup>446</sup> This is important as ‘Te Tiriti of Waitangi must be a central theme of any mana wahine research. Any mana wahine analysis is also an analysis of Tiriti rights’<sup>447</sup>, though mana wahine extends beyond the ‘parameters of Pakeha history and its British based version of morality’<sup>448</sup>.
474. The discourse surrounding mana wahine is growing, as more Māori women apply mana wahine theory to various research objectives. Mei Winitana’s proposed PhD thesis ‘seeks to understand how wāhine Māori (Māori women) in the Australian context are transforming their mana wahine Māori, while further adding to the evolving mana wahine Māori paradigm.’<sup>449</sup> Simmond’s PhD research utilised a mana wahine

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<sup>441</sup> Annette Sykes, ‘Constitutional Reform and Mana Wahine’, in *The Fiscal Envelope: Economics, Politics & Colonisation (Volume 1)*, Auckland, N.Z.: Moko Productions and the Research Unit for Maori Education, University of Auckland, 1995, p.41.

<sup>442</sup> Mikaere, 2003, p.2.

<sup>443</sup> Mikaere, 2003, p.130.

<sup>444</sup> Sykes, 1995, p.41.

<sup>445</sup> Denese Henare, in Amy Brown, 1994.

<sup>446</sup> Simmonds, 2011, p.17.

<sup>447</sup> Simmonds, 2011, p.17.

<sup>448</sup> Sykes, 2005, p.43.

<sup>449</sup> Winitana, 2008, p. 1.

perspective to explore the decolonising politics of childbirth in Aotearoa,<sup>450</sup> and Turner's Master's thesis aimed to 'investigate the expression of Mana Wahine by Māori Women's Refuge advocates; and identify the extent to which Mana Wahine has influenced decolonisation'<sup>451</sup>. Of particular interest is Hutchings' examination of Genetic Modification (GM) in light of mana wahine theory and mana wahine concerns in her PhD thesis, where she argues that mana wahine analysis and views have been marginalised in the GM debate<sup>452</sup>.

475. There is an increasing dialogue about the relationship between mana wahine and the environment, both conceptually and practically. Wood asserts that '[i]n the activism of mana wāhine, Māori women's concerns often focused on ecological matters.'<sup>453</sup> This focus can be seen to emerge from the close relationship between women and land in Te Āo Māori<sup>454</sup>, with advocates of mana wahine consciously promoting the role of Papatūānuku as fundamental to identity in Aotearoa<sup>455</sup>. Te Awekotuku describes the 'traditional Maori woman's perception of the environment as a source of emotional, spiritual and physical sustenance, identification and strength'<sup>456</sup>, a worldview that informed strict conservation practices (for example, surrounding harakeke)<sup>457</sup> and attributed 'metaphysical and... ethical significance' to the female practice of weaving<sup>458</sup>. Māori women and natural resource development is also explored further by McKinley<sup>459</sup>.
476. It is important for the discourse of mana wahine to continue to develop – '[w]ithin that space [of discourse], the mana of wahine Māori is validated'<sup>460</sup>. This is what Waitere and Johnston encourage in *Echoed Silences: In Absentia: Mana Wahine in Institutional*

<sup>450</sup> Cited in Simmonds, 2011, p.20.

<sup>451</sup> Turner, 2007, p.i.

<sup>452</sup> Jessica Hutchings, 'Te Whakaruruhau, Te Ukaipo: Mana Wahine and Genetic Modification', PhD Thesis in Environmental Studies, Victoria University of Wellington, 2002, p.2.

<sup>453</sup> Wood, 2007, p.112.

<sup>454</sup> See Pere, 1990 and Kupenga, Rata & Nepe, 1990, cited in Hayes, Dorothy Maora, 'Wāhine Kaihautū, Wāhine Whai Mana, Navigating the Tides of Change: Whakatōhea Women and Tribal Socio-politics', MPhil Thesis in Māori Studies, Massey University, 2003, p.166.

<sup>455</sup> Wood, 2007, p.113.

<sup>456</sup> Ngahuia Te Awekotuku, 'He Wahine, He Whenua: Maori Women and the Environment' [Article published in New Zealand Environment, Autumn 1982], in Ngahuia Te Awekotuku (ed.), *Mana Wahine Maori: Selected Writings on Maori Women's Art, Culture and Politics*, Auckland, N.Z.: New Women's Press, 1991, p.68.

<sup>457</sup> Te Awekotuku [1982], in Te Awekotuku, 1991, p.66.

<sup>458</sup> Madden, 1997, p.22.

<sup>459</sup> McKinley, 1990, cited in Rachael Selby & Wheturangi Walsh-Tapiata (eds.), *Māori and the Social Services: An Annotated Bibliography, Part II*, Palmerston North, N.Z.: Massey University, 2003, p.61.

<sup>460</sup> Waitere & Johnston, 2009, p.27.

*Contexts.* Talking and writing about mana wahine: creating new frameworks, teasing out old translations, and challenging hegemonic discourses are vital, as is Māori women continuing to ‘live out’ mana wahine in their daily lives, asserting it in the roles and responsibilities they undertake. ‘Simply, turning up, taking up our right to be present marks movement towards the realisation of mana wahine (the dignity of being a Māori woman) in institutions that have historically shut us out.’<sup>461</sup>

## **Mana Wahine and the claimants**

477. Discussions with the two claimant clusters emphasised the centrality of Maori women within the traditions of Mokai Patea and their leading role within hapu and iwi. While claimants considered that colonisation had to some extent pushed women into the background of tribal leadership, they believed that women had in the 19th century played leading roles in taking claims to the Native Land Court and had continued through the lifetime of claimants to provide strong role models and to have an important influence in tribal decision making. One claimant said: ‘in my entire lifetime ... there’s been a strong female leadership, there’s always been’. They saw the role of women within their rohe as being somewhat akin to that occurring for Ngati Porou.
478. Claimants expected that research into block histories and oral and traditional history would be substantially informed by the central role wahine have played in iwi history within the district. It was important to recognise the extent to which descent from particular female lines was important, as well as to recognise the roles of leadership taken up by Maori women.
479. For research into environmental and wahi tapu issues, claimants concentrated on the relationship between wahine, the environment and its resources. Particular emphasis was given to the resources associated with weaving and healing. Claimants lamented the loss of resources such as paru, the natural dye used to create deep blacks in the dyeing of harakeke. Paru was a highly prized resource, one kept relatively secret in places where

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<sup>461</sup> Waitere & Johnston, 2009, p.28.

whanau would both care for and harvest it.<sup>462</sup> Paru was soil, but soil that need nurturing to give it life. Ngati Hinemanu and Ngati Paki claimants recalled a paru field close to Winiata marae.

I'm going to talk about our creek just outside here, my aunties, they did their weaving, to keep themselves occupied with the weaving. It's still goes on in our lifetime now, we still all weave as you can see. ... I'm a weaver but what hurts me is that creek, where had our black paru where we could go and dye. My Aunty ... that's where she used to go there and put her kete in there to dye our flax and that's all gone.<sup>463</sup>

480. Places where harakeke for weaving and lacebark (used for birthing and healing as well as making poi) grew were lost.

481. They considered that the loss of specific knowledge of the way that women used these resources in the past, in addition to the loss of the resources themselves, was something for which the Crown should be held responsible. Language loss was also a major vector for the loss of this knowledge:

The loss of our language was the loss of - because we didn't know the tikanga, we didn't know the karakia, we didn't know the whakatoki that go relevant to weaving. So consequently it was lost.<sup>464</sup>

### Scoping report issues covered

482. **Mana Wahine** issues have been raised in the claims, in the brief, and by counsel at research hui. Mana Wahine issues are very difficult to address through scientific and archival sources. Maori and women's perspectives are rare in Crown archives on environmental management and so Mana Wahine issues are almost entirely absent from the Crown record. To address this problem the research team has produced a review of the academic literature on Mana Wahine issues generally and have supplemented this

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<sup>462</sup> Michael Belgrave, David Belgrave, Jonathan Procter, April Bennett, Mike Joy, Sharon Togher, Grant Young, Chris Anderson, Finbar Kiddle and Jacob Lilley, 'Rohe Potae: Environmental and Wahi Tapu Report', A Report Commissioned by the Crown Forestry Rental Trust for the Waitangi Tribunal's Te Rohe Potae District Inquiry, A Report Commissioned by the Crown Forestry Rental Trust for the Waitangi Tribunal's Rohe Potae District Inquiry, September, 2011, pp. 392-400.

<sup>463</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

<sup>464</sup> Ngati Hinemanu me Ngati Paki claimant, Taihape, 21 November 2011

with discussions with claimants. **The loss of harakeke and other customary resources** have been discussed as part of this section.

## CONCLUSION AND RECOMMENDATIONS

483. The economic transformation of Mokai Patea from the late nineteenth century was a direct result of colonization and the Crown's promotion of intensive European settlement. The construction of the main trunk line by the Crown was the catalyst for the establishment of a pastoral economy, supported by refrigerated exports to the United Kingdom. Pastoralism imposed a new, and often inappropriate, pattern of land use in a region where much of the land was too steep, and the soils too poor, to allow for sustainable agriculture. Dramatic loss of forest cover and drainage of swamplands followed. Not only did this pastoral agriculture denude the rohe of the forests that sustained it, the introduction of fertilisers and pesticides damaged waterways and had significant environmental impact on soils and vegetation. Much of Mokai Patea has since been plagued by erosion and experienced a steady decline in numbers and varieties of indigenous species of fauna and flora, and significant damage to waterways.
484. As a consequence of colonisation, and in particular the advent of the Native Land Court which individualised and fragmented Maori interests, Maori land ownership within the district has become concentrated in areas most severely affected by the environmental damage associated with clearing land for pastoral agriculture. The larger Maori land blocks that remain are isolated, suffer from a lack of access and are in the steeper and higher areas of the district, prone to the severest contrasts of weather.
485. This report emphasises the environmental consequences of land use changes, and needs to be read together with David Alexander's report which looked at the impact of Crown activities on the rivers. Rivers carried the lifeblood of the district and had a symbiotic relationship with the resources Maori used traditionally in the waters, forests and wetlands.
486. The Crown's management of the region until the 1940s was largely based on a free market, where the transformation of an indigenous environment into a pastoral economy was the ultimate economic aim of the New Zealand economy and one where there was little need to consider the environmental consequences which accompanied it. By the 1940s, it was clear that the destruction of bush cover was leading to large-scale erosion.

Erosion was not only environmentally damaging, it threatened the pastoral economy that had been created on these steep hill country runs. The Crown's solution to this problem was still designed to enhance the economic viability of the pastoral economy and focused on over sowing grass, more extensive use of fertiliser and the strategic planting of exotic trees. The aim was to keep land in production and profitable.

487. In the 1970s, the Crown's policies towards environmental management underwent a significant transformation. For the first time, preserving forests and protecting endangered species were considered ends in themselves. A new environmental consciousness emerged. From this perspective, the environment needed to be protected for its own sake, to ensure that aspects of New Zealand's unique ecological systems were preserved and retained for the future. Wahi tapu, previously only considered significant if they were urupa, became historically and archaeologically important. With this new approach, the management and interpretation of these sites, as with fauna and flora, was given to university trained experts; scientists, archaeologists, anthropologists and historians. During this period Maori interests in sacred sites was limited or mediated through these experts.
488. From 1991, the Resource Management Act provided for more direct recognition of Maori interests. The RMA allowed Maori to interpret the significance of wahi tapu and the importance of the environment within their rohe according to Maori cultural values. Nonetheless, these Maori interests had to be seen alongside other values and other interests. They were not privileged in decision-making processes.
489. The most significant development in the regime for environmental management and the management of wahi tapu has been the way that Maori have been included in environmental management. This has created new needs and responsibilities for Maori organisations in the Taihape Inquiry District. Within the limitations of the legislation relating to resource management and historic places, these Maori organisations have had to establish a series of new relationships with the Crown, through a wide range of Crown agencies. They have also had to deal with many different local government agencies, as well as large scale Crown owned and private companies, such as Genesis and Meridian.

Maori organisations have limited resources available to them which are spread very thinly in maintaining these crucial relationships.

490. At the same time, claimants have to reconsider their own relationship with the Crown, their rohe and with their neighbours. This has led to a major period of readjustment and capacity building, often occurring at times when large-scale negotiations on issues critical to claimants were also taking place. Although predating the RMA by over a decade, as the review of Aorangi forestry issues demonstrates, claimants' attempts to take effective responsibility over their own lands occurred at time when the Crown was attempting to restrict land uses for environmental reasons. These differences created difficult relationships and, for many claimants, outcomes that were ultimately disappointing and inadequate.

### **Approach to comprehensive research**

491. The full research projects on environmental issues from other districts have tended to be a general history of economic activity in the district and, where environmental issues are considered, focus primarily on ecological developments and outcomes. They usually include a review of land loss, the work of the Native Land Court and a substantial amount of economic history, showing the development of pastoral agriculture, forestry, industry or such major developments as power stations. Most of these matters are dealt with in other research reports prepared in the same inquiry district and they generally duplicate other research reports. However, these studies often rely on limited sources which deal specifically with environmental issues for the nineteenth and early twentieth centuries and draw heavily on topics covered in other research projects undertaken for the tribunal. They seldom incorporate in any substantive manner scientific analysis of environmental impacts or claimant perspectives on these impacts and the outcomes for their communities.
492. This poses significant limitations in providing environmental research which does not in the end duplicate other research. The extent of Maori land loss, the political and social inability to participate in environmental decision making because of this, the economic impacts of Crown actions and an extensive review of the economic change which occurs

within a district after New Zealand became a colony in 1840 are covered in a range of other reports commissioned for this inquiry. They all have relevance to environmental issues. Case studies are then used to focus on specific areas of claimant concern or areas where significant environmental issues have been recognised. This approach would appear to have been applied in the Northland Inquiry District.

493. It is, however, an approach where the risk of duplicating other research is high and where consideration of environmental issues is focused entirely on historical evidence. Very little scientific evidence is provided to support claimants in the inquiry. In the Taihape Inquiry District, these challenges are further compounded by some significant additional limitations.

- The population is much more limited than in most other districts where this approach has been applied;
- The area itself is comparatively small;
- The period of economic transformation, which led to substantial environmental change, occurred later than for many districts; and
- The district has no coastline and does not have issues relating to foreshore, harbours and estuaries.

494. If, for instance, we look at the actions of the Wellington Provincial Government, prior to its abolition in 1876, or even the Forest Service which replaced it, there is barely a mention of this largely forgotten and undeveloped area at the province's northern extremities. By comparison, the Hawkes Bay was subject to settlement as early as 1850, had substantial change occur as a result of the introduction of pastoralism and dramatic burning and felling of forests long before Taihape was open to settlement. Hawkes Bay also had its own provincial government which played an active role in these developments. The development of the Taihape Inquiry District followed the construction of the main trunk line, which opened up Taihape to both pastoral farming and the logging of indigenous forests.

*Treating the river holistically: treating waters and land holistically*

495. Environmental and wahi tapu issues could potentially be split across a number of different pieces of research and across two district inquiries. It is already anticipated that two rivers reports would focus on the entire river (a historical report and a cultural report). This scoping report has been limited to the Taihape Inquiry District. In other districts, there had been major benefits in bringing together issues relating to wahi tapu, water, rivers and environmental change, allowing an integrated and holistic approach. Despite the limitations of the district's small size and population, this integrated approach will not be feasible for Taihape unless the entire research programme for environmental and wahi tapu issues is combined across two districts. The claimants' desire to see the river researched holistically has been a major influence in developing research proposals that cross inquiry district boundaries and ensure that the Rangitikei is considered as a single catchment. However claimants have expressed an equally strong preference that research into water and the land based environment is also considered holistically.

496. David Alexander has recommended two reports as a result of his scoping report, "The Rangitikei River, its Tributary Waterways and other Taihape waterways scoping report" Wai 2180 Record of Inquiry #A4 . The first report would include:

A full research report be commissioned that addresses all relevant issues relating to all waterways in the Rangitikei catchment (including the Moawhango and Hautapu catchments) from source to sea.<sup>465</sup>

497. The report would include flood protection, gravel extraction, water quality, water power development and water uses. In addition, he has recommended that the two following issues be added to this research proposal:

- The Crown's involvement in the management of indigenous fish species and other indigenous wildlife whose habitat requirements include the waterways; and
- Resource management regimes for the waterways, including consultation with Maori, involvement by Maori, and incorporation of Maori perspectives<sup>466</sup>

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<sup>465</sup> David Alexander, 'The Rangitikei River, Its Tributary Waterways and Other Taihape Waterways', CFRT scoping report, February 2012, p. 134

<sup>466</sup> Ibid, p. 138

498. He has also recommended a second, culturally focused study, also to involve the river in its entirety. This study would be based on oral history and examine traditional use of, and relationships with the river as well as the exploring the impact of Crown's management and ownership claims to the river on traditional patterns of Maori use.
499. In addition to Alexander's recommendations, Heather Basset completed a short scoping report into issues relating to local government and into the one native township within the district [Local Government, Rating, and Native Townships scoping report]. Basset has recommended that the issues related to planning be taken up by the recommendations of this scoping report and our recommendations reflect that suggestion.
500. In making our recommendations for further research we have developed proposals which avoid or limit duplication between resource management as it affects the river and land based resource management and we are also concerned to ensure that the collection of oral perspectives on environmental and wahi tapu issues does not become fragmented by being divided into different reports on land based and water based issues. Alexander identifies the major difficulties of separating land and river based issues into different research projects. He comments, for example, on the extent to which the well-being of the river is significantly affected by what is occurring on the land. Using the example of the 1897 flood, he emphasises that what occurs in the river can also have significant impacts on the land.
501. For these reasons our recommendations build on Alexander's proposed research briefs, by expanding them.
502. In making recommendations for further research we are guided by the following principles and objectives:
- Research should treat the Rangitikei River and its catchment holistically, reflecting the integrity of river, Maori understandings of the nature of the river and its waters and the reality that the health of the river has an impact on all of those with a customary interest in the river;
  - Research should also treat environmental issues relating to the land and water holistically. This reflects the interrelationship and interdependence of land and water and the flora and fauna which depend on both and is

consistent with Maori understandings of the environment as expressed by claimants;

- Claimants should direct and be actively involved in research and their perspectives of the environment and of resource management must be included in this research. These perspectives may have common features, but can only be understood as the distinct relationship of different customary groups and the environment within their rohe;
- Historical research on environmental issues should be informed not just by claimants' perspectives, but by good science; and
- Research must be focused on the Crown's responsibility for environmental degradation and resource loss and for the loss or mismanagement of wahi tapu.

503. The first research recommendation, involving a review of the Crown's responsibility for the inappropriate deforestation, drainage of wetlands and transformation steep hill country and tussock land into pasture, is straight forward. This project focuses on issues that are particularly important to the Taihape Inquiry District and the report should focus on this inquiry district alone. It may well be that much of the research is relevant to parts of the Porirua ki Manawatu Inquiry District, following the Ruahine ranges south, but to extend the research beyond Taihape would be unnecessary at this stage.

504. For the other recommendations in this scoping report, we are looking to build on Alexander's recommendations (with some modification) to bring together issues that are common to land-based and water-based environmental research and to the study of wahi tapu. One difficulty which must be acknowledged is that these recommendations on research may have an impact on claimants in the Porirua ki Manawatu Inquiry District. However, we have had no input from claimants within that district and have not considered their land based environmental and wahi tapu issues at all as part this scoping report.

505. There would appear to be a number of different ways of configuring a research programme that integrates land-based and water based issues.

- a. Research could be undertaken entirely within the boundaries of the Taihape District Inquiry, with claimants from the neighbouring inquiry district contributing only so much as is relevant to the Taihape Inquiry District. This approach would divide studies of the river by an artificial

boundary and force claimants split across this boundary to provide information to at least two different but parallel research projects. This approach would no longer treat the river as a whole.

- b. Research could retain its primary focus on the Taihape Inquiry District, but where claimants straddle both enquiry districts, all of the issues relating to environmental and wahi tapu research within the Rangitikei catchment would be considered as part of this research project and made available to both inquiry districts. This approach would continue to be a manageable project, but would still provide the opportunity for claimants outside of the district to contribute to the Taihape Inquiry, on issues that relate to the upstream development of the river, which still have an impact upon them. This approach would also not consider the river as a whole.
- c. Finally, research could be extended to cover both inquiry districts and deal with all claimant groups with customary relationships to the Rangitikei and its catchment. This study would continue to maintain a holistic approach to the river. It would need further input from claimants not associated with the Taihape District Inquiry prior to the commissioning of new research.

506. To ensure that the Rangitikei River continues to be dealt with as a single entity and also to ensure that issues relating to the land are not separated from those involving water, we recommend research that involves *both* inquiry districts. While we recognise that we have not undertaken any investigation into land based environmental issues for the Porirua ki Manawatu Inquiry District, we feel that the importance of making recommendations which **include** a holistic approach to environmental research justify this decision. Our recommendations also build on those already made by David Alexander, who has been able to look more broadly across the two districts and discuss these issues with claimants from the lower Rangitikei. Alexander has recommended that research being undertaken into the Crown's involvement in the management of indigenous fish species and other indigenous wildlife whose habitat requirements include

the waterways and on resource management regimes for the waterways, including consultation with Maori, involvement by Maori, and incorporation of Maori perspectives. He has also recommended a major oral history study be undertaken of claimant perspectives of the Rangitikei. To a large extent, our recommendations can be seen as building on these by including land based environmental and wahi tapu issues.

507. The role of Nga Pae o Rangitikei which provides a forum covering the whole of the Rangitikei catchment is also important in illustrating recent initiatives in involving Maori in resource management in the region. This organisation includes iwi across a number of inquiry districts and it would be difficult to examine the extent to which this body meets the Crown's responsibilities for Maori in environmental management by focusing on the Taihape Inquiry District alone. While Nga Pae o Rangitikei is primarily concerned with the river, Maori involvement and aspirations for the organisation go well beyond simply issues relating to water and the river. The concerns of the participating iwi have been described as:

- Gravel extraction from the Rangitikei and its tributaries;
- The declining number of fauna and flora;
- Deforestation, erosion, pollution, diversion and other similar impacts, and
- Concerns about commercial interests and impacts on the catchment area.<sup>467</sup>

508. These issues combine land based and water based environmental concerns. The difficulties of splitting environmental research along the river and ensuring that land and water issues are further highlighted by the need to consider issues relating to consultation by the Crown with Nga Pae o Rangitikei holistically.

509. Even if the boundaries of the proposed research were not extended, the next round of research would also require more extensive input from some claimants from within the Taihape Inquiry District. Including the Porirua ki Manawatu district in this research would simply extend this requirement with the need for additional input from a larger group of claimants, some of whom are already involved in both inquiries. This research project has been able to draw heavily on the perspectives of the two clusters within the

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<sup>467</sup> Te Rina Warren, 'Nga Pae of Rangitikei – a model for collective hapu/iwi action?', Rachael Selby, Pataka Moore and Malcolm Mulholland, *Maori and the Environment: Kaitiaki, Huia*, Wellington, 2010, p. 191.

Taihape Inquiry District. We have not been able to obtain similar input from other claimant groups, particularly those claimant groups predominantly located outside of the district but with interests in Taihape. Further research which proposes to explore environmental issues from claimants' perspectives will need to take this lack of input from non-clustered claimants into account. Both of the major studies proposed require substantial claimant input, to be driven by claimants, to get claimants' perceptions of their participation in resource management and also explore their understanding of natural resources and the environmental impact of Crown policies on natural resources and Maori management regimes for these resources.

## **RESEARCH RECOMMENDATIONS**

510. In considering the research needs of the district in relation to environmental and wahi tapu issues, we suggest that the priority be placed on four general areas. We endorse Alexander's proposal for; 1.) a historical research project that examines the Rangitikei River and its catchment and the Ngaruroro River within the Taihape Inquiry District, with the amendments suggested below. 2.) The oral history project he recommends is developed into two projects below to cover: A) iwi relationships with resource management and wahi tapu and B) species and habitat loss. However both of these projects have been extended from being purely oral history projects to being multi-method and multidisciplinary. While these projects are described separately there will be benefits in managing them together and in sharing the oral history components.

### **The Crown and the environmental transformation of Mokai Patea c.1890 to c 1991**

511. The project would explore the way Crown policy from the 1890s promoted the transformation of the region from indigenous forest and wetlands into an environmentally unsustainable pastoral economy in many areas within the district. While beginning at the time when the land was opened up by the construction of the main trunk line, research would be particularly concerned with the extent to which the Crown continued to promote the expansion of pastoralism in the district from the early 1940s when it became aware of the environmental damage caused by erosion. The extent of Crown consultation with Maori and Maori participation in

this economy would also be explored. We suggest that soil conservation issues be covered in this report rather than in the rivers study. The study should begin in the early 1890s when the first blocks in the region were opened up for European settlement. The study will conclude with the period leading up to the passing of the Resource Management Act 1991. Environmental management under the RMA will be more appropriately captured in the other studies that are proposed. While this does not have a clear cut-off date, the study finishes with the reconsideration of the nature environmental management which begins in the 1970s and culminates in the RMA. The study deals with the period when Maori involvement and environmental management was not seen as a Crown responsibility. Because this issue is primarily concerned with erosion in the region's hill country, this project should be restricted to the Taihape District Inquiry.

512. The study would explore the environmental impact of:

- The Crown's role in promoting the pastoral economy in New Zealand from the nineteenth century;
- The Crown's policies in promoting the felling of indigenous forests and its attempts to conserve forest. It will examine the extent that deforestation was an important economic objective in itself and also a precursor to the establishment of pastoralism;
- The impact of environmental of policies prior to 1941 which used financial subsidies and tax policy involving advances to settlers, transport subsidies and subsidies for fertiliser manufacture;
- The compulsory used of insecticides such as sheep dips;
- The Crown's acknowledgement that high country land had become subject to extensive erosion and the impact of the Soil Conservation and Water Control Act 1941;
- The work of the Rangitikei Catchment Board (and its successors) following the establishment of the board in 1944;
- The increasing role of agricultural subsidies from the 1960s to the 1980s, involving development loans, subsidised credit to producer boards, subsidies for bringing marginal land into production, for fertilizer and herbicides, guaranteed minimum prices, drainage subsidies, the Livestock Incentive Scheme and Supplementary Minimum Prices; and
- Attempts from the 1970s to take blocks of land out of production and to protect wetlands, forests and tussock lands.

513. The research should study attempts to consult with Maori over these issues, if any, and protest by Maori over these policies or their impacts from the 1890s to the early 1980s. Research will also explore the extent to which the Crown's adoption of these

conservation policies left Maori unable to respond effectively to the policies of retiring Maori land and retaining indigenous forests because of an insufficient financial support to the owners.

*Personnel and timeframe*

514. A historian with knowledge of rural history and agricultural economics. The project will require 26 weeks EFT. The researcher will need access to National Archives Wellington and some understanding of the interaction between agricultural economics, soil preservation and public policy history. As these skills may not be available in a single researcher, the project may need to be undertaken by a historian and someone with more specific skills in environmental management.

**A Cultural Study of Iwi relationships with the Crown, local government and SOEs in environmental management and in the protection of wahi tapu**

515. David Alexander has recommended a cultural study, based on oral history, exploring the relationship between iwi and the whole of the Rangitikei including the upper Ngaruroro. David Alexander has recommended that the historical study on the Rangitikei river include Maori perspectives on the river, however this will be largely limited to the archival material in that study, and will need to be supplemented by oral research. We also consider that a cultural study of Maori perspectives of the river is important and argue that the study should be expanded to include issues relating to the land based environment and wahi tapu. Given the need to integrate land-based and river -based research, because of the holistic nature of Maori understandings of the environment, undertaking two separate studies, one on rivers, and the other on other aspects of the environment would inevitably lead to a substantial level of duplication, require claimants to be involved two oral history projects and create an artificial distinction between Maori perspectives of water and Maori perspectives of the land and its resources.
516. David Alexander has also recommended that the cultural study be an oral history project. However, while it is our view that oral history is essential in providing claimant perspectives on the relationship with resources and the Crown's management of these

resources and there is considerable added value to be gained from linking the oral history to other forms of historical and scientific research. Oral history often raises questions which need to be answered from the archival record or can be examined in the light of current scientific research, particularly as it applies to the extent of resource loss and the causes of this loss. It has been our experience that undertaking an oral history as part of a broader multi-disciplinary investigation has major advantages as long as the claimants' are able to participate effectively with the process and use their oral discussions to direct the research.

517. In undertaking this research claimants should be given the opportunity to provide an understanding of their relationship with the river, the land and their resources, both in the period prior to European contact and after the Crown takes responsibility for environmental and resource management. However, the oral research should also provide information on the relationship between themselves and the Crown, within their own experience as much as possible, which would extend back as far as the 1970s. This is particularly important in studying the Crown's actions from the period when it accepted that it did have a responsibility to Maori in resource and environmental management.
518. In discussing the relationship between land-based and river-based research, David Alexander has commented that it may be appropriate for the land-based study to look at resource and environmental planning issues relating to the river, in the period from the 1970s to the present. There is much merit in the suggestion as this is the period where there is a major advantage in bringing together the oral and written research, which is not so easily achieved in two distinct river studies, one historical and the other oral.

#### *Focus of oral research*

519. The Crown's much more interventionist role in environmental management since the 1970s has led to a web of extensive and complex relationships between claimants, the Crown, local authorities, State Owned Enterprises, NGOs and private individuals and companies. These relationships have allowed greater participation by Maori in environmental and resource management (though not necessarily in decision making). Local bodies, State Owned Enterprises and private companies are not agents of the

Crown for settlement purposes but iwi relationships with these groups are a consequence of the Crown's engagement in resource management and must be included to provide a comprehensive understanding of the experience of claimants. Moreover, these relationships are also governed by the rules established by the Crown in its statutory regime for resource management.

520. An important part of this developing regime is the relationship between the Department of Conservation and claimants. There were major consequences for claimants, as more and more land was placed in some form of conservation regime, both public land and Maori land. Claimants have found themselves negotiating with the Crown through the Department of Conservation, often with divergent views about the use of the land and waters, and with claimants determined to manage their lands and waters according to their own needs, based on their own perceptions of the landscape and its management. This relationship is also important in the management of wahi tapu.

The claimants' experience with the following agencies would need to be reviewed:

- The Department of Conservation;
- Conservation Boards;
- The New Zealand Historic Places Trust;
- The New Zealand Defence Force;
- Genesis (and predecessors);
- The Rangitikei District Council (and predecessors);
- The Rangitikei Wanganui Catchment Board; and,
- Horizons.

521. The study would need to examine the pivotal place of the Resource Management Act 1991 and the extent to which that the legislation greatly increased the responsibilities of the Crown and local government to include Maori in resource management and in the management of wahi tapu, as well as increasing the responsibilities of Maori to engage with those regimes. As the scoping report has already indicated, claimants have welcomed the change in the Crown's approach to Maori communities to one that is much more inclusive and consultative. However, claimants were also united in their belief that this fell short of the Crown's Treaty of Waitangi responsibilities to Maori as they remained marginalised as decision makers.

522. The role of Nga Pae o Rangitikei is also extremely important as this is one of the flagship organisations that has been recently created to provide a forum for Maori to be involved in the management of the river and to coordinate different customary interests in the negotiations with the Crown and local government.

#### *Co-ordinating research on land and river*

523. Because this oral research will deal with both river and land issues, it is important that there be some degree of coordination between this study and that being undertaken on the river. There would be significant benefits if the contractor undertaking the river research attended oral research hui, or failing that, had complete access to oral history transcripts and, if possible, was able to contribute to the second phase of oral research, which involves taking back the findings of scientific or archival research and discussing these further at hui.

#### *Case Studies*

524. This oral and cultural research should also address:

- More detailed investigations of claims in relation to the Aorangi Block;
- Kaimanawa horses;<sup>468</sup>
- Lake Moawhango;
- The Erewhon, Omatane, Hunterville and Stanway rural water supply schemes;
- The Genesis Water Right Application;
- Nga Pae o Rangitikei; and
- The role of Iwi Environmental Management Plans.
- Additional case studies identified by non-clustered claimants and from claimants in the Porirua ki Manawatu inquiry district with interests in the Rangitikei catchment.

#### *Method*

525. As much as possible the oral material would be collected at hui, rather than through interviews with individuals, and the hui will provide the opportunity for identifying areas which could benefit from further scientific or historical research and agreeing to explore case studies or particular issues at great depth. Oral evidence will be recorded and

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<sup>468</sup> We are treating this issue primarily as an issue of consultation and resource management rather than one of species protection.

transcribed and transcripts returned to hui representatives for checking. Hui will be held with groups of claimants.

526. Further case studies will need to be decided by early discussions with non-clustered claimants and from a review of claims and discussions with claimants from the Porirua ki Manawatu Inquiry District.
527. Archival based research will be undertaken on case studies and on issues raised and priorities at the oral history hui. Written records collected by claimants would also be useful in this research.
528. Once this research has been completed, additional hui will be held and further discussions held where claimants will have the opportunity to discuss issues in the light of research information from other non-oral sources.

*Personnel and timeframe*

529. This would require skills in:
- Oral history
  - Achival research
  - Project managment; and
  - Resource management and environmental planning.
530. These skills are best provided by an interdisciplinary team, supported by a transcriber.
531. The time required would involve 26 EFT weeks oral history; 26 weeks EFT archival history; and 26 weeks EFT resource and environmental planning.
532. The success of the project depends on the ability of claimants to engage in the oral history project and to allow the research to be informed from a variety of different sources in their possession. This process would be assisted by the appointment of a facilitator to assist claimants in their engagement with the research process.

## **Species and habitat loss in the Rangitikei catchment area**

533. This study would explore claimants' experience of species loss and habitat destruction in the Rangitikei catchment area and would involve both the Taihape and Porirua ki Manawatu Inquiry Districts. This study would explore both fauna and flora of the catchment area and habitats on which they depend. The study would focus on the Crown's management of flora and fauna, and the consequences of species and habitat loss to claimants. This research would include the relationship between rivers and waterways and fauna and flora. Loss of management of fauna and flora would also be examined. It will explore the extent that forest clearing, gravel extraction, damage to waterways and pollution have had a negative impact upon the districts fauna and flora. The project will consider claimants' use of fauna and flora and their traditional regimes for managing these resources. It will review the Crown's past and present regimes for managing such natural resources.
534. This species study would include water based and land based species and includes David Alexander's recommendation for a study of species which in his proposal would be part of the historical river study. We consider that the need to consider land based species alongside water based species and in recognising the importance of water and river quality and flow on land based resources requires a single study that includes both. Detaching the study of species and habitat loss from the rivers report also allows the study to include oral evidence from claimants. This is particularly important as the significance of fauna and flora to Maori is defined by Maori use and understanding of these resources and the management regimes used by Maori to govern their use and conservation. Only the involvement of claimants' can explore their unique relationships with these resources.
535. One of the most significant aspects of this study has been of the loss of resources for women, resources which were used throughout the district, including those used for traditional arts and crafts and also for healing.
536. The research method for the study would be multidisciplinary, aiming to bring together claimants, historical researchers and scientists to explore the nature of habitat change and

species loss and to consider the roles of Crown policies in these transformations. Research would involve hui with claimants to talk about relevant species and the level of species loss experienced by claimants and their understandings of the reasons for the decline in species numbers. Scientific reviews would then be undertaken to examine the scientific literature and to provide scientific explanations for these losses, where there explanations are available. At the same time historians can review the archival and other written evidence for habitat loss and the extent that these losses were the result of Crown policy. There will be little opportunity for undertaking new scientific research.

### *Case studies*

537. Case studies would need to be determined through consultation with claimants early in the research process, particularly to gain input from non-clustered claimants in the Taihape Inquiry District and for all claimants in the Porirua ki Manawatu Inquiry District with interests in the Rangitikei catchment. Suggested case studies include:

- Huia;
- Patiki;
- Tuna;
- Koura;
- Kereru;
- Tui;
- Harakeke;
- Ngutu Kaka;
- Rimu;
- Matai;
- Hinau;
- Rewarewa; and
- Kahikatea.

538. The impacts on habitats and species of the following will need to be considered:

- Deforestation;
- Gravel extraction;
- Localised pollution;
- Drainage of wetlands;
- Fertiliser use;
- Insecticide and herbicide use;
- Introduction of exotic species;
- Pastoral farming; and
- Damming of rivers and reductions in river flows

### *Personnel and timeframe*

539. The project would need to be collaborative requiring expertise in oral history, legal and archival research and environmental science. Skills required in environmental science would include expertise in freshwater fisheries, invertebrates and vertebrates and plant ecology. The project will require 20 weeks EFT for the oral history and archival research components of the project and 20 weeks EFT for three scientific specialities.

### **Wahi Tapu**

540. Wahi tapu issues would be dealt with adequately in the period since the 1970s as a result of the ‘cultural and relationship’ study, and in particular in claimants’ relationships with local authorities, the Department of Conservation and the NZ Historic Places Trust. However, there may be some material in the ‘species and habitat’ study which provide insight on wahi tapu.

### *Otumore*

541. Given the wide range of different issues which were significant in the alienation of this block and its inclusion in the neighbouring forest park, especially in relation to survey liens and actions of the Maori Land Court, further research on this block is more appropriately part of a study on twentieth century land issues.

### **Portable Taonga**

542. We have not made recommendations for any research on issues relating to portable taonga. Portable taoga are an issue of significant concern to both cluster groups consulted as part of this scoping project. The issue has however not been discussed with non-clustered claimants. The unique features of taoga produced in this inland, mountainous and river-centred environment have made a significant contribution to Maori material culture and the preservation for iwi is a major concern. A good many of these taonga are preserved in a local private museum and in the interests of maintaining good relationships with the collection and its current custodians, claimants considered that taking this issue further for the Tribunal could unsettle these relationships.



## APPENDIX A: PERCEPTIONS OF THE ENVIRONMENT AND THEIR EFFECT ON POLICY

543. In recent years the multidisciplinary study of New Zealand environmental history led by local scholars such as historian Tom Brooking and geographer Eric Pawson has gained significant momentum.<sup>469</sup> In their 2002 edited collection, *Environmental Histories of New Zealand*, Brooking and Pawson identified four conceptual approaches which mark the writing of environmental histories of New Zealand today.<sup>470</sup> The first is the recognition that early European colonists often wrote of the environment from an urge to possess and transform the so-called ‘wastelands’ whose ownership was actively contested with local Maori. The second approach is the recognition that the environment is frequently not a natural construction as is often presumed but a ‘profoundly human construction’. The third, as explained by William Cronon, is that the ‘natural world is far more dynamic, far more changeable, and far more entangled with human history than popular beliefs... have typically acknowledged’.<sup>471</sup> The final conceptual approach is the recognition of geographical scale. In the words of Brooking and Pawson, ‘the political economy of Pakeha colonisation linked the transformation of places and the construction of new landscapes, via a worldwide division of labour and networks of trade and information, with markets, sources of goods and European cultural ideas and legal frameworks. All of these contributed to the capitalist imperative to own and commodify land and resources’.<sup>472</sup>
544. The writing of the environmental history of New Zealand is usually credited as officially beginning with the publication in 1921 of *Tutira: The Story of a New Zealand Sheep Station*, by Hawke’s Bay runholder, Herbert Guthrie Smith.<sup>473</sup> From the 1940s academics Kenneth Cumberland and Lance McCaskill incorporated environmental history into their

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<sup>469</sup> This section of the report was substantially drafted by Steven Gardiner.

<sup>470</sup> Eric Pawson & Tom Brooking, ‘Introduction’ in Eric Pawson & Tom Brooking, eds., *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, pp.5-7.

<sup>471</sup> William Cronon, ‘Introduction: In Search of Nature’, in William Cronon, ed., *Uncommon Ground: Toward Reinventing Nature*, W.W. Norton & Co., New York, 1995, p.25 quoted in Eric Pawson & Tom Brooking, ‘Introduction’ in Eric Pawson & Tom Brooking, eds., *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.6.

<sup>472</sup> Eric Pawson & Tom Brooking, ‘Introduction’ in Eric Pawson & Tom Brooking, eds., *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.7.

<sup>473</sup> H. Guthrie-Smith, *Tutira: The Story of a New Zealand Sheep Station*, Random House, Auckland/University of Washington Press, Seattle, 1999 (first published 1921).

studies of soil erosion and conservation.<sup>474</sup> However, until recently, outside of this area most of New Zealand's environmental studies came from scholars based abroad who were fascinated by New Zealand's accelerated rate of environmental change compared to anywhere else in the world. The seminal localised environmental study of a Hawke's Bay sheep station, *Tutira*, inspired American environmental historians such as Alan Clark, William Cronon and Richard White to focus on the New Zealand example.<sup>475</sup> Alan Grey too would join their ranks as 'like Cumberland and Clark before him, he regards this land as an ideal laboratory for studying human environmental impacts within an unusually compressed time frame'.<sup>476</sup>

545. For in less than two centuries New Zealand has witnessed a level of environmental transformation unparalleled in modern global history. In the desire to construct a neo-Europe, the settler population that arrived primarily from Britain and Ireland during the course of the nineteenth century (and continued to arrive throughout the twentieth), have made the 'Britain of the South' virtually unrecognisable from the islands Captain James Cook and the crew of the *Endeavour* visited in 1769.<sup>477</sup> The environmental changes that had occurred over the course of two millennia in Europe and four centuries in North America were accelerated dramatically in the Antipodes.<sup>478</sup>

546. New Zealand's unique experience was initially established as a consequence of its isolation from other large landmasses situated on the globe. Separated from the prehistoric supercontinent of Gondwanaland about eighty million years ago as a result of tectonic events, the new land's location on the intersection of two of the world's major tectonic plates and the correlating presence of constant earthquake and volcanic activities, created an ecologically fragile environment even before the arrival of human

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<sup>474</sup> Kenneth B. Cumberland, *Soil Erosion in New Zealand: A Geographical Reconnaissance*, Soil Conservation and Rivers Control Council, Wellington, 1944; L.W. McCaskill, *Hold This Land: A History of Soil Conservation in New Zealand*, A.H. & A.W. Reed, Wellington, 1973.

<sup>475</sup> Eric Pawson & Tom Brooking, 'Introduction' in Eric Pawson & Tom Brooking, eds., *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, pp.4-5.

<sup>476</sup> Eric Pawson & Tom Brooking, 'Introduction' in Eric Pawson & Tom Brooking, eds., *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.5.

<sup>477</sup> Charles Hursthouse, *New Zealand or Zealandia, the Britain of the South*, Edward Stanford, London, 1857, pp.97-98 quoted in Geoff Park, *Theatre Country: Essays on landscape and whenua*, Victoria University Press, Wellington, 2006, p.83.

<sup>478</sup> Tom Brooking, *The History of New Zealand*, Greenwood Press, Westport, Connecticut & London, 2004, p.5.

occupants. With the virtual absence of mammalian inhabitants, apart from the presence of a few species of bats and sea mammals, ecologist Tim Flannery has called New Zealand ‘a completely different experiment in evolution to the rest of the world’, demonstrating ‘what the world might have looked like if mammals as well as dinosaurs had become extinct 65 million years ago, leaving the birds to inherit the globe’.<sup>479</sup>

547. This experiment conducted over millions of years came to an abrupt halt with the arrival of the first humans, the ancestors of the various iwi, hapu and whanau, who would become collectively known as Maori. Making landfall between seven hundred to twelve hundred years ago, accompanied by the first introduced mammals, the kuri (dog) and kiore (rat), the ancestors of the people who would become the new land’s *tangata whenua* found a mixture of contrasting plenty and scarcity. Although the climate and the soils were poor for growing many of the tropical edible plants that had accompanied these ocean voyagers from their Pacific homeland, the abundance and incredible size of the resident birdlife provided a veritable feast in front of the new arrivals. However, the combined effects of Maori hunting, fire and horticulture on the landscape would soon prove to be extensive leading to significant levels of resource destruction and erosion.
548. However, resource management practices had changed by the time of the European wave of humanity beginning in the late eighteenth century. Maori, in recognition of an increasing scarcity of resources, had adapted their cultural practices to meet the changing situation and were fully engaged in conservation practices to protect and sustain what remained. Conservation was institutionalised through cultural practices such as tapu and rahui which were actively engaged in preserving what was now fully recognised as a limited resource base. As the Waitangi Tribunal would report in the *Muriwhenua Land Report*, ‘the fundamental purpose of Maori law was to maintain appropriate relationships of people to their environment, their history and each other .... Maori law described how people should relate to ancestors as the upholders of old values, to the demigods of the environment as providers of life’s necessities, to their hapu, which was the primary support system, and to other peoples as necessary for co-existence .... Maori saw

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<sup>479</sup> Tim Flannery, *The Future Eaters: An Ecological History of the Australasian Lands and People*, Reed Books Australia, Chatswood, New South Wales, 1994, p.55, quoted in Eric Pawson & Tom Brooking, ‘Introduction’ in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.1.

themselves as users of the land rather than its owners ... They were born out of it, for the land was Papatuanuku, the mother earth who conceived the ancestors of the Maori people'.<sup>480</sup>

549. This indigenous system of ecological balancing was to be confronted and severely contested by an opposing ideology that accompanied the shiploads of settlers from Europe who would heavily outnumber Maori and dominate the physical and cultural landscape of the land by the end of the nineteenth century. Edward Gibbon Wakefield quickly identified New Zealand's place for the purpose of the migration schemes that he and others would put into place from Britain: 'A territory as large as Great Britain, of which, allowing for mountainous districts and water, it may be fairly calculated that full two-thirds are capable of being beneficially cultivated .... The average nature of the soil is a rich alluvial. Both islands ... are extremely fertile and capable of the highest degree of cultivation .... The natural products of the country appear to be varied and inexhaustible...'<sup>481</sup> Miles Fairburn has described this powerful mythology surrounding New Zealand as an Arcadian conception of a land of natural abundance. Claiming that this viewpoint 'had all the power of legend', Fairburn continues that, 'not only was it taken for granted and extraordinarily popular, it also had its own predictable rhetoric and met with little resistance let alone reasoned scepticism'.<sup>482</sup> So powerful was this foundational legend of settler colonisation that it remained strong throughout the nineteenth century even when the increasingly visible physical evidence contradicted its all encompassing reach.

550. These ideas were reinforced with the collisions of numerous forces that had arisen out of Europe and reached their climax in the nineteenth century at the same time as New Zealand became first a British economic then political colony. The gradual eclipsing of previously held beliefs in favour of European ideas brought humanity's relationship with

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<sup>480</sup> Waitangi Tribunal, Muriwhenua Land Report, GP Publications, Wellington, 1997, pp.21-24 quoted in Evelyn Stokes, 'Contesting Resources: Maori, Pakeha, and a Tenurial Revolution' in Eric Pawson & Tom Brooking, eds. Environmental Histories of New Zealand, Oxford University Press, Melbourne, Victoria, 2002, p.35.

<sup>481</sup> The New Zealand Colonization Company, to be incorporated by Charter, or Act of Parliament, 1838. q325.93 quoted in Geoff Park, Theatre Country: Essays on landscape and whenua, Victoria University Press, Wellington, 2006, p.34.

<sup>482</sup> Miles Fairburn. The Ideal Society and its Enemies: The Foundations of Modern New Zealand Society 1850-1900, Auckland University Press, Auckland, 1989, p.29.

nature into direct question. With the industrial revolution and associated technological advances, Europeans increasingly saw nature as something that could be more readily manipulated and made subservient to human needs. Increased mechanisation also reduced reliance on the limitations of human muscle.<sup>483</sup> Recently developed considerations on the ultimate ‘malleability of the world’ to people’s wants and desires would take a vice-like grip in Britain’s most southern colony.<sup>484</sup> Nature’s bounty was also by now a financial commodity whose value could be measured for purposes of trade and monetary exchange in Britain’s increasingly far-flung global empire.

551. However, despite the advent of modernity wrapped in the tenets of the new science and its associated discoveries, the word of God could still be invoked to provide justification for both removing land from Maori possession and subsequently ‘improving’ it. A settler newspaper in 1843 confidently exclaimed, ‘Who has the right to most land? He who has cultivated it. This is God’s law, and all the chatter about rights of the natives to land, which they have left idle and unused for so many centuries, cannot do away with the fact that according to this, God’s law, they have established their right to a very small portion of these islands’.<sup>485</sup> Early New Zealand British migrant Charles Hursthouse would also extol the virtues of cultivation in 1857, stating that ‘the cultivation of a new country materially improves its climate. Damp and dripping forests, exhaling pestilent vapours from rank and rotten vegetation, fall before the axe; and light and air get in, and sunshine ripening goodly plants. Fern and marsh and swamp, the bittern’s dank domain, fertile only in miasma, are drained; and the plough converts them into wholesome plains of fruit, and grain, and grass’.<sup>486</sup>

552. Hursthouse’s proclamations were not isolated and New Zealanders in subsequent generations brought to fruition his earlier predictions. The draining of wetlands for instance has resulted in an enormous 85 percent of these being removed from the local

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<sup>483</sup> Alan Grey, *Aotearoa and New Zealand: A Historical Geography*, Canterbury University Press, Christchurch, 1994, pp.12-17.

<sup>484</sup> D.J. Boorstin. *The Image: A Guide to Pseudo-Events in America*, Antheneum, New York, 1973, p.204.

<sup>485</sup> Nelson Examiner, 10 June 1843 quoted in Jim McAloon, ‘Resource Frontiers, Environment, and Settler Capitalism, 1769-1860, in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.60.

<sup>486</sup> Charles Hursthouse, *New Zealand or Zealandia, the Britain of the South*, Edward Stanford, London, 1857, p.69 quoted in Geoff Park, ‘“Swamps which might doubtless easily be drained” Swamp drainage and its impact on the indigenous’ in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.151.

landscape. In contrast Britain and the Netherlands have removed 60 percent, the United States 53 percent and France a mere 10 percent of their own native wetlands.<sup>487</sup> At the commencement of European settlement in New Zealand, 670,000 hectares or more of freshwater wetlands existed while today a remnant of around 100,000 hectares remains. As well as containing some of New Zealand's most ancient lifeforms, for a fifth of New Zealand's indigenous birds this is their primary habitat. Lowland swamps are also key sites for native fish stocks to spawn. So severe was this transformation in some regions that less than one percent of the natural wetland areas remains today.<sup>488</sup> Birdlife in inland forests too was dramatically affected by these environmental alterations as many migrated to the lowland wetlands to breed and also to feed on seasonal foods. Swamp drainage schemes resulted in significant depletions of many bird populations.<sup>489</sup>

553. Locally, swamplands have been particularly affected as these areas were once densely populated food stores for local whanau and hapu. Swamps were New Zealand's treasure trove in relation to food resources and raw materials, comparing favourably with any other type of terrain in pre-European New Zealand. Maori settlement patterns reflected this. Floodplains, river mouths, estuaries and lagoons were the prime locations where Maori settlements tended to be concentrated.<sup>490</sup> Geoff Park states that so drastically have drainage activities transformed these areas that 'nothing that meets the eye on a New Zealand coastal plain that has been the subject of a swamp-drainage scheme is yet a century old. No plant or animal it sees, other than the odd raupo plant and cabbage tree, or eel in a farm drain, is indigenous'.<sup>491</sup> Maori villages (*kainga*) too could be forcibly removed from their previous sites near swamps by legislation such as the Public Works Act if they were not prepared to sell to allow drainage schemes to take place.<sup>492</sup> Cultural beliefs decided the difference between what was considered a precious natural resource and what was considered an obstacle to cultivation and material

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<sup>487</sup> Tom Brooking. *The History of New Zealand*, Greenwood Press, Westport, Connecticut & London, 2004, p.5.

<sup>488</sup> Geoff Park, "'Swamps which might doubtless easily be drained'" *Swamp drainage and its impact on the indigenous* in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.151 & 161.

<sup>489</sup> *Ibid.*, p.162.

<sup>490</sup> *Ibid.*, p.161.

<sup>491</sup> *Ibid.*, p.154.

<sup>492</sup> *Ibid.*, p.156.

advancement in the form of ‘waste’.<sup>493</sup> Significant to these divergent ways of thinking was how imported English land law made distinct separations between waterways and dry land whereas Maori did not draw such a distinction. The ecological processes that resulted in the area’s biological productivity underlay its resource value. Therefore swamps, rivers, lakes and the surrounding landscape were interconnected.<sup>494</sup>

554. Forestry covered about half of the landmass of New Zealand at the time of European arrival, including two-thirds of the North Island.<sup>495</sup> By 1940, a century after the beginning of formal British colonisation, geographer Kenneth Cumberland would authoritatively estimate that only sixteen percent of the total area of New Zealand remained forested.<sup>496</sup> To the European mind, removing forests and replacing these with pastures for agriculture was so beneficial to their new home that it was frequently referred to as ‘improvement’ in relation to what was there before. Indeed religious parallels were once more invoked by the Wesleyan Cort Schnackenberg who preached ‘if you find your mind, your heart to be a wilderness, cultivate it in the same manner as you do your fields, cut down the bush, great and small, spare no sin’.<sup>497</sup> Between 1895 and 1914, for instance, 1,684,231 acres of land leased or sold by the Crown was cleared of forest and bush.<sup>498</sup> However, aware of the visible depletion of the native forestry estate, governments did enact legislative acts in an effort to preserve forestry reserves into the future. Prime Minister Julius Vogel introduced the New Zealand Forests Act in 1874 for the purpose of establishing state forests to protect timber milling in years to come. Two years later the first Conservator of State Forests was appointed.<sup>499</sup> By 1887, however, the State Forests Department had been abolished. Graeme Wynn points out however, that environment despoliation would bring about a significant change of attitude towards natural resources as the twentieth century emerged. The Surveyor-General would recommend, in Wynn’s summation, that ‘forests be conserved to maintain water supplies

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<sup>493</sup> Ibid., p.159.

<sup>494</sup> Ibid., p.160.

<sup>495</sup> Graeme Wynn, ‘Destruction under the guise of improvement? The forest, 1840-1920’ in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.105.

<sup>496</sup> Kenneth Cumberland, ‘A century’s change: natural to cultural vegetation in New Zealand’, *The Geographical Review*, vol. xxxi, no.4, October 1941, p.550.

<sup>497</sup> Quoted in Wynn, p.105.

<sup>498</sup> Graeme Wynn, ‘Destruction under the guise of improvement? The forest, 1840-1920’ in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.110.

<sup>499</sup> Ibid., p.113.

and climatic equilibrium, to prevent degradation of the high country and deposition in the lowlands, and to protect flora, fauna, and natural beauty'. Utilitarian and aesthetic concerns were now being brought together in an effort to shape a more sustainable future.<sup>500</sup>

555. However, earlier in 1874 ex-Premier William Fox had first proposed the introduction of national parks to New Zealand. The Land Act of 1885 gave legislative provision to Fox's earlier proposal and by the 1920s specific acts such as the Tongariro and Egmont National Park Acts were in place. Government efforts in this direction, however, would remain couched in utilitarian language. The Department of Lands in 1907 would promote the national parks as 'country that can never be suitable for close settlement, but is of world-wide fame as the home of scenery'. To make sure that no confusion existed, the Department would reiterate that 'it has never been the practice of the Department to unduly withhold from settlement areas of rich soil and well adapted to pastoral or agricultural pursuits merely because they are also suited for scenery preservation. The needs of settlement are imperative...'<sup>501</sup> State conservation efforts noticeably accelerated though through the course of the twentieth century as the natural abundance of the lands and rivers presumed by the early European settlers was replaced by an awareness of the finite nature of resources and increasing concerns over the levels of exploitation. The 'wise use' of resources now increasingly entered political discourse although laws in this direction such as the Soil Conservation and Rivers Control Act 1941 focused primarily on Crown lands with the state still highly reluctant to interfere with private property rights.<sup>502</sup>

556. With the realisation that native forest reserves were in a state of serious depletion, export controls were imposed from 1918 to 1922 on the sale of certain types of indigenous timbers. In combination with these were supports for higher levels of exotic afforestation, particularly the introduction and harvesting of *pinus radiata* from

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<sup>500</sup> Ibid., pp113-4.

<sup>501</sup> Annual Report, Department of Lands, Appendices to the Journals of the House of Representatives, C6, 1907, pp.2-3 quoted in Eric Pawson, 'The meanings of mountains' in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.148.

<sup>502</sup> Michael Roche, 'The state as conservationist, 1920-60: 'Wise use' of forests, lands, and water' in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, p.183.

California. The Forestry Branch was also separated from the Department of Lands and Survey in 1919 and the State Forest Service established in 1921.<sup>503</sup> In 1952 Waipoua forest and its remaining kauri were made into a sanctuary, which indicated a potential shift away from the 'wise use' doctrine to environmental resources being preserved for intrinsic purposes rather than for their future utilitarian use.<sup>504</sup>

557. Crown attitudes to soil and water conservation also underwent adjustments. The Soil Conservation and Rivers Control Act 1941 established both its concomitant Soil Conservation and Rivers Control Council (SCRCC) and regionally defined catchment boards. Again, however, there remained a reluctance to regulate land use of private property holders directly and these authorities emphasised education and promotion of conservation techniques to farming communities. Land stabilisation was therefore linked to productive land utilisation for agricultural production, maintaining the crucial link to utilitarian land use so prevalent in New Zealand's post-European exploitation.<sup>505</sup> Only with the introduction and subsequent implementation of the Resource Management Act has this utilitarian relationship with the environment been challenged with the focus transferring to ongoing resource sustainability. The ultimate effectiveness of this legislation in achieving these ends is still being debated.<sup>506</sup>

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<sup>503</sup> Ibid., pp.185-7.

<sup>504</sup> Ibid., pp.190-1.

<sup>505</sup> Ibid., pp.192-195.

<sup>506</sup> Nicola Wheen, 'A history of New Zealand Environmental Law', in Eric Pawson & Tom Brooking, eds. *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, Victoria, 2002, pp.272-274.



## APPENDIX B: ANNOTATED BIBLIOGRAPHY

558. This annotated bibliography covers the major historical sources used for the preparation of this report. Those listed are far from the only sources consulted but rather the ones which are of note for future research. Several of these sources provide a wealth of information for future research but some will not provide useful information. Several sources – particularly archival sources, but also secondary sources like some local histories – are not as useful as their titles might suggest. Sources found to have little value have been noted here for this reason. This is usually because they provide little or no information that is relevant to the questions and problems faced by the claimants or the project brief.
559. Finding sources on environmental problems in Crown archives can be problematic due to the way in which the Crown generates documents. By its nature the Crown only creates a record of its activities when it recognises the need to act. Records will not exist on an environmental issue until the Crown recognised the problem and created a bureaucratic structure to manage it. However, records can sometimes be located if a member of the public made an inquiry on an environmental issue and that person was given a response from an official.
560. Local government material poses its own set of challenges. Unlike central government, local bodies have not generally been good record keepers. Local bodies have never had large numbers of staff to generate records like central government and often not had the facilities to manage records for a long period of time. If records survive, they may not be accessible or properly indexed. Many organisations created to manage environmental problems, such as rabbit or catchment boards, have kept some records which are now in the trust of district councils. However, these files are often of little use as they mainly describe the administration of the organisations rather than its environmental outcomes. Their files deal almost exclusively with elections to boards, the collection of rates, and the hiring of staff and contractors. More deal can be found in files from the 1970s onwards but a complete analysis of these files would be time consuming and provide little useful information for claimants.

561. One recent development that will aid future research is the Archive Central project by the Horizons Regional Council and its district councils to index their pre-1989 records and house them in one location in Fielding. While this research was not able to make full use of this project, the new facility should be complete by the time a full report is commenced. The archive index can be searched at: <http://archivescentral.org.nz/>. This project will make searching and viewing the inquiry districts local body archives as simple as those of National Archives.
562. Another problem is the lack of archival and secondary sources on wahi tapu and portable taonga issues that are relevant to the district. Maori perspectives are noticeably lacking from environmental records and historical records on Maori spiritual values are almost non-existent even in areas of overlap with Pakeha values, such as in burial grounds. Any further research on wahi tapu issues in the district must be driven by claimant knowledge rather than published or archival texts. However, due to the complexity of the DOC regime and the time available, this report has not been able to include files currently being used by DOC. These files could provide more information on wahi tapu problems experienced in recent years.

## **GENERAL AND NATIONAL ENVIRONMENTAL HISTORIES**

**F. Allsop, *The First Fifty Years of New Zealand's Forest Service*, Government Printer, Wellington, 1973**

Allsop had a long career in forestry in Burma and then New Zealand after the Second World War and spent two and a half years working in public relations for the Forestry Service. The book is effectively an official history of the department from 1919 to 1969. In 121 pages it covers the formation of forest policy during that time and legislative and bureaucratic structures that it worked under. The book has policy information but little detail of specific relevance to the inquiry district.

**Rollo Arnold, *New Zealand's Burning: the Settler's World in the Mid 1880s*, Victoria, Wellington, 1994**

Arnold was Professor Emeritus of Education at Victoria University. The book is an extensive history of settler life in New Zealand during the 1870s and 1880s. It focuses much of the discussion on the role and dangers of fire on urban and rural life including forestry. It is a

quality, but largely Pakeha, social history that describes many of the environmental and economic changes that settlers brought to the country in this period. It has little information of direct relevance to the events in the inquiry district, but it is valuable for the national environmental context in which events the district occurred.

**L.W. McCaskill. *Hold This Land: A History of Soil Conservation in New Zealand*, Reed, Wellington, 1973**

McCaskill was a major advocate for soil conservation in the 1930s and became a tutor of soil conservation at Lincoln College during the 1940s and 1950s. The book describes in some detail the issues of soil conservation and the introduction of soil control legislation and the local boards which managed the problem. The book only lightly touches on the inquiry district, but provides invaluable information on the pre-RMA soil management regime.

**K.B. Cumberland, *Soil Erosion in New Zealand, a geographic reconnaissance*, Soil Conservation & Rivers Control Council, 1944**

Unlike McCaskill's policy orientated work, Cumberland's *Soil Erosion in New Zealand* is a geographic survey of soil conditions across the country, although it does make some policy recommendations. The work appeared after the introduction of the Soil Conservation and Rivers Control Act 1941. It has great detail on soil conditions in New Zealand during the first half of the 20<sup>th</sup> century.

**Stephen Dovers (ed.) *Environmental History and Policy*, Oxford University Press, Melbourne, 2000**

This edited volume covers a large number of issues in environmental history and policy. It focuses on Australia, but many of the issues are applicable to New Zealand. These issues include soil conservation and forestry, but the book also has a strong emphasis on the relationship between communities and the environment. Of particular interest are chapters on community histories and the role of oral history and ecological knowledge. The book also has use for the portable taonga section as it includes a section on museum objects.

**R. M. McDowall, *Game Keepers for the Nation, the story of New Zealand's acclimatisation societies 1861-1990*, Canterbury University Press, 1994**

MacDowall worked as a scientist for NIWA and MAF, and was a fellow of the Royal Society of New Zealand. At 508 pages this constitutes a major study of acclimatisation in New Zealand. It is best described as a natural history as it concentrates on the species that were introduced and how they were managed. There is little on the inquiry district specifically but the book is a crucial in understanding the role of acclimatisation societies, government policy and the understanding of the environment under which the societies operated. The book also contains a great deal of information on a number of species, including eel, that is of interest to the claimants.

**R.S Fletcher, *Single Track, the construction of the North Island Main Truck Railway*, Collins, Auckland, 1978.**

Fletcher had a long career in the Lands and Survey and Railway Departments. The book is an extensive study of the construction of the NIMTR. It has a section on the construction of the railway through the central plateau and Taihape. The text is of use because it describes the introduction of the infrastructure at facilitated farm development and forestry in the inquiry district.

**Andrew Kirkland and Peter Berg, *A Century of State-Honed Enterprise, 100 years of State Plantation Forestry in New Zealand*, Profile Books, Auckland, 1997**

Kirkland and Berg both had long careers in the NZ Forest Service. The book follows the development of state run plantation forestry in New Zealand. It is somewhat thinner than other forestry histories available and has a large number of photographs. It provides a large amount of information on some of the scientific developments in New Zealand exotic forestry.

**Cathy Marr, Robin Hodge, and Ben White, *Crown Laws, Policies, and Practices in Relation to Flora and Fauna, 1840-1912*, Waitangi Tribunal Publication, 2001**

This report was commissioned by the Waitangi Tribunal for the Indigenous Flora and Fauna and Maori Intellectual and Cultural Property (Wai 262) claim. The report is extensive (455 pages) and brings together the issues around ecology, Maori legal and customary rights, international perspectives, English common law, acclimatisation, scenery preservation, forestry, Maori authority over the environment, and petitions to Parliament on flora and fauna. This is an essential text for research on Maori and environmental policy.

**David Miller, *Biological Control of Weeds in New Zealand 1927-48*, DSIR Information Series no. 74, Wellington, 1970**

Millar covers the studies undertaken during the 20<sup>th</sup> century on the control of weeds by the use of introduced fauna. It has some information on the scientific understanding of weeds, pesticide use and acclimatisation at the time.

**Eric Pawson and Tom Brooking (eds), *Environmental Histories of New Zealand*, Oxford University Press, Melbourne, 2004**

This edited volume is crucial reading for environmental history research in New Zealand. The book has chapters written by several important environmental history authors such as Nicola Wheen, Michael Roche, Geoff Park, and Evelyn Stokes. The book covers changes in the New Zealand environment from pre-European times. The book covers both Maori and European perspectives on the environment and shows how government policy has affected environmental change.

**M.M. Roche, *Forest Policy in New Zealand, An historical geography, 1840-1919*, Dunmore Press, Palmerston North, 1987**

Michael Roche is a prolific writer on the history of forestry in New Zealand. This 1987 text is one of his earlier forestry histories. It is smaller (142 pages) than his later *History of New Zealand Forestry*. It provides a great deal of information on the destruction of indigenous forests and the introduction of forestry regulation in the 19<sup>th</sup> century. It also provides some detail on the introduction of exotic forestry in New Zealand.

**Michael Roche, *History of New Zealand Forestry*, NZ Forestry Corporation Limited & GP Books, 1990**

Building from his 1987 history, Roche extends his history of forestry out to European contact and to changes occurring at the time of publication. Roche outlines the policies of the New Zealand Forest Service and covers the shift in attitudes that occurs during the 1960s and 1970s and the development of conservation beyond the needs for scenery and soil retention. It is probably the most detailed history of New Zealand forestry available. Its information on the inquiry district is limited but it is still an important resource.

**Geoff Park, *Nga Uruora (the groves of life), ecology & history in a New Zealand landscape*, Victoria University Press, Wellington, 1995**

Geoff Park was a research scientist for the Department of Conservation and is a major author in New Zealand environmental history. *Nga Uruora* blends ecology, history and personal experience to provide an extensive work on the relationship between New Zealand's and their environment. It brings together the changing ideas about the environment through the process of European settlement and its effect on Maori. While it is written in a more relaxed style than other texts, it still brings provides an immense amount of detail on the history of Maori and environmental change.

**Rachael Selby, Pataka Moore and Malcolm Mulholland (eds), *Maori and the Environment: Kaitiaki*, Huia, 2010**

This edited volume is an important addition to the literature as it is a work of Maori perspectives on the environment and resource management. The book is divided into three sections, Kaitiakitanga, Wai Maori, and Heritage Protection. A number of notable Maori academics and activists write on a range of current and future environmental issues. Of particular interest to the Taihape Inquiry district is Te Rina Warren's chapter 'Nga Pae o Rangitikei – a model for collective action?'

## LOCAL HISTORIES AND ISSUES

**Phyllis Arthur (ed), *Waiouru, Land of Tussock, 1935-40*, Taihape Times, 1984**

This book is made of letters sent by Cedric H. Arthur to his fiancé between 1936 and 1940. Arthur was a farmer on the tussock lands in the north of the inquiry district. It provides an insight into farm practice and settler life in this region of the country during this period.

**Ruth Ann Beanland, 'Implementation of Sustainable Resource Management, A Process for Environmental Evaluation Aorangi Awarua Case Study', Master of Resource and Environmental Planning, Massey University, 1992.**

This is a substantial master's thesis written during the introduction of the Resource Management Act. The thesis explores the new approach to resource management using the Aorangi-Awarua logging proposals as a case study. It provides some background for the case but lacks footnotes for many assertions. For this reason the thesis was not referenced for this report. Direct access to primary documents is crucial to properly explore the issues surrounding the logging proposals.

**Christopher Lethbridge, *Sunrise on the Hills, a musterer's year on Ngamatea*, Hodder and Stoughton, Auckland, 1971**

This is a memoir of one year on Ngamatea in the late 1960s. It is professionally written and quite detailed. It includes a large amount of historical information for a memoir. This book's best feature would be its description of farm practice at the time. Riseborough's text gives a much more complete picture of the sheep station.

**J. Logie, J. Mellor, and S. Sterling, *Challenges in Environmental Management*, Geography Resource Centre, Christchurch, 1991.**

This 109 page text was written as a resource for secondary school geography teachers. Susan Sterling's 65 page section on the Aorangi-Awarua logging issue is the part of interest to the inquiry district. The book provides a simple overview of the issues, but has much less detail than either the Beanland thesis or the available primary sources.

**John E. Martin, *People, Politics and Power Stations, electrical power generation in New Zealand 1880-1998*, Department of Internal Affairs, 1998**

This book was commissioned by the Electricity Corporation of New Zealand and the Department of Internal Affairs. It covers the history of New Zealand electricity generation, growth and demand, and to a lesser extent electricity transmission. It is a useful pictorial history of the country's power schemes. It has information on the Tongariro power scheme which cuts into the western edge of the inquiry district. Lake Moawhango and its dam are part of the scheme.

**Miriam Macgregor, *Mangaohane, the story of a sheep station*, Herald-Tribune Print, Hastings, 1978**

Like Riseborough's *Ngamatea*, this book is a history of one of the major sheep stations in the north of the inquiry district. However, *Mangaohane* is a much smaller text at 111 pages. It is written without references and has significantly less detail than Riseborough's work. The book provides little information on Maori issues and is limited in its explanation of farm practice. It is unlikely to be useful for future research unless specific information on Mangaohane is required.

**Paul Melody, *Tales of the Rangitikei*, Wanganui Newspapers, Marton, 1988**

This is a local history which appears to come from the archives of Wanganui Newspapers. It is not a coherent text but a series of short sections detailing a story in Rangitikei history. It focuses on the lower Rangitikei and thus mostly outside the inquiry district. It would be of little use in further research.

**Hazel Riseborough, *Ngamatea, the land & the people*, Auckland University Press, Auckland, 2006**

This is a professional history of the Ngamatea sheep station, part of the Owhaoko block, and is the product of a Ministry of Culture and Heritage grant. It is a substantial history at over 300 pages. The block is about 70,000 acres and situated in the north of the inquiry district between the Rangitikei and Ngaruroro Rivers. It is primarily a history of the operation of the station and the Pakeha families that ran it. The book begins with the introduction of settlers to Inland Patea. It is a quality resource with good information on farm practice on the station.

**Tony Robinson (ed), *West to the Annie, Renata Kawepo's Hawke's Bay Legacy*, RD9 Historical Committee, 2003**

This is a local history of an unusually high quality. It covers north eastern edge of the inquiry district out to Napier. It covers the history of the region from pre-human times. Pre-contact Maori history is unusually well covered for a local history. A chapter is devoted to land alienation before going on to the settler experience. Farming and forestry is also well covered, in addition to the social and Pakeha genealogical history that is typical of local histories. While the book only covered a limited section of the inquiry district, its depth of information on Maori topics makes it a valuable resource.

**James G. Wilson, *Early Rangitikei*, Whitcombe & Tombs Limited, 1914**

This is a major early Pakeha history of Rangitikei. At 255 pages it is far more substantial than other more recent histories. It starts with a discussion of Te Rauparaha's invasion and moves on to the time of writing. The focus of the book is on the lower Rangitikei but there is still

some discussion inside the inquiry district. It details a number of aspects of life in the area. It mentions settlement and farm development, local personalities, flora and fauna, and details Maori and Pakeha conflict and cooperation. It may be of interest for background information and for its early 20<sup>th</sup> century perspectives.

## **PUBLISHED REPORTS**

### ***Investigation into the circumstances surrounding the shooting of 13 Kaimanawa wild horses at Waiouru during the period 21-24 August 1996, New Zealand Army, Wellington, 1996***

This is a five page report into a horse shooting in 1996. It has little broader information on the management of wild horses.

### ***Kaimanawa Wild Horses Plan, DOC, December 1995***

This report is the culmination of many years of research and public consultation on the management of wild horses. This plan is the basis for the current management frameworks for wild horses. It is very detailed and is essential for further research on the Kaimanawa wild horses.

### ***Moawhango Ecology, native plants at risk, DOC, July 1997***

This is a 7 page pictorial pamphlet describing the threatened plants of the Moawhango Ecological District.

### **Usharani Amaranathan, 'Prioritisation of Wetlands of the Rangitikei Catchment', Master of Applied Science in Natural Resource Management, Massey University, 2003**

This research was an attempt to prioritise 25 wetland sites in Manawatu-Rangitikei in order to allow the regional council to use its limited resources to preserve biodiversity in the wetlands of the catchment effectively. The two objectives were to maintain species diversity and eliminate threats within wetlands. The study did not include cultural/Maori values as part of its research. This work may be of use if wetlands are included in further research.

### ***B.J. Hicks, Potential Effects of Hydro-Electric Development on the Fish and Fisheries of the Rangitikei River, Fisheries Environmental Report No 52, MAF, February 1985***

This study looks at the potential for hydroelectric power development along the Rangitikei River. It covers a number of species including trout, whitebait, kahawai, mullet, flounder, koaro, and bully. This report is unlikely to be of great use to further research as hydroelectric development has not occurred on the river.

**C.M. Lake and K.J. Whaley, *Rangitikei Ecological Region, Survey Report for the Protected Natural Areas Programme*, DOC, 1995**

This is a major survey of the former Rangitikei Ecological Region. In over 300 pages it catalogues the natural protected areas. It provides a wealth of information on details such as maps, geology, vegetation, fauna, threats and the significance of the sites to DOC. It has been of significant use to this report and would be of great use to further research.

**W.L. Linklater, E.Z. Cameron, K.J. Stafford and E.O. Minot, *Estimating Kaimanawa feral horse population and growth*, Science & Research Internal Report 185, DOC, March 2001**

This report explores various methods of establishing the wild horse population. It notes that counts made in the past using helicopters may have overestimated the horse population. It suggests a number of better alternatives to assess the population.

**C.C. Ogle and P. Clerke, *Conservation of Botanical and Wildlife Values of Ngamatea Swamp, Waiouru*, Science and Research Internal Report No. 37, DOC, December 1988**

This short report looks at a swamp which resides just south of Waiouru and slightly outside of the western edge of the Inquiry District. The swamp has been subject to severe modification through fire, grazing, drainage and other factors. This report finds that a 1978 environmental impact assessment failed to identify many plant species which were still present. The new report believes there was reason for protection of the swamp and recommended that drains be blocked, stock excluded and wilding pines be removed. This may be of use if this swamp was to be explored in detail.

**Geoff Rogers, *Kaimanawa Feral Horses: Recent Environmental Impacts in Their Northern Range*, DOC, 1994**

This is a short report that found the growth in the horse population continued to cause damage to rare plants in their northern range. It found the previously recommended house density of 1 horse per 250 hectares was set more in terms of protecting rare plant habitats rather than a level which would allow the long term recovery of tussock grasslands.

**G.M. Rogers, *Moawhango Ecological Region, Survey Report for the Protected Natural Areas Programme*, DOC, 1993**

This is a similar catalogue to the 1995 *Rangitikei Ecological Region* survey. It provides details such as maps, geology, vegetation, fauna, threats and the significance of the sites to DOC. It would also be of great benefit to further research.

## MAJOR ARCHIVAL SOURCES

### Refuse

#### *National Archives*

#### **National Archives: AAZU W3619 39 33E-8-79 Taihape Sewage Scheme Refuse Tip Site 1979-1981**

This is a short file. It involves discussion between Lands and Survey and the Taihape Borough over a proposed sewage scheme and its effect on the landfill and scenic reserve. Its parent file has been lost.

#### *Rangitikei Council Marton*

#### **RRC 00070:20:2 Refuse Collection and Tip 1950-1989**

This file covers the management of landfills in the inquiry district over a long period of time. Most of the information relates to the Taihape landfill. While most of the file relates to irrelevant topics, there is some discussion of issues like the landfill's effects on water quality. It contains letter from the Wellington Acclimatisation Society regarding concerns about water quality.

#### *Horizons*

#### **HRC 00049 : 20 : W327/400 Rangitikei Catchment - Rubbish Tips 1975-1989**

This file relates to water contamination at the Taihape landfill. It includes photos.

### Pest Control

#### *National Archives*

#### **AAFZ W1708 412 10 10-4-42 1918 Request for Information about Rabbit destruction in Waiouru 1918-1920**

This is 22 Page file about concerns about rabbit destruction and the failure of the Waiouru Station to control rabbits. The child file is empty.

**AAFZ W5704 412 276 70-10-111 20649 Noxious Weeds Act - Hunterville Town Board 1907-1951**

This file shows the attempts to control weeds in the town during the first half of the 20<sup>th</sup> century. It is typical of pest control files and is not of any particular value. Such files tend to describe the systems to generate funds for pest control rather than the specific methods used to eradicate weeds. However, this file does give a run down on the types of plants that were considered a pest during this period.

**AAZU W3619 18 9-8-73 Kaimanawa Ranges Platypus Infestation 1973**

This is an 11 page file about concerns over the death of beech trees in the Kaimanawa Ranges and an infestation of *Platypus spp* (Ambrosia beetle) being the suspected cause.

**ABFK W4776 7291 19 203-192-14 1 Army Camp Wild Animal Control 1978-1980**

This file involves the management of pests on Army land at Waiouru. It refers to largely to the various methods employed to poison rabbits including 1080.

**F1W3129 285 89-1-1-2 2 Deer Poisons and Bait Trials - Kaingaroa State Forest and Kaimanawa State Forest 1960-1962**

This file covers deer and rabbit poisoning in the states forests.

*Rangitikei Council Marton*

**RDC 00046 : 5 : 25 Noxious Weeds 1920-1926**

This file is notable for its details of the types of plants that were considered weeds in the area and their scheduling as pests under the Noxious Weeds Act 1908. There are many more files like this available, although there is very little value in these files.

**RDC 00046 : 6 : 35 Rabbit Board - Rangitikei - Turakina River 1921 - Moawhango Rabbit Dist - Gates on Road 1923 - 37 Rabbit Board Rabbit Control 1921 – 29**

This file is typical of many of the files on pest control. It details operations of the board, the hiring of inspectors and the raising of revenue but says little about the methods used to control rabbits. There is however some mention of the rabbit proof fences that owners were required to construct at times.

**RDC 00065 : 52 : I/4/14 Noxious Weeds – Chemicals 1977-1978**

This file is unusually valuable as it records the tenders for weeds control contracts, the chemicals, and the quantities purchased during this period. 'RDC 00079 : 41 : W40/0004' may also provide similar information from the 1980s.

### **RE3-7 v5 Animal Pest Control Regional Council 2005-2008**

This file contains a review of the effects of 1080 possum control in the Kaimanawa ranges during 2004. The remainder of the file is correspondence between the Rangitikei District and Horizons Regional councils. This is an active file of the district council.

## **Otumore**

*National Archives*

### **AADX W3142 93 140-7 Outmore Map 1959**

This file only contains an aerial photograph of Otumore

### **AAMK W3074 869 78d 5-9-203 Maori Trust Mortgages - Otumore 1962-1974**

### **AANS W5491 828 842 9-3-143 Offer of Land Otumore Blocks 1962**

### **ABWN W5021 6095 309 10-95-42 1 Land for State Forest - Mangoiria & Otumore 1937-1963**

### **MA 1 1386 1926-184 Potaka complains of the shortage of the area - Otumore 1926-1933**

These files are important as they show how the Otumore block came into Crown ownership. They detail the purchase of the block and the lack of consultation with the owners. They do not relate to environmental matters, but rather the survey costs on the block and its change of ownership. Most of the correspondence is from the NZ Forest Service and Lands and Survey.

### **MA1 931 1907-631 Petition Raumaewa te Rango - Rehearing of Otumore 1907**

This file contains a petition asking for a rehearing of Otumore in the Native Land Court.

## **Metal, Soil and Water**

**AAFY W5721 598 7 16-34-14 Soil Conservation Reserve Waiouru**

This outlines some of the water and soil experiments that were undertaken at the Experimental Area at Waiouru in the 1950s and 1960s. This is mainly of interest in terms of agricultural research that was undertaken in the district. It would probably only be of interest if there is claimant interest in the site.

**AAQB W3950 889 106 23-406-8-1 Army Camp Sewerage Treatment Septic Tank 1958-1980**

This file details the problems with the Army's disposal of sewerage into rivers. The file includes water quality sampling data from the 1950s onwards and may be of use in future environmental research that includes water issues.

**AATE W3397 43 74-13-23 Slope Stability in relation to soil types Ohingati-Mangaweka Rangitikei Valley 1977-1983**

This file details research undertaken through the University of Auckland in the late 1970s into soil stability in the middle of the district. It was a major problem during this period. A number of Horizons files deal with this issue as well.

**ABZK W5484 22670 94 The Geology of Rangitikei Valley - M T Te Punga 1953**

This is a scientific report on the geology of the Rangitikei area published by the DSIR and Victoria University College. At 48 pages it is a significant study of the geology to that time.

**MA1 927 1907-517 1907 Chief Engineer Roads Metal Pits and Royalties**

This is a small file dealing with royalties for road metal in the Waiouru area around 1907. It does not have much detail but it does involve Maori owners and it also has maps showing metal pit locations.

*Rangitikei Council Marton*

**RDC 00046 : 5 : 6 Moawhango Ballast Pit - Burrige S V - Metal Pit 1922**

This file details the management of a metal pit in the Moawhango River. Only of use if metal pits in this river become an issue in future research.

**RDC 00065 : 16 : L/2/4/2 Water and Soil Conservation 1967-1979**

This file covers a large number of water and soil issues and covers the correspondence between the county council, the catchment board, acclimatisation society, and central government agencies. It includes information on the Ngamatea swamp.

### *Horizons*

#### **HRC 00048 : 14 : A13/1 SC & RCC & NWASCO Circulars - Correspondence Relating To 1963-1982 & 1986-1988**

This file contains correspondence on a number of issues relating to water quality due to industrial activities in the area. Most of the information relates to abattoirs and piggeries.

#### **HRC 00051 : 1 : 10 Farm Plan - AN Adlam - Mataroa Road – Taihape 1966-1970**

This file is typical of the farm plans that were developed during this period. Many of these farm plans are recorded in council archives. These plans cover issues such as geology, climate and pest control. There are never any specifically Maori concerns in these farm plans.

#### **HRC 00042 : 2 : 8/1 Aerial Topdressing 1949-1951, 1957**

This file details the introduction of topdressing into the inquiry district after the Second World War. It includes details of a subsidy given for experiments into topdressing.

## **Flora and Fauna**

### *National Archives*

#### **IA1 1946 47-22 1 Wildlife - Birds - Huia - Protection of**

This is an extensive file stretching the years from 1914 to 1953. It chronicles the searches for the huia and the eventual realisation that it had become extinct. It is an important file for understanding Crown policy towards the bird. The activity in the file is largely outside the district. The loss of the huia has been specifically mentioned to the research team by claimants.

#### **AFIE 6905 223/6905 90/1 1 Kaimanawa Wild Horse Committee 1978-1980**

#### **AANS W3832 37 33-5-69 2 Kaimanawa Wild Horses 85-86**

#### **AFIE W5683 6905 190 90-9 Kaimanawa Wild Horse Herds 1978-1989**

#### **AFIE W5683 7536 215 WIL 33-5-69 Kaimanawa Wild Horses 1979-1984**

These files provide an insight into the management and growth the of wild horse herd from their protection in the late 1970s. Several of the files (particularly 33/5/69) contain reports and scientific data collected at the time. These files are crucial in understanding the development of Crown policy toward the horses. There are a small number of other files in archives that could not be reviewed for this report. There were also a small number of files relating to wild horses from the early 20<sup>th</sup> century. However, these were not references to Kaimanawa horses.

### *Horizons*

#### **HRC 00049 : 15 : W327/220/1 Rangitikei Catchment - Fisheries - Wgtn Acclimatisation Soc 1971-1986**

This file contains correspondence between the catchment board and the Wellington Acclimatisation Society on water quality and fish life in the Rangitikei catchment area. This file would be valuable for future research.

### **Forestry**

There are a large number of files in National Archives relating to the Kaimanawa, Kaweka and Ruahine Forest Parks. However, the large bulk of these are made up of technical files which are of little value in understanding how the parks operated at a policy level and the role of Maori (or lack thereof) in the parks' management. The most useful documents in archives are the management plans that began to be developed from the 1960s. The process of creating such plans does not seem to have been applied consistently across the three forest parks. The reports made for the Kaimanawa Forest Park are much more detailed than documents pertaining to the other two parks. No information was discovered relating to Maori involvement in the management of these parks during their management by the NZ Forest Service.

### *National Archives*

#### **AANI W3087 2 Working Plans Kaimana State Forest Park Management Plan 1978-1988**

#### **AANI W3087 2 Working Plans Kaweka State Forest 1968-1973**

#### **AFIE 6905 W5683 167 30/24/5/1 [6] Management - Ruahine State Forest Park - Management plan 1977-1986**

#### **ABDT W3092 48 Ruahine and Kaweka Forest Working Plans 1953-1963**

These files are useful as they layout the plan for the forests for up to a decade. The 1978 Kaimanawa plan is the most detailed. It covers the climate, the geology, flora, fauna,

recreation, fire control, pest control and land acquisition plans. It even provides a short history of the area. This brief history sees Maori history as primarily as archaeology, with only minor acknowledgment of tradition. The Kaweka and Ruahine plans are similar but concentrate on more technical issues. All these files would be of use to understand forest management during this time period. There is no evidence of participation of Maori in the creation of these plans.

**AAZU W3619 31/6/74 AAZU W3619 22 31-6-74 Aorangi-Awarua Maori Trust Block Indigenous Forest Logging 1974**

This is a DOC file relating to the Aorangi-Awarua logging proposals. It has considerably less information than the catchment board file found at Horizons. This file has details of meetings on the possibility of rate relief in exchange for the protection of indigenous forests. It also contains letters from environmental pressure groups. This file has been extensively written up as part of this report.

*Horizons*

**HRC 00050:29:327/391 Aorangi Awarua Maori Blocks 1974-1989**

This file is from the former catchment board and details the effects made by the board to prevent logging of the Aorangi-Awarua blocks. It has been extensively written up as part of this report.

**HRC 00049 : 21 : W327/450 Rangitikei Catchment - Swamp Drainage 1979-1982**

This file has details on the management and drainage of the Ngamatea Swamp at Waiouru. It would be of interest if further research is done on the swamp.

**HRC 00027 : 91 : 3527 Water Right: Taihape Sawmill - Abattoir Road – Taihape 1989-1991**

This file is an application for water use at a timber treatment facility in Taihape. It has several details about the operation of the plant.

**WAHI TAPU AND PORTABLE TAONGA**

**D.T. Butts, *Maori Amulets of Rangitikei, Manawatu, Horowhenua, Palmerston North Museum, c.1980***

This is a pamphlet cataloguing Maori amulets such as hei tiki from Rangitikei, Manawatu, and Horowhenua. In 12 pages it covers a number of artefacts from these areas in an academic description. It may be of use in further discussions with claimants.

**Geoff Park, *Nga Uruora (the groves of life), ecology & history in a New Zealand landscape*, Victoria University Press, Wellington, 1995**

Geoff Park was a research scientist for the Department of Conservation and is a major author in New Zealand environmental history. *Nga Uruora* blends ecology, history and personal experience to provide an extensive work on the relationship between New Zealand's and their environment. It brings together the changing ideas about the environment through the process of European settlement and its effect on Maori. While it is written in a more relaxed style than other texts, it still brings provides an immense amount of detail on the history of Maori and environmental change.

**Rachael Selby, Pataka Moore and Malcolm Mulholland (eds), *Maori and the Environment: Kaitiaki, Huia*, 2010**

This edited volume is an important addition to the literature as it is a work of Maori perspectives on the environment and resource management. The book is divided into three sections, Kaitiakitanga, Wai Maori, and Heritage Protection. A number of notable Maori academics and activists write on a range of current and future environmental issues. Of particular interest to the Taihape Inquiry district is Te Rina Warren's chapter 'Nga Pae o Rangitikei – a model for collective action?'

**William J. Phillipps, *Carved Maori Houses of Western and Northern Areas of New Zealand*, Dominion Museum Monograph No 9, Government Printer, Wellington, 1955**

This book is a catalogue of whare whakairo across the western side of the North Island. It has details of around four carved houses in the inquiry district. These are Matangi's House at Whitianga, Pouroa; Whitikaupeka and Orumatua at Moawhango; and Tumakaurangi at Opaea, Taihape. It provides a black and white photograph of each whare and around a paragraph of text on each one. This book would only be of interest if these whare are of interest to the claimants for further research on wahi tapu or portable taonga.

*National Archives*

**IA1 1946 47/22/2 Wildlife - Birds - Huia feathers – Permits**

This short file from 1950 explains the rules surrounding the ownership of Huia feathers under the Animals Protection and Game Act of 1921-22.

**MA1 1538 1930/459 Legislation preventing the desecration of Maori Graves or Wahi Tapu 1930**

This is a brief file which shows the drafting of the Native Land Amendment and Native Lands Adjustment Act 1930. This law change required native land boards to protect urupa from alienation or 'by such means as to the Board shall seem sufficient for the purpose.'

**AAQB W3950 889 104 23-406-1-8 1 1960-1975 Army Camp - Land Taken for Defence Forest Land Co & Tussock**

**AAQB W3950 889 104 23-406 1 1945-1980 Waiouru Army Camp General Developments**

These files detail the expansion of the Army Camp during the post-Second World War period. This is extensive and shows the lack consultation with Maori on an area that would become closed to the public for defence reasons. Claimants have expressed concerns about access to wahi tapu in the defence area.

## APPENDIX C: MEETINGS WITH CLAIMANTS

The Massey team met with claimants to identify and discuss claims issues and matters relating to Environmental Impacts, Resource Management, Wahi Tapu and Portable Taonga in the Taihape inquiry.

Claimant meetings;

25 October 2011

CFRT Introductory Hui

Unclustered claimants, Not Mokai Patea, some Ngati Hinemanu me Ngati Paki

Taihape Townhall

26 October 2011

Morning

Mokai Patea

Moawhango Marae

Afternoon

Ngati Hinemanu me Ngati Paki

8197B SH 1, Taihape, 4795

21 November 2011

Ngati Hinemanu me Ngati Paki

8197B SH 1, Taihape, 4795

22 November 2011

Mokai Patea

130 Hautapu St, Taihape

25 January 2012

CFRT Hui

Unclustered claimants, Not Mokai Patea, some Ngati Hinemanu me Ngati Paki

Taihape Townhall

2 March 2012

Morning

Mokai Patea

130 Hautapu St, Taihape

Afternoon

CFRT Feedback Hui

Taihape Town Hall

Ngati Kauwhata Claimants

Meetings with counsel, Moana Sinclair, 3 November 2011 and Leo Watson, 3 November 2011.



## **APPENDIX D: FINAL PROJECT BRIEF:**

### **Taihape Inquiry District: Environmental Impacts, Resource-Management and Wāhi Tapu and Portable Taonga Scoping Report**

**Timeframe:** 20 weeks (up to 800 contracted hours)

#### **Background to the Project and Inquiry:**

The Environmental Impacts, Resource-Management and Wāhi Tapu and Portable Taonga Scoping Report will be commissioned as part of the technical research programme for the Taihape district inquiry.

In 2008 the Waitangi Tribunal initiated engagement across a region from Taihape to Porirua and held two consultative judicial conferences in April and August 2009. The Tribunal subsequently split the region into two districts, one being the 'Taihape: Rangitikei ki Rangipo' inquiry district. A map of the Taihape inquiry district is provided at Appendix 1.

In October 2009 the Trust agreed to fund a district research scoping report for the Taihape district inquiry. The Trust also agreed to fund a series of research assistance projects, and to provide resourcing to commence a GIS mapping exercise jointly covering the Taihape and Porirua ki Manawatu inquiry districts.

The Taihape inquiry technical research scoping report, undertaken by Bruce Stirling and Evald Subasic, was completed in August 2010.<sup>507</sup> Four of the five research assistance projects have been completed, with a fifth due in August 2011.

The Waitangi Tribunal held a judicial conference in November 2010 to consider the technical research scoping report and the subsequent recommendations made in a Waitangi Tribunal staff discussion paper. Consensus was apparent at the judicial conference in favour of 10 topics, which Chief Judge Isaac endorsed in December 2010.<sup>508</sup> This project forms part of the set of agreed research topics.

The Environmental Impacts, Resource-Management and Wāhi Tapu and Portable Taonga Scoping Report is commissioned on behalf of all claimants in the inquiry, not for individual claimants or claimant groups. Support to file this report on the record of inquiry will be sought from all claimants. The Trust will provide the Contractor with a list of claimants and Wai claim numbers relating to the inquiry.

#### **Project Purpose:**

#### **Part One: Environmental Impacts and Resource-Management**

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<sup>507</sup> Bruce Stirling & Evald Subasic, 'Taihape: Rangitikei ki Rangipo Inquiry District Technical Research Scoping Report', August 2010, CFRT, doc Wai 2180, # A2

<sup>508</sup> Memorandum-directions of the Presiding Officer approving a research programme for the Taihape inquiry, 20 December 2010, doc Wai 2180, #2.5.18

The scoping report will:

- Ascertain what land-based environmental issues and locations require substantive research for the Taihape inquiry and in consultation with clients, identify suitable case-studies for the substantive research project;
- Identify, locate and assess primary and secondary sources relating to land-based environmental issues in the Taihape inquiry, in an annotated bibliography.
- Assess the feasibility, scope, extent, timeframes and resourcing (including human resourcing) of any research needed to complete a substantive report.

### **Themes and Topics**

The scoping report will focus on the following topics and issues:

- Environmental geography of the Taihape inquiry district
- Customary Māori use of the natural environment, settlement patterns, resource use and management, and environmental change
- How engagements with the Taihape environment are reflected in Maori cultural and spiritual values.
- The economic significance of land and resource use to tangata whenua.
- Environmental history; an overview of the progression of farm settlement through the catchment area, timber milling, the development of townships, and the expansion of farming
- The nature and extent of environmental change following settlement, notably the impact of bush clearance, the transformation of land into pasture, and erosion issues which followed
- Inquiries into forest use, control of native timber extraction, and moves towards forest preservation and conservation, particularly on steeper lands (or in water catchment areas deemed significant to settler interests), and the extent to which Māori interests and resource uses were recognised, accommodated, or compensated for (including in relation to proposals for milling in the vicinity of Aorangi in the early 1990s, and the compulsory alienation of Otumore for addition to an existing forest park)
- Establishment of management regimes for wildlife, including native birds as well as introduced species (such as deer), and the extent to which Māori resource use was recognised and accommodated
- Claims by the Crown to ownership of non-land based resources, if applicable to this district
- Establishment and empowerment of acclimatization societies, the role of those societies and government agencies in the introduction and management of exotic species (including pests, pest control, and noxious plants), the impact of these species on customary Māori resources, and the extent to which Māori resource use was recognised and accommodated

- Management of mahinga kai including wetland resources notably harakeke, other plants and fisheries<sup>509</sup>, (excluding rivers), and the protection (or otherwise) of wāhi tapu and other sites of significance (including maunga)
- The significance of the Kaimanawa wild horses to tangata whenua, and the extent to which their interests have been recognised and accommodated in the management of the horses.

The impact of legislation relating to the management and protection of the natural resources of the Taihape inquiry district is a key issue and should include but not be restricted to the following issues and legislation:

- What past and present role have tangata whenua had in environmental management of the lands contained within the Taihape inquiry district?
- What options and structures have existed for tangata whenua to voice concerns and or participate in environmental management at the central and local government level? (Department of Conservation management of the Ruahine and Kaweka Forest Parks, and possibly the Tongariro National Park?)
- To what extent have the Crown and local bodies recognised the interest of tangata whenua as kaitiaki for the natural environment and have fora been provided for active involvement?
- What have been the impacts of the following (non-exhaustive) list of legislation:
  - The Water and Soil Conservation Act 1967
  - The Conservation Act, 1987
  - The Resource Management Act, 1991
  - The Environment Act, 1986
  - Te Ture Whenua Maori Act, 1993

Mana Wahine: any issues relating to Mana Wahine will be considered throughout the brief when evaluating the experiences of tangata whenua within the scope of this project.

## **Part Two: Wāhi Tapu and Portable Taonga**

The scoping report will:

- identify issues relevant to wāhi tapu and portable taonga in the Taihape inquiry and ascertain which issues and locations require research
- Identify and assess primary and secondary sources relating to wāhi tapu and portable taonga in the Taihape inquiry, in an annotated bibliography.
- make recommendations on the feasibility, scope, extent and resourcing of any further research required, in particular:
  - whether such research is best undertaken in a separate substantive report

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<sup>509</sup> In Memorandum-directions of the Presiding Officer approving a research programme for the Taihape inquiry, 20 December 2010, doc Wai 2180, #2.5.18 page 11: the extent and effects of the exploitation of wetlands resources including drainage is raised under the Rangitikei river section. Those wetlands not associated with the rivers and waterways are the subject of this scoping report.

- alternatively whether the topic can be dealt with by other casebook research reports
- the approach and methodology best suited to the identified research requirements
- resourcing, including human resources, and timeframes to complete any required substantive research

### **Themes and Topics:**

The scoping report will assess the relevance and extent of the following general historical and contemporary themes in the Taihape inquiry district:

- To what extent have tangata whenua, and the Crown participated in the management and protection of wāhi tapu and portable taonga, and with what effect?
- To what extent has the Crown responded to any concerns expressed by tangata whenua concerning wāhi tapu and portable taonga, and with what effect?

In the context of these themes the scoping report will evaluate the following topics, including but not restricted to:

- in Māori terms the definition of wāhi tapu
- the attitude of Crown and Māori to urupa and wāhi tapu at the time of land purchase, i.e. whether such places should be reserved or not
- whether there was an assumption among Māori that these places would be respected regardless of the legal status of the land
- any incidents of looting or desecration, and how the Crown reacted to any Māori complaints
- legislative protections afforded to wāhi tapu on Crown and settler land in the nineteenth century, and if not the avenues (if any) available to Māori seeking to protect sites
- the manner in which legislative enactments from the early-twentieth century attempted to provide more effective mechanisms for the protection of wāhi tapu, or aid Māori in protecting sites on their own lands, and the effectiveness of these mechanisms
- whether the provisions of the Māori Councils Act 1900 (and its 1903 amendment) as well as provisions of;
  - the Māori Social and Economic Advancement Act 1945
  - The Antiquities Act 1975
  - The Resource Management Act 1991
  - The Historic Places Act 1993
 or other legislation, provided an opportunity for protection of wāhi tapu and portable taonga, and if so with what degree of effectiveness
- whether the Department of Conservation (DOC) and legislation has proved an effective custodian of wāhi tapu, the procedures for consultation of Māori by DOC, how Māori values are accommodated by the Department, and the extent to which Māori are involved in site management
- Whether taonga from the Taihape district are held in museums, and the attitude of the museums and tangata whenua towards repatriation

- **Mana Wahine:** any issues relating to Mana Wahine will be considered throughout the brief when evaluating the experiences of tangata whenua within the scope of this project.

### **Methodology:**

Each of the two sub-topics, Environmental Impacts, Resource-Management and Wāhi Tapu and Portable Taonga, will be organised in the following ways:

- Identify from the Statements of Claim, legal submissions and other sources provided by the Waitangi Tribunal, what land-based environmental issues and sites require research in the Taihape inquiry district.
- Undertake a systematic review of published and unpublished secondary literature bearing upon environmental, wahi tapu and portable taonga issues in the inquiry district and provide this material in an annotated bibliography for each sub-topic. The Waitangi Tribunal existing suite of district reports should be consulted, together with significant commissioned reports prepared on the same general topics for inquiries in other regions. (Environmental Impacts and Resource-Management: See list of relevant existing research below.)
- Contact relevant local authorities such as District Councils and Horizons Regional Council, the local office of the Department of Conservation, Government archival sources and any other responsible body to ascertain the survival of useful records, identify the main series of these records with relevance to the subjects being discussed in the scoping report, and provide a bibliography containing this information.
- Review the existing Taihape district technical research scoping report, and other reports and any other materials prepared by Waitangi Tribunal staff, and determine the nature and extent of issues presently articulated by claimants, and organise hui to discuss these matters with representatives of the two main cluster groups in the Taihape inquiry district.
- Make well-informed recommendations regarding case-studies, identify crucial topics and questions arising from hui and research.
- Develop a plan for substantive full research to follow for both sub-topics in this project, and indicate resources – personnel/human and resourcing generally – required and suggested time-frames for any substantive research projects. Including;
  - The identification of relevant claimants, where their interests lie in relation to lands
  - And recommendations as to the location and number of consultation/information hui required to underpin substantive research for both sub-topics.
- Identify and discuss possible methodological issues, for each sub-topic, which might arise for main report Contractor to consider.

- With assistance from the Trust, the scoping Contractor should consider the utility of preparing an initial map or plan of the Taihape inquiry district. This could be utilised in the course of consultation hui with claimants as means of initial data capture.

### **Consultation with Hapu/Iwi in the Taihape Inquiry District**

The Contractor will be available to attend two research hui facilitated by the Trust: the first to introduce the Contractor to the Taihape claimant community, and the second to receive oral feedback on the draft report.

Claimants will also have the opportunity to provide written feedback on contractors' milestones. The Contractor will advise the Trust regarding any claimant feedback received and how this has been attended to.

The Contractor will liaise with claimants and their counsel, Waitangi Tribunal staff, and the Trust's research facilitator, to identify and access source material, both written and oral. Key documents and possible case studies should be identified in consultation with the claimants.

In addition the Contractor will organise and undertake any required information-gathering hui with claimants in the Taihape inquiry district. To assist this process the Trust will provide a list of claimant contacts.

### **Consultation with other Research Providers in the Taihape Inquiry District**

Contractors will be supplied with all Phase 1 technical research projects briefs. Contractors will identify any potential areas of issue overlap with other research projects and in concert with Trust staff, advise staff and claimants on the best way to manage project overlaps.

Contractors' milestone reports will be distributed to claimants and to other contractors so that all technical research contractors can keep abreast of matters arising with sources, feedback and claim issues.

### **Sources:**

The Contractor will review holdings relevant to this topic at the usual local and national repositories: Local Government record holdings, Archives New Zealand holdings in both Wellington and probably Auckland, museum collections, including those in Napier and also the Hastings Public Library. Other possible museum sources should be investigated, including in Marton, Taihape, Whanganui and Palmerston North. The Contractor will also consult; historical manuscripts and Native Land Court minute books, official publications relevant to this topic in the New Zealand Statutes, Regulations, Gazettes, and the published Appendices to Parliamentary papers.

The reports and documents of the Trust-commissioned research assistance projects are available for use and include a large number of primary source documents for review. Limited assistance will be available for any translations required for this project. The resources include:

- Crown and Private Purchases Records & Petitions Document Bank
- Newspapers Research & Document Bank
- Native/Māori Land Court Minutes, Index & Document Bank
- Māori Land Court Records Document Bank
- Te Reo Sources Document Banks:

In the course of this project the Contractor will consult the Taihape technical research scoping report, neighbouring records of inquiry, including relevant research from these inquiries, relevant Waitangi Tribunal reports, the Waitangi Tribunal Research Discussion Paper for the Taihape district inquiry and supplementary bibliography,<sup>510</sup> other reports, maps and briefs of evidence.

The Contractor should note that the Trust has commissioned relevant research (including Claims Overview reports, Mana Whenua or Shared Interests reports and/or Sites of Significance research projects) for some clients who are or will be in direct negotiations with OTS but who have interests in this inquiry. The Trust will liaise with the Contractor and the Iwi concerned to negotiate access to client-specific negotiations research that may inform this project, in order to avoid duplication of research effort and to ensure iwi/hapu perspectives and research findings are properly considered by the Contractor.

**Some relevant sources for Environmental Impacts and Resource Management include:**

Aqualinc Research	‘Assessment of the Ground Water Resources and the Effects from Development on Groundwater in the Whanganui Inquiry District’, Wai 903, #A157 (pts 1-4) and #A157 (a).
Geoff Park	‘Effective Exclusion? An Exploratory Overview of Crown Actions and Maori Responses concerning the Indigenous Flora and Fauna, 1912-1983.’ Report Commissioned by the Waitangi Tribunal, 2001, Wai 262.
Cathy Marr	‘Wairarapa Twentieth Century Environmental Overview Report: Lands, Forests, and Coast.’ Report commissioned by the Waitangi Tribunal, August 2001, Wai 863 #A25.
Te Rina Warren	‘Nga Pae o Rangitikei – a model for collective hapu/iwi action? in Rachael Selby, Pataka Moore and Malcolm Mulholland, Maori and the Environment: Kaitiaki Wellington, (Huia Publications/Te Wananga–o-Raukawa), 2010.
Michael Belgrave, et al.,	‘Te Rohe Potae Harbours and Coast, Inland Waterways, Indigenous Flora and Fauna, Sites of Significance, and Environmental Management and Environmental Impacts Scoping Report’, CFRT Commission for Te Rohe Potae, March 2010.

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<sup>510</sup> Wai 2180, #6.2.12 and #6.2.12(a)

Paul Thomas and Brent Cowie 'The State of the Rangitikei Environment', Report to the Rangitikei District Council, 2004. (Web Site)

New Zealand Conservation Authority, *Finding Common Ground – He rapunga tahitanga: Maori customary use of native birds, plants and other traditional materials: summary*, Wellington, 1997

Jeanne Boland (ed.) *Kaitiakitanga and local government: tangata whenua participation in environmental management*, Office of the Parliamentary Commissioner for the Environment, Wellington, 1998.

### **Format and Presentation:**

- The Contractor will provide a hard and electronic copy of the draft and final report in MS Word to the Trust. The Contractor will fully proof and edit the final report and ensure that it complies with the Trust's Style Guide.
- The Contractor will liaise with Trust staff for the production of quality maps to accompany the release of the final report.
- The Environmental Impacts and Resource Management & Wahi Tapu Scoping Report will be subject to the Trust's standard quality assurance process.

# BIBLIOGRAPHY

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## **Wahi Tapu and Portable Taonga**

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Rabbit Board - Payments of Grants and Subsidies only - Moawhango	<b>1960</b>	<b>1961</b>	Ministry of Agriculture and Fisheries, Palmerston Regional North Office
Rabbit Boards - Moawhango	<b>1921</b>	<b>1960</b>	Ministry of Agriculture and Fisheries, Palmerston Regional North Office
Freshwater: River Development: Moawhango River	<b>1977</b>	<b>1978</b>	Ministry of Agriculture and Fisheries, Head Office
Minister of Agriculture - Enquiry regarding rabbits in the Moawhango district	<b>1919</b>	<b>1920</b>	Ministry of Agriculture and Fisheries, Head Office
Moawhango Rabbit Board	<b>1922</b>	<b>1925</b>	Ministry of Agriculture and Fisheries, Head Office
Moawhango Rabbit Board	<b>1925</b>	<b>1956</b>	Ministry of Agriculture and Fisheries, Head Office
Moawhango Rabbit Board	<b>1956</b>	<b>1959</b>	Ministry of Agriculture and Fisheries, Head Office
Environmental - Electricity Generation - Tongariro Power Scheme (including Moawhango Lake)	<b>1977</b>	<b>1986</b>	Department of Conservation, Head Office
Power Stations - Tongariro - Pumping Station (Moawhango)	<b>1960</b>	<b>1987</b>	Electricity Corporation of New Zealand Limited, Head Office
Moawhango Project - Claim: Maori Trustee (on behalf of Maori Owners)	<b>1968</b>	<b>1979</b>	Department of Lands
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1977</b>	<b>1978</b>	Ministry of Works and Development Residual Management Unit, Head Office
Pest Destruction Board - Mid-Wakatipu, Millers Flat, Mimihau, Moawhango	<b>1949</b>	<b>1973</b>	Agricultural Pests Destruction Council
Maps/Plans - Karioi, Kaimanawa, Ruapehu and Moawhango SD's [Survey Districts] - 1" to 1 mile	<b>1926</b>	<b>1926</b>	Army Department [record group]
Sketch showing tenure of land adjoining military reserve Waiouru, block IX Moawhango SD [Survey District]	<b>no date</b>	<b>no date</b>	Army Department [record group]
Reserves - Moawhango River	<b>1971</b>	<b>1971</b>	Nature Conservation Council
Moawhango River Reserve	<b>1971</b>	<b>1971</b>	Nature Conservation Council
Fishery - Moawhango River	<b>1973</b>	<b>1979</b>	Nature Conservation Council
Lake Moawhango	<b>1973</b>	<b>1973</b>	Nature Conservation Council
Reserves - Upper Moawhango Catchment	<b>1974</b>	<b>1976</b>	Nature Conservation Council
Upper Moawhango Catchment Reserves	<b>1974</b>	<b>1976</b>	Nature Conservation Council
Gravel Pits - Moawhango	<b>1950</b>	<b>1967</b>	Transit New Zealand, National Office
Power Schemes Moawhango Project Investigations Surveys & Air Photographs	<b>1979</b>	<b>1979</b>	Opus International Consultants Ltd., Group Office
Power Schemes Moawhango Project Investigations Hydrology	<b>1969</b>	<b>1982</b>	Opus International Consultants Ltd., Group Office
Power Schemes Moawhango Project Wahianoa Aqueduct	<b>1969</b>	<b>1972</b>	Opus International Consultants Ltd., Group Office
Moawhango	<b>no date</b>	<b>no date</b>	Terralink NZ Limited
Accounts and Papers - Public Works, Moawhango River crossing, removal of appliances at the	<b>1888</b>	<b>1888</b>	Legislative Department [record group]
Accounts and Papers - Schedule of Accounts and Papers laid upon the table During Session - Forests Act, 1921-1922, proposal to revoke the permanent State Forest Reservation over part of run number 2, containing 7,820 acres, situated in Kaimanawa and Moawhango Survey Districts, Wellington land district	<b>1942</b>	<b>1942</b>	Legislative Department [record group]
Accounts and Papers - Schedule of Accounts and Papers laid upon the table During Session - Land Act, 1924, proposal to reserve Section 15, Block IX, Moawhango	<b>1943</b>	<b>1943</b>	Legislative Department [record group]

Survey District, Wellington land district, as a primary education endowment			
General - Tongariro Hydro Scheme - Moawhango Catchment - Waihianoa	<b>1980</b>	<b>1985</b>	Department of Conservation, Wanganui Conservancy
Power schemes - Ministry of Works - Moawhango Scheme	<b>1979</b>	<b>1979</b>	Department of Conservation, Wanganui Conservancy
Acquisition - Acquisition of Crown Land - Section 4 and 7, Block XIV Moawhango Survey District; includes right of way access for addition to State Forest 69	<b>1980</b>	<b>1983</b>	Department of Conservation, Wanganui Conservancy
Town and Country Planning maps - Waiouru Township (Rangitikei County) - Scheme map proposed by County Engineer	<b>no date</b>	<b>no date</b>	Public Works Department [record group]
Received: 29th August 1907. - From: Chief Engineer, Roads Department. - Subject: Metal Pits, Pipiriki Waiouru Road. As to payment of Royalties.	<b>1907</b>	<b>1908</b>	Department of Maori Affairs [record group]
Mangahao Power Scheme - Mataroa (substation) to Waiouru (Military Camp) 11 KV transmission line - General survey	<b>1940</b>	<b>1947</b>	Ministry of Energy - Electricity Division
Soil Conservation Reserve, Waiouru	<b>1953</b>	<b>1956</b>	Department of Agriculture, Head Office
Fields Division, 1 November 1918 - Request for information as to who is responsible for destruction of rabbits on Waiouru Station	<b>1918</b>	<b>1920</b>	Ministry of Agriculture and Fisheries, Head Office
Director-General - Control of rabbit pest on Waiouru Run [papers transferred to file 10/4/42, 12 February 1919]	<b>c.1918</b>	<b>c.1918</b>	Ministry of Agriculture and Fisheries, Head Office
Waimarino County Council, Raetihi - Urging the erection of a rabbit-proof gate upon the bridge over the Wangaehu River on the Ohakune-Waiouru Road	<b>1919</b>	<b>1919</b>	Ministry of Agriculture and Fisheries, Head Office
DEFENCE - Waiouru Military Camp: General (Development etc)	<b>1945</b>	<b>1980</b>	R Corporation Ltd., Head Office
DEFENCE - Waiouru Military Camp: Land Taken for Defence, Ohinewairua Station: Claim: Forest Land Company Limited and Tussock Land Company: Also Maori Lands	<b>1975</b>	<b>1979</b>	R Corporation Ltd., Head Office
DEFENCE - Waiouru Military Camp: Land Taken for Defence, Ohinewairua Station: Claim: Forest Land Company Limited and Tussock Land Company: Also Maori Lands	<b>1960</b>	<b>1975</b>	R Corporation Ltd., Head Office
DEFENCE - Waiouru Military Camp: Sewerage Treatment Septic Tank and Sewage Treatment Grease Traps	<b>1958</b>	<b>1980</b>	R Corporation Ltd., Head Office
Waiouru Military Camp - Hot Water Pipeline from Tangiwai	<b>1977</b>	<b>1981</b>	R Corporation Ltd., Head Office
Waiouru Military Camp - Defence Buildings, Sewerage and Drainage	<b>1945</b>	<b>1986</b>	R Corporation Ltd., Head Office
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1977</b>	<b>1978</b>	Ministry of Works and Development Residual Management Unit, Head Office
Works and Buildings - Waiouru Military Camp - Wild Animal Control	<b>1978</b>	<b>1980</b>	Headquarters New Zealand Defence Force
Works and Buildings - Waiouru Military Camp - Tree Planting	<b>1972</b>	<b>1973</b>	Headquarters New Zealand Defence Force
Works and Buildings - Waiouru Military Camp - Noxious Weeds and Pinus Contorta Control	<b>1977</b>	<b>1980</b>	Headquarters New Zealand Defence Force
Works and Buildings - Waiouru Military Camp - Water/Sewage/Sanitation/Water Rights	<b>1969</b>	<b>1979</b>	Headquarters New Zealand Defence Force
Works and Buildings - Waiouru Military Camp - Roads, Bridges and Culverts Gravel Pits, etc ...	<b>1973</b>	<b>1980</b>	Headquarters New Zealand Defence Force

Works and Buildings - Waiouru Military Camp - Maowhango Reserve - Effects on Grazing Leases	<b>1979</b>	<b>1983</b>	Headquarters New Zealand Defence Force
Works And Real Estate - Control - Pests, Noxious Weeds, Trees And Animals - Waiouru - Control Of Wild Horses	<b>1981</b>	<b>1981</b>	Headquarters New Zealand Defence Force
Defence Works and Buildings - Waiouru Military Camp - Sewerage treatment, septic tank	<b>1940</b>	<b>1954</b>	Public Works Department [record group]
Waiouru: Tongariro River power development	<b>1958</b>	<b>1978</b>	Central Military District, Wellington [record group]
Waiouru Township Domain	<b>1907</b>	<b>1962</b>	Department of Conservation, Wanganui Conservancy
Rangitikei County - Section 28 Blk [Block] II Town of Waiouru Blk [Block] IX - Owango S.D. [Survey District]	<b>1971</b>	<b>1981</b>	Department of Conservation, Wanganui Conservancy
Land for Defence - Waiouru Former School Site	<b>1950</b>	<b>1953</b>	Department of Conservation, Wanganui Conservancy
New Zealand Deerstalkers Association - Waiouru Branch	<b>1962</b>	<b>1962</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1899</b>	<b>1918</b>	Department of Lands and Survey, Head Office
Taihape Domain	<b>1918</b>	<b>1927</b>	Department of Lands and Survey, Head Office
Water Supply Taihape	<b>1931</b>	<b>1976</b>	New Zealand Government Railways Department, General Manager's Office
Taihape and North Island thereof - Shows old tracks, graves, kaiangas, redoubts - scale 2 miles:1 inch	<b>1886</b>	<b>1890</b>	Department of Survey and Land Information, Head Office
Taihape Abattoir	<b>1921</b>	<b>1945</b>	Ministry of Agriculture and Fisheries, Head Office
Scrapie Disease Compensation - G. W. Horton, Taihape	<b>1955</b>	<b>1955</b>	Ministry of Agriculture and Fisheries, Head Office
Scrapie Disease Compensation - J. Webb, Taihape	<b>1955</b>	<b>1955</b>	Ministry of Agriculture and Fisheries, Head Office
Meat Export Licence, ME30 - Otaihape Farmers' Meat and Produce Company Limited, Taihape	<b>1920</b>	<b>1926</b>	Ministry of Agriculture and Fisheries, Head Office
Noxious Weeds Act Administration - Taihape Borough Council	<b>1928</b>	<b>1936</b>	Ministry of Agriculture and Fisheries, Head Office
Noxious Weeds Act - Taihape Borough Council	<b>1973</b>	<b>1973</b>	Ministry of Agriculture and Fisheries, Head Office
Taihape Abattoir	<b>1969</b>	<b>1970</b>	Ministry of Agriculture and Fisheries, Head Office
Milk supply - Taihape	<b>1936</b>	<b>1954</b>	Ministry of Agriculture and Fisheries, Head Office
Milk supply - Taihape	<b>1967</b>	<b>1968</b>	Ministry of Agriculture and Fisheries, Head Office
Taihape Rabbit Board	<b>1961</b>	<b>1974</b>	Ministry of Agriculture and Fisheries, Head Office
Dangerous goods - bulk installations. Approvals - Shell, Taihape [contains plans]	<b>1926</b>	<b>1955</b>	Chief Inspector of Explosives Office
Historic & Scenic Reserves - [Taihape Scenic Reserves - Wellington Land District]	<b>1919</b>	<b>1939</b>	Department of Conservation, Head Office
Historic & Scenic Reserves - Taihape Scenic Reserves - Wellington Land District	<b>1939</b>	<b>1972</b>	Department of Conservation, Head Office
Historic & Scenic Reserves - Taihape Scenic Reserves - Secs 80 and 82 Blk XIV Ohinewairua S.D. [Survey District] - [Wellington Land District]	<b>1905</b>	<b>1916</b>	Department of Conservation, Head Office

Maps & Plans - Wanganui Region - Wanganui Regional Cadastral Maps, N.Z.M.S. [New Zealand Mapping Society] 177, Sheets N110 To N148: Whangamomona, Waimarino, Ngauruhoe, Kaweka, Matemateaonga, Ohakune, Ruapehu, Ngamatea, Waitotara, Kakatahi, Taihape, Wakarara, Waverley, Wanganui, Mangaweka, Ongaonga, Marton, Feilding, Tangimoana- 5th L.G.C. [Local Government Commission]	<b>1964</b>	<b>1973</b>	Local Government Commission
Tongariro Power Development - Moawhango River Diversion: Claim - S T and C K Walker, Moawhango, RD [Rural Delivery] 2, Taihape	<b>1979</b>	<b>1979</b>	Department of Lands
Moawhango Diversion - Tongariro Diversion: Claim - Taihape Pest Destruction Board, Wanganui	<b>1980</b>	<b>1980</b>	Department of Lands
Town and Country Planning - Taihape	<b>1985</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Town and Country Planning - Taihape	<b>1958</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Agriculture Department - Taihape	<b>1920</b>	<b>1943</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Taihape	<b>1914</b>	<b>1914</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 57 - P.N. Duncan - Hiwera, Taihape	<b>1965</b>	<b>1965</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board - Farm Plan No. 103 - Pharazyn, P. - Taihape	<b>1968</b>	<b>1968</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - S.R. Collier - Collier's Junction, Taihape	<b>1971</b>	<b>1971</b>	Ministry of Works and Development Residual Management Unit, Head Office
Taihape Gravel Supplies - Dragline and Crushing Plant, Utiku	<b>1961</b>	<b>1970</b>	Ministry of Economic Development, Head Office
Shergold's Quarry, Taihape, Noel Byford Limited, Taihape	<b>1959</b>	<b>1989</b>	Ministry of Economic Development, Head Office
Taihape Pest Destruction Board	<b>1972</b>	<b>1977</b>	Agricultural Pests Destruction Council
Taihape Pest Destruction Board	<b>1977</b>	<b>1988</b>	Agricultural Pests Destruction Council
Taihape Pest Destruction Board	<b>1972</b>	<b>1988</b>	Agricultural Pests Destruction Council
Taihape Borough Council District Planning Scheme first review	<b>1985</b>	<b>1985</b>	Ministry of Works & Development, Masterton Sub-Office
Borough of Taihape 1971 District Planning Scheme - Scheme Statement, Code of Ordinances, District Planning Map	<b>1971</b>	<b>1971</b>	Ministry of Works & Development, Masterton Sub-Office
Quarrying - Taihape Scenic Reserve	<b>1969</b>	<b>1969</b>	Nature Conservation Council
Taihape Scenic Reserve: Tree Felling and Quarrying	<b>1969</b>	<b>1969</b>	Nature Conservation Council
Tree Felling - Taihape Scenic Reserve	<b>1969</b>	<b>1969</b>	Nature Conservation Council
Aorangi-Awarua Maori Trust Block, Taihape - Indigenous Forest Logging	<b>1974</b>	<b>1974</b>	Nature Conservation Council
Awarua-Aorangi Maori Trust Board, Taihape Logging	<b>1974</b>	<b>1974</b>	Nature Conservation Council
Refuse Tip - Taihape Sewerage Scheme	<b>1973</b>	<b>1973</b>	Nature Conservation Council
Sewage Scheme - Taihape	<b>1979</b>	<b>1981</b>	Nature Conservation Council
Taihape: Sewage Scheme, Refuse Tip Site	<b>1979</b>	<b>1981</b>	Nature Conservation Council
Taihape	<b>1980</b>	<b>1985</b>	Nature Conservation Council

Regional Meetings - Warkworth 5/3/81, Tauranga 9/3/81, Taihape 11/3/81	<b>1981</b>	<b>1981</b>	Nature Conservation Council
Waiouru Chateau, Taihape Conservation Week, District Representative	<b>1973</b>	<b>1978</b>	Nature Conservation Council
Wildlife - New Zealand Deerstalkers Association Taihape Branch - Correspondence	<b>no date</b>	<b>no date</b>	Department of Internal Affairs, Head Office [record group]
Wildlife - New Zealand Deerstalkers Association Taihape Branch - Correspondence	<b>no date</b>	<b>no date</b>	Department of Internal Affairs, Head Office [record group]
Wildlife - Deer destruction - Huts - Napier - Taihape State Highway	<b>no date</b>	<b>no date</b>	Department of Internal Affairs, Head Office [record group]
Mangawhero River Bridge, Horopito - Bulls via Taihape State Highway No 29	<b>no date</b>	<b>no date</b>	Public Works Department [record group]
Mangaweka Sawmilling Company Limited, Taihape Mill Number 34 Wellington Conservancy	<b>1943</b>	<b>1959</b>	New Zealand Forest Service [record group]
Taihape Domain	<b>1963</b>	<b>1979</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1979</b>	<b>1981</b>	Department of Conservation, Wanganui Conservancy
Taihape Recreation Reserve	<b>1930</b>	<b>1985</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1982</b>	<b>1988</b>	Department of Conservation, Wanganui Conservancy
Taihape Drill Hall	<b>1913</b>	<b>1981</b>	Department of Conservation, Wanganui Conservancy
Sundry Reserves - Taihape	<b>1969</b>	<b>1984</b>	Department of Conservation, Wanganui Conservancy
Sundry Reserves - Taihape	<b>1978</b>	<b>1987</b>	Department of Conservation, Wanganui Conservancy
Taihape Borough - Lots 39 & 41 DP [Deposited Plan] 15340 - Taihape Township	<b>1981</b>	<b>1982</b>	Department of Conservation, Wanganui Conservancy
Municipal Reserve - Taihape Sec. [Section] 82 Blk [Block] XIV - Ohinewairua S.D. [Survey District]	<b>1905</b>	<b>1955</b>	Department of Conservation, Wanganui Conservancy
Gravel Reserve - Taihape - Sec. [Section] 87 Blk [Block] XIV - Ohinewairua S.D. [Survey District]	<b>1955</b>	<b>1982</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1898</b>	<b>1920</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1915</b>	<b>1941</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1941</b>	<b>1949</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1981</b>	<b>1982</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1903</b>	<b>1912</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1900</b>	<b>1955</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1937</b>	<b>1970</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1937</b>	<b>1977</b>	Department of Conservation, Wanganui Conservancy
Taihape Scenic Reserve	<b>1978</b>	<b>1995</b>	Department of Conservation, Wanganui Conservancy
Taihape Domain	<b>1958</b>	<b>1962</b>	Department of Conservation, Wanganui Conservancy

Taihape Reserves - General	<b>1915</b>	<b>1978</b>	Department of Conservation, Wanganui Conservancy
New Zealand Deerstalkers Association - Taihape Branch	<b>1962</b>	<b>1980</b>	Department of Conservation, Wanganui Conservancy
Wildlife Service - Boundaries - Re definition of Wanganui and Wellington Acclimatisation Districts - Question of Jurisdiction of Rangitikei River and Watershed	<b>1946</b>	<b>1948</b>	Department of Internal Affairs, Head Office
Wanganui-Rangitikei Area Scheme	<b>1968</b>	<b>1974</b>	Department of Internal Affairs, Head Office
Union - Hunterville - Independent Town District - Rangitikei County	<b>1974</b>	<b>1977</b>	Department of Internal Affairs, Head Office
Wellington - Hiroti, Tiski Numu and Hiroti, Rakeraua - Suggested acquisition of property over Whangaehu river between Rangitikei and Wanganui counties	<b>1934</b>	<b>1949</b>	Department of Lands and Survey, Head Office
Wellington - [Rangitikei Beach, Proposed Domain, Part Pastoral Run 23] - Section 3, Block I, Sandy S. D. [Survey District]	<b>1925</b>	<b>1963</b>	Department of Lands and Survey, Head Office
Rangitikei [Rangitaiki] drainage works	<b>1910</b>	<b>1910</b>	Department of Lands and Survey, Head Office
Rangitikei	<b>1958</b>	<b>1958</b>	Department of Lands and Survey, Head Office
Rangitikei	<b>1958</b>	<b>1958</b>	Department of Lands and Survey, Head Office
Rangitikei	<b>1958</b>	<b>1958</b>	Department of Lands and Survey, Head Office
Map N22, Tararua Ranges - Rangitikei River and Environs	<b>1941</b>	<b>1941</b>	Department of Lands and Survey, Head Office
Rangitikei/Waipawa/Dannevirke Counties	<b>1924</b>	<b>1924</b>	Department of Lands and Survey, Head Office
Woodville/Rangitikei County	<b>1930</b>	<b>1930</b>	Department of Lands and Survey, Head Office
Rangitikei County (booklet)	<b>1964</b>	<b>1964</b>	Ministry of Works and Development, Head Office
Rangitikei County	<b>1913</b>	<b>1979</b>	Ministry of Works and Development, Head Office
Rangitikei County	<b>1969</b>	<b>1975</b>	Ministry of Works and Development, Head Office
Rangitikei County	<b>1975</b>	<b>1980</b>	Ministry of Works and Development, Head Office
Rangitikei area - Roads between Hunterville and Hautapu - scale 80 chains:1 inch - Lithograph	<b>no date</b>	<b>no date</b>	Department of Survey and Land Information, Head Office
Map of the North Island - Wanganui, Wangaehu, Turakina, Rangitikei, Mohaka, Tutaekuri, Ngaruroro, Tukituki and Manawatu counties - Flooded areas, Easter 1897 - scale 8 miles:1 inch	<b>1897</b>	<b>1897</b>	Department of Survey and Land Information, Head Office
Plan showing areas flooded, Easter 1897, on Lower reaches, Rangitikei and Wangaehu rivers - scale 1 mile:1 inch	<b>1897</b>	<b>1897</b>	Department of Survey and Land Information, Head Office
Map showing the drainage areas of the rivers Wanganui, Wangaehu, Turakina, Rangitikei, Manawatu, Tukituki, Ngaruroro, Tutaekuri and Mohaka, and the localities flooded during Easter 1897 - scale 8 miles:1 inch	<b>1897</b>	<b>1897</b>	Department of Survey and Land Information, Head Office
Rangitikei County, Rangitoto Survey District - Land taken near Marton for road in connection with railway - scale 3 chains:1 inch - Tracing	<b>1903</b>	<b>1903</b>	Department of Survey and Land Information, Head Office
Wellington City to Rangitikei - Place names - scale 80 chains:1 inch - Compilation	<b>no date</b>	<b>no date</b>	Department of Survey and Land Information, Head Office
Lower Taupo, Kaimanawa, Rangitikei, Wanganui Co. exploring party - Topographical, tracks - scale 4 miles:1 inch - G.F. Swainson	<b>1870</b>	<b>1870</b>	Department of Survey and Land Information, Head Office

Wanganui and Rangitikei District - Triangulation - scale 100 chains:1 inch - Lithograph, S. Mitchell	<b>1868</b>	<b>1868</b>	Department of Survey and Land Information, Head Office
Rangitikei, Manawatu blocks, Feilding's purchase - Survey data, topographical, roads, bush - scale 40 chains:1 inch - Dundas	<b>1872</b>	<b>1872</b>	Department of Survey and Land Information, Head Office
69/1368 - Manawatu, Rangitikei block - Block, boundary, names - scale 2 miles:1 inch - Lewis [2 sheets]	<b>1867</b>	<b>1867</b>	Department of Survey and Land Information, Head Office
Rangitikei - Manawatu block, native reserves, boundaries - scale 40 chains:1 inch - Tracing	<b>no date</b>	<b>no date</b>	Department of Survey and Land Information, Head Office
Rangitikei - Manawatu block, native reserves - scale 80 chains:1 inch - Tracing	<b>no date</b>	<b>no date</b>	Department of Survey and Land Information, Head Office
Freshwater: Catchment Authorities/Regional Water Boards: Rangitikei-Wanganui Catchment Board	<b>1978</b>	<b>1984</b>	Ministry of Agriculture and Fisheries, Head Office
Freshwater: Catchment Authorities/Regional Water Boards: Rangitikei-Wanganui Catchment Board - Manganuiateao	<b>1978</b>	<b>1982</b>	Ministry of Agriculture and Fisheries, Head Office
Freshwater: Catchment Authorities/Regional Water Boards: Rangitikei-Wanganui Catchment Board - Manganuiateao	<b>1983</b>	<b>1986</b>	Ministry of Agriculture and Fisheries, Head Office
W.J. Birch & Sons, Marton - Complaining of increase of rabbits in Rangitikei County	<b>1917</b>	<b>1918</b>	Ministry of Agriculture and Fisheries, Head Office
Noxious Weeds Act Administration - Rangitikei County Council	<b>1903</b>	<b>1956</b>	Ministry of Agriculture and Fisheries, Head Office
Water Supply Rangitikei County	<b>1939</b>	<b>1939</b>	Ministry of Agriculture and Fisheries, Head Office
Quarantine, S.S. Rangitikei - Leaf Curl Apples	<b>1950</b>	<b>1957</b>	Ministry of Agriculture and Fisheries, Head Office
Beef - Grazing - Rangitikei	<b>no date</b>	<b>no date</b>	Ministry of Agriculture and Fisheries, Head Office
Noxious Weeds Act - Rangitikei County Council	<b>1956</b>	<b>1970</b>	Ministry of Agriculture and Fisheries, Head Office
Noxious Weeds Act - Rangitikei County Council	<b>1970</b>	<b>1975</b>	Ministry of Agriculture and Fisheries, Head Office
Soil, River & Conservation Council - Rangitikei County Council Hunterville 'B' Rural Water Supply Scheme	<b>1987</b>	<b>1988</b>	Ministry of Agriculture and Fisheries, Head Office
Sand Dune Stabilisation: Tangimoana Sector - Himatangi to Rangitikei River	<b>1947</b>	<b>1962</b>	Land Corporation Limited, Wellington District Office
Working Plans: Forest Research Institute - Historic and Notable Trees of New Zealand: Taranaki, Wanganui and Rangitikei-Central North Island	<b>1973</b>	<b>1973</b>	New Zealand Forest Service Residual Management Unit
Sand Dune Reclamation: Santoft, Turakina, and Rangitikei Areas	<b>1951</b>	<b>1954</b>	New Zealand Forest Service Residual Management Unit
Sand Dune Reclamation: Santoft, Turakina and Rangitikei Areas	<b>1955</b>	<b>1957</b>	New Zealand Forest Service Residual Management Unit
Sand Dune Reclamation: Santoft, Turakina and Rangitikei Areas	<b>1958</b>	<b>1961</b>	New Zealand Forest Service Residual Management Unit
Sand dune Reclamation Santoft - Turakina- Rangitikei	<b>1952</b>	<b>1964</b>	New Zealand Forest Service Residual Management Unit
Flood Control Scheme - Rangitikei Catchment Board	<b>1971</b>	<b>1985</b>	Department of Conservation, Head Office
Rangitikei Catchment Board	<b>1977</b>	<b>1985</b>	New Zealand Timberlands Limited, Wanganui District
Flood Control Scheme - Rangitikei Catchment Board	<b>1971</b>	<b>1985</b>	Department of Conservation, Head Office
Reclamations - Wild & Scenic Rivers Protection: Rangitikei River	<b>1984</b>	<b>1986</b>	Department of Conservation, Head Office

Historic & Scenic Reserves - Omatane Scenic Reserve - Rangitikei County - Wellington Land District	<b>1906</b>	<b>1951</b>	Department of Conservation, Head Office
Reclamations - Sand Dune Reclamation - Between Turakina and Rangitikei Rivers	<b>1952</b>	<b>1968</b>	Department of Conservation, Head Office
Reclamations - Wellington Land District - Sand Dune Reclamation: Turakina And Rangitikei Rivers	<b>1969</b>	<b>1986</b>	Department of Conservation, Head Office
Wellington Land District - Rangitikei County Council Gravel & Other Reserves: Tiriraukawa, Hautapu And Other Blocks. Revoked Roadman's Cottage Reserves Rangitikei County	<b>1899</b>	<b>1977</b>	Department of Conservation, Head Office
Reserves Rangitikei County	<b>1909</b>	<b>1969</b>	Department of Conservation, Head Office
Wanganui - Rangitikei Region Including Ad Hoc Authorities - 101/42-9/1	<b>1974</b>	<b>1977</b>	Local Government Commission
Maps & Plans - Central Region (Tongariro) - Proposals Presented To Commission [5th Local Government Commission] - N.Z.M.S. [New Zealand Mapping Society] 139 - Map C - Rangitikei County & Waimarino County Councils & Rangitikei - Wanganui Electric Power Board Re Wanganui Region	<b>1968</b>	<b>1968</b>	Local Government Commission
Maps & Plans - Central Region (Tongariro) - Proposals Presented To Commission [5th Local Government Commission] - N.Z.M.S. [New Zealand Mapping Society] 139 - Map D - Wanganui - Rangitikei Catchment Board, Ohakune & Raetihi Borough Councils Re Wanganui Region	<b>1968</b>	<b>1968</b>	Local Government Commission
Maps & Plans - N.Z.M.S. [New Zealand Mapping Society] 15 - Sheet 1 - Rangitikei County Boundaries Of Riding 1975 - 5th Commission	<b>1958</b>	<b>1958</b>	Local Government Commission
Maps & Plans - N.Z.M.S. [New Zealand Mapping Society] 15 - Sheet 3 - Rangitikei County Boundaries Of Riding 1975 - 5th L.G.C. [Local Government Commission]	<b>1958</b>	<b>1958</b>	Local Government Commission
Maps & Plans - Central Area Of The North Island (N.Z.M.S.10A) [New Zealand Mapping Society 10A] Showing Taranaki, Wanganui & Rangitikei Catchments (1971)	<b>1971</b>	<b>1971</b>	Local Government Commission
Maps & Plans - Central Area Of The North Island (N.Z.M.S. 18) [New Zealand Mapping Society] - Topographical Map Showing Taumarunui, Waimarino, Waitotara, Wanganui, Rangitikei, Kiwitea & Pohangina Counties (1971)	<b>1971</b>	<b>1971</b>	Local Government Commission
River Control Schemes - Rangitikei River: Claim - Maori Owners	<b>1972</b>	<b>1984</b>	Department of Lands
Cemeteries - Land for Cemetery: Block XIV Ikitara SD [Survey District] - Rangitikei County Council	<b>1985</b>	<b>1985</b>	Department of Lands
Town and Country Planning - Rangitikei	<b>1958</b>	<b>1962</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Town and Country Planning - Rangitikei	<b>1962</b>	<b>1969</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Town and Country Planning - Rangitikei	<b>1970</b>	<b>1975</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Town and Country Planning - Rangitikei	<b>1975</b>	<b>1980</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Town and Country Planning - Rangitikei	<b>1980</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Wanganui

			District Office
Town and Country Planning - Rangitikei	<b>1985</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
State Highway No. 1 - Awanui - Rangitikei	<b>1957</b>	<b>1982</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
North Rangitikei Bridge	<b>1965</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
South Rangitikei Bridge	<b>1964</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Flood Damage - Rangitikei County	<b>1957</b>	<b>1971</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Flood Damage - Rangitikei County	<b>1971</b>	<b>1976</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Flood Damage - Rangitikei County	<b>1977</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei Catchment Board - General	<b>1944</b>	<b>1972</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei Catchment Board - General	<b>1970</b>	<b>1971</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei-Wanganui Catchment Board	<b>1947</b>	<b>1973</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei Catchment Board - Subsidies	<b>1968</b>	<b>1972</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River Works	<b>1961</b>	<b>1971</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei Forestry	<b>1960</b>	<b>1973</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Surveys of Hydro Potential Areas 1 and 2 Manawatu and Rangitikei/Wanganui	<b>1980</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - Investigations and Surveys	<b>1961</b>	<b>1973</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River	<b>1949</b>	<b>1959</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River	<b>1959</b>	<b>1967</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River	<b>1967</b>	<b>1979</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - South Side	<b>1966</b>	<b>1972</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River	<b>1954</b>	<b>1956</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River	<b>1956</b>	<b>1970</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - Bulls to Kakariki	<b>1950</b>	<b>1981</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office

Rangitikei River - Kakariki	<b>1944</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - Kakariki	<b>1947</b>	<b>1962</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - Flood Damage	<b>1950</b>	<b>1978</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Rangitikei River - Amons Drain	<b>1968</b>	<b>1968</b>	Ministry of Works and Development Residual Management Unit, Wanganui District Office
Slope Stability in relation to Soil Types, Clay Mineralogy and Gelologic Structures in the Ohingaiti-Mangaweka Utiku - Mhiitahi Region, Rangitikei Valley, University of Auckland	<b>1977</b>	<b>no date</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rural Water Supply - (Rangitikei County Council)	<b>1984</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Head Office
Finance Claims - Rangitikei-Wanganui Catchment Board	<b>1980</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Resource Surveys - Rangitikei:Wanganui Catchment Board - Minimum Flow Maintenance Forecasting	<b>1983</b>	<b>1984</b>	Ministry of Works and Development Residual Management Unit, Head Office
Resource Surveys - Manawatu Catchment Board - Flood Warning - Rangitikei Region	<b>1985</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei Catchment District	<b>1973</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei - Wanganui Catchment Board Flood Damage Reports	<b>1985</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
WS21's - Approval to start National Water & Soil Conservation Work - Rangitikei - Wanganui Catchment Board	<b>1972</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei - Wanganui Catchment Board - Soil Conservation Works	<b>1980</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei - Wanganui Catchment Board - Waitatapia Station Ltd, Bulls	<b>1984</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei - Wanganui Catchment Board - Approvals to start Works WS21's	<b>1954</b>	<b>1983</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei-Wanganui Catchment Board - Catchment Control Schemes - Marahau-Wainui Sand Stabilisation Scheme	<b>1973</b>	<b>1984</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei-Wanganui Catchment Board Catchment Control Schemes - Marahau-Wainui Sand Stabilisation Scheme	<b>1985</b>	<b>1986</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei - Wanganui Catchment Board Tangimoana-Himatangi-Foxton- Community Sand Stabilisation Scheme	<b>1981</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei River Control Scheme	<b>1979</b>	<b>1985</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil and Water Conservation - Wanganui - Rangitikei	<b>1974</b>	<b>1974</b>	Ministry of Works and Development Residual Management Unit, Head Office
Operational surveys: Rangitikei-Wanganui Catchment Board	<b>1976</b>	<b>1979</b>	Ministry of Works and Development Residual Management Unit, Head Office
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1977</b>	<b>1978</b>	Ministry of Works and Development Residual Management Unit, Head Office

Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1946</b>	<b>1973</b>	Ministry of Works and Development Residual Management Unit, Head Office
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1973</b>	<b>1974</b>	Ministry of Works and Development Residual Management Unit, Head Office
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1974</b>	<b>1975</b>	Ministry of Works and Development Residual Management Unit, Head Office
Reserves: Waiouru Experimental Area: Headwaters Moawhango and Rangitikei Rivers	<b>1975</b>	<b>1976</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei Catchment Board (old file)	<b>1944</b>	<b>1950</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei Catchment Board (old file)	<b>1951</b>	<b>1969</b>	Ministry of Works and Development Residual Management Unit, Head Office
Rangitikei Catchment Board (old file)	<b>1946</b>	<b>1971</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 1 - F.C.P.I. [?] - Grenea and Eady, A.J. - Rangiwaea	<b>1960</b>	<b>1961</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 10 - Potaka Farm, Tokorangi	<b>1963</b>	<b>1963</b>	Ministry of Works and Development Residual Management Unit, Head Office
Water and Soil Division - Rangitikei Catchment Board - Farm Plan No. 101 - Aranui Estate - Mangamahu	<b>1967</b>	<b>1967</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 16 - L.K. O'Callaghan, Kawhatau	<b>1963</b>	<b>1963</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 17 - Perry Brothers, Rewa	<b>1963</b>	<b>1963</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 19 - D.R. Melville - Dunard Fordell	<b>1963</b>	<b>1963</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 2 - Emslie H and C (Mangaweka)	<b>1961</b>	<b>1961</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 3 - Fitzherbert W.W. (Pakihikura)	<b>1961</b>	<b>1961</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 33 - J.E. Reeves	<b>1964</b>	<b>1964</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 34 - R.W. Alward - Fordell	<b>1964</b>	<b>1964</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 36 - R.M. McKinnon - Murimotu, Hihitahi	<b>1964</b>	<b>1964</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 4 - Jensen and Hamilton (Omatane)	<b>1961</b>	<b>1961</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 50 - P. Polson - Manunui, Mangamahu	<b>1965</b>	<b>1965</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 57 - P.N. Duncan - Hiwera, Taihape	<b>1965</b>	<b>1965</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 58 - H.R. Stewart - Makohau	<b>1965</b>	<b>1965</b>	Ministry of Works and Development Residual Management Unit, Head Office

Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 6 - Marsh, J.B. - Mangaonoho	<b>1961</b>	<b>1961</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 63 - J.E. England - Woodstock, Mangaonoho	<b>1965</b>	<b>1965</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 7 - Gorringer, M.F. - Kawhatau	<b>1962</b>	<b>1962</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 66 - R.C. Kraiger - Mangaweka	<b>1966</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 79 - D.H. Younger - Waituna West	<b>1966</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 81 - Ngatiapa Land Company - Poukiore	<b>1966</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei Catchment Board - Farm Plan No. 92 - G.D. Wells	<b>1966</b>	<b>1966</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board	<b>1972</b>	<b>1974</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board	<b>1974</b>	<b>1982</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board Operating as Regional Water Board (new series)	<b>1968</b>	<b>1974</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board - Farm Plans and General	<b>1966</b>	<b>1979</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board - Farm Plan No. 38 - Mrs Grace, P.R. - Waka, Hunterville	<b>1969</b>	<b>1969</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board - Farm Plan No. 42 - Harris, G.J. - Mitre Reeks - Mangamahu	<b>1967</b>	<b>1967</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board - Farm Conservation Plan - Craig, W.B. - Kakatahi	<b>1961</b>	<b>1970</b>	Ministry of Works and Development Residual Management Unit, Head Office
Soil Conservation and River Control - Rangitikei-Wanganui Catchment Board	<b>1974</b>	<b>1977</b>	Ministry of Works and Development Residual Management Unit, Head Office
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Mining - Rangitikei District	<b>1971</b>	<b>1971</b>	Nature Conservation Council
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Tribal and Regional Authorities - Manawatu- Rangitikei	<b>1988</b>	<b>1988</b>	Te Puni Kokiri, Head Office
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Rangitikei County District Planning Scheme	<b>1970</b>	<b>1970</b>	Works, Ministry of, Town and Country Planning Division
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Provisional plan of part of Rangitikei County - Scale 80 chains to 1 inch	<b>no date</b>	<b>no date</b>	Maori Land Court [record group]
Provisional plan of Rangitikei County - Scale 80 chains to 1 inch	<b>no date</b>	<b>no date</b>	Maori Land Court [record group]
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Rangitikei Catchment Board	<b>1959</b>	<b>1961</b>	Department of Scientific and Industrial Research [record group]
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Rangitikei - Wanganui Catchment Board	<b>1972</b>	<b>1983</b>	Department of Conservation, Wanganui Conservancy
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Rangitikei-Wanganui Catchment Board - Business	<b>1983</b>	<b>1987</b>	Department of Conservation, Wanganui Conservancy
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Drainage - Mangaweka Town District	<b>1958</b>	<b>1975</b>	Department of Health, Head Office
Cemeteries - Mangaweka - Wellington	<b>1946</b>	<b>1946</b>	Department of Health, Head Office
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Local Purpose Reserves - Wellington LD [Land District] - Municipal Purposes Reserves Mangaweka	<b>1911</b>	<b>1984</b>	Department of Conservation, Head Office
Recreation Reserves - Mangaweka Domain	<b>1898</b>	<b>1939</b>	Department of Conservation, Head Office
Historic & Scenic Reserves - Mangaweka Scenic Reserve - Hautapu SD [Survey District]	<b>1905</b>	<b>1942</b>	Department of Conservation, Head Office

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Newspaper Clippings re Mangaweka - Utiku Deviation	<b>1961</b>	<b>1983</b>	New Zealand Rail Limited, Corporate Support Services Group
Mangaweka - Cultural - 1st edition	<b>no date</b>	<b>no date</b>	Department of Lands and Survey, Head Office [record group]
Mangaweka Scenic Reserve - Section 55 Block X Hautapu S.D. [Survey District]	<b>1979</b>	<b>1990</b>	Department of Conservation, Wanganui Conservancy
Scenic Reserves at Mangaweka	<b>1925</b>	<b>1939</b>	Department of Conservation, Wanganui Conservancy
Mangaweka Scenic Reserve (Section 5 Blk [Block] IX - Hautapu)	<b>1921</b>	<b>1955</b>	Department of Conservation, Wanganui Conservancy
Kahu Scenic Reserve (Part Kahu Sett. [Settlement] Near Mangaweka) - Section Block X - Hautapu S.D. [Survey District] 4B	<b>1905</b>	<b>1973</b>	Department of Conservation, Wanganui Conservancy
Mangaweka	<b>1981</b>	<b>1981</b>	Department of Conservation, Wanganui Conservancy
27 September 1869 - Locke, Napier - Report on his trip to Taupo to conciliate the chiefs in that area and to come to an agreement with native proprietors over opening up of the Kaimanawa ranges for mining. Poihipi Tukairangi fully in favour of the operation proposed above, concurred with Government arrangements re gold fields and drew a map for McLean showing his views on the subject. All chiefs at Tokaut - Hataraka, Te Whetu, Henare, Holepa etc - in favour of such action and grateful for Government protection from Te Kooti. Hane Tauteka and Patea chiefs principal owners of Kaimanawa country and agreed to hand over 300,000 acres to Government. Anticipates that once fighting is abated there will be no shortage of labour for further development and Maori-Pakeha relations will be tremendously improved.	<b>1869</b>	<b>1869</b>	Agent for the General Government, Hawkes Bay [record group]
Maps/Plans - Karioi, Kaimanawa, Ruapehu and Moawhango SD's [Survey Districts] - 1" to 1 mile	<b>1926</b>	<b>1926</b>	Army Department [record group]
Kaimanawa State Forest Park	<b>1969</b>	<b>1969</b>	Crown Forestry Management Limited
Kaimanawa Forest Park	<b>1973</b>	<b>1985</b>	Department of Conservation, Bay of Plenty Conservancy
Land Acquisition - Kaimanawa F P - Addition Parts	<b>1977</b>	<b>1986</b>	Department of Conservation, Bay of Plenty Conservancy
Forest Parks State Forest - Kaimanawa Advisory Committee	<b>1975</b>	<b>1980</b>	Department of Conservation, Bay of Plenty Conservancy
Working Plans - Kaimanawa Beech Forests	<b>1969</b>	<b>1975</b>	Department of Conservation, Bay of Plenty Conservancy
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Working Plans - Kaimanawa Beech Forest	<b>1941</b>	<b>1959</b>	Department of Conservation, Bay of Plenty Conservancy
Working Plans - Kaimanawa Beech Forest	<b>1953</b>	<b>1968</b>	Department of Conservation, Bay of Plenty Conservancy
Forest Parks - Kaimanawa forest Park - Wellington Land District	<b>1963</b>	<b>1979</b>	Department of Conservation, Head Office

Acquisition of Private Lands - Release State Forest land for exchange with Maori owners of Lake Taupo Reserves Kaimanawa S.F. [State Forest] 90 - Rotorua Conservancy	<b>1972</b>	<b>1983</b>	Department of Conservation, Head Office
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Acquisition of Private Lands - Proposed Acquisition of Land - Kaimanawa S.F. [State Forest] - Oruamatua -Wellington Conservancy	<b>1971</b>	<b>1980</b>	Department of Conservation, Head Office
Acquisition of Private Lands - Proposed Acquisition of Land - Kaimanawa S.F. [State Forest] - Oruamatua -Wellington Conservancy	<b>1971</b>	<b>1980</b>	Department of Conservation, Head Office
Acquisition of Private Lands - Proposed Acquisition of Land - Kaimanawa S.F. [State Forest] - Oruamatua -Wellington Conservancy	<b>1972</b>	<b>1980</b>	Department of Conservation, Head Office
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Acquisition of Private Lands - Purchase of Land - Kaimanawa Tongariro S.F. [State Forest] - Exchanges -Wellington Conservancy	<b>1973</b>	<b>1981</b>	Department of Conservation, Head Office
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Silviculture - Trial - Kaimanawa - To gauge the effect of deer browse on high altitude [altitude] silver beech forest	<b>1981</b>	<b>1982</b>	Department of Conservation, Wanganui Conservancy
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Kaimanawa Wild Horse Committee	<b>1978</b>	<b>1980</b>	Department of Conservation, Wanganui Conservancy
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Kaimanawa wild horse herds	<b>1978</b>	<b>1989</b>	Department of Conservation, Wanganui Conservancy
Control - Kaimanawa	<b>1977</b>	<b>1982</b>	Department of Conservation, Wanganui Conservancy
Wildlife in captivity - Other than game birds protection (including lifting of protection) - Protection against predatory and destructive animals and birds - Kaimanawa wild horses and wild horses in other areas	<b>1979</b>	<b>1984</b>	Department of Conservation, Wanganui Conservancy
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Kaimanawa Wild Horses	<b>1979</b>	<b>1983</b>	Department of Internal Affairs, Head Office
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Wellington Land District: Kaimanawa Survey District	<b>1903</b>	<b>1903</b>	Department of Lands and Survey, Head Office
Wellington Land District: Ruapehu Survey District, Kaimanawa Survey District	<b>1904</b>	<b>1904</b>	Department of Lands and Survey, Head Office
Kaimanawa Ranges/Mangamaire/Owhaoko Block/Timahanga Block	<b>no date</b>	<b>no date</b>	Department of Lands and Survey, Head Office
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N122/6 Kaimanawa Drawings: Edition 1, Base 1, Contour 1, Hydrography 1, Compilation 2, Printed Map 1, Press Pulls 3	<b>1962</b>	<b>1962</b>	Department of Lands and Survey, Head Office
(WN) [Wellington] Kaimanawa	<b>1956</b>	<b>1956</b>	Department of Lands and Survey, Head Office
Roads - Kaimanawa-Hikutaia	<b>no date</b>	<b>no date</b>	Department of Lands and Survey, Head Office [record group]
Kaimanawa [4 sheets]	<b>1961</b>	<b>1962</b>	Department of Lands and Survey, Wellington District Office [record group]
Oruamatua Kaimanawa 2 Q1 - Appointment of O.S. Watkins and W.H. Turnbull as Trustees for Raumaewa Te Rango and Ani Paki	<b>1898</b>	<b>1944</b>	Department of Maori Affairs [record group]
Whitikaupeka Water Supply - Oruamatua-Kaimanawa IS and IX	<b>1936</b>	<b>1936</b>	Department of Maori Affairs [record group]
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Kaimanawa Road	<b>1916</b>	<b>1925</b>	Department of Survey and Land Information, Hamilton District Office
Kaimanawa Block	<b>1918</b>	<b>1924</b>	Department of Survey and Land Information, Hamilton District Office
New Zealand Topographical Map 1:50,000 - Kaimanawa, 1st Edition	<b>1988</b>	<b>1988</b>	Department of Survey and Land Information, Head Office
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Survey District Index Plan - Kaimanawa	<b>no date</b>	<b>no date</b>	Department of Survey and Land Information, Wellington District Office
Kaimanawa subdivision Part A	<b>1901</b>	<b>1901</b>	Headquarters New Zealand Defence Force

Kaimanawa subdivision Part B	<b>1901</b>	<b>1901</b>	Headquarters New Zealand Defence Force
Forestry - Kaimanawa State Forest park	<b>1985</b>	<b>1985</b>	Hon. David Butcher
Kaimanawa Horses, January - December [correspondence]	<b>1996</b>	<b>1996</b>	Hon. John Banks, MP
Kaimanawa Horses, January - July [correspondence]	<b>1997</b>	<b>1999</b>	Hon. John Banks, MP
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Native Reserves - Regarding monies paid to Te Awhina Te Wharekaihua and others, all minors, for shares in the sale of the Kaimanawa No. 1 Block	<b>1887</b>	<b>1887</b>	Maori Trust Office [record group]
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State Forest Areas - Wellington Conservancy - Kaimanawa - Approaches by Defence Department for part and Whenua-rangi Station (N.C. Koreneff )	<b>1971</b>	<b>1972</b>	New Zealand Forest Service [record group]
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Management and development - Recreational and environmental Kaimanawa Forest Park	<b>1976</b>	<b>1977</b>	New Zealand Forest Service Residual Management Unit
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