

NGĀTI HAUĀ MAHI TRUST

NGĀTI HAUĀ WETLAND MAURI FRAMEWORK

Phase one:

FOR THE DEVELOPMENT OF A MAURI
ASSESSMENT TOOL FOR OUR AWA,
MANGAONUA AND MANGAONE



NGĀTI HAUĀ MAHI TRUST



Ngāti Hauā
Iwi Trust



Manaaki Whenua
Landcare Research

IN COLLABORATION WITH:
TE ITI O HAUĀ AND WAIMAKARIRI MARAE



Manaaki Whenua
Landcare Research

Ngāti Hauā Wetland Mauri Framework

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Ngāti Hauā Wetland Mauri Framework

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Summary

Project and Client

For this project, Manaaki Whenua – Landcare Research formalised a research partnership with the Ngāti Hauā Mahi Trust (NHMT), a Charitable Trust that leads environmental and restoration projects within the Ngāti Hauā rohe. A research plan was designed to co-develop a Wetland Mauri Framework to support wetland restoration within the Mangaonua and Mangaone Stream Catchment. Wetlands are a key habitat and taonga for many iwi and hapū throughout the country, and of critical importance when exploring solutions for freshwater management. It was important for Ngāti Hauā Mahi Trust to ensure the values and priorities of both the whānau of Waimakariri (Cambridge) and Te Iti o Hauā Marae (Tauwhare) guide the restoration process. The project was funded and supported by the Biological Heritage National Science Challenge, SSIF Resilient Wetlands Programme, and the Waikato River Authority.

Objectives

The purpose of developing a Ngāti Hauā Wetland Mauri Framework was to identify key values, indicators, and goals for the restoration and monitoring of wetlands, gullies and streams within the Ngāti Hauā rohe. The framework has been developed to assist in planning appropriate methods for future monitoring programmes, inherent to the whānau from Waimakariri and Te Iti o Hauā Marae.

Methods

This research project ensured a kaupapa Māori approach by formalising a working relationship between Manaaki Whenua and Ngāti Hauā Mahi Trust to start co-designing and co-developing a Wetland Mauri Framework to support the wetland restoration work NHMT was undertaking within the Mangaonua and Mangaone Stream Catchment. As part of this partnership, Manaaki Whenua supported a paid summer internship for a rangatahi intern as a way to build capacity and support research experience within NHMT. Semi-directed interviews were conducted with marae members and members from the Ngāti Hauā rohe (kaumātua, kaitiaki, rangatahi, iwi managers, and practitioners). A kaupapa Māori process ensured cultural appropriateness and safety for the research team and research partners, including the project participants. The combination of the thematic analysis and relative word frequencies (word clouds) were useful in identifying key values expressed by the participants.

Results

The key values expressed by the project participants were condensed to form four overarching themes of *Wai*, *Whakapapa*, *Mahi*, and *Mahinga Kai*. *Wai* focused on health of the waterways and wetlands, *Whakapapa* focused on people's connection to the landscape and each other, *Mahi* discussed work on the ground and collaborative working relationships, and *Mahinga Kai* discussed the presence and absence of mahinga kai (both plants and animals). The four themes aligned with the themes expressed in the Ngāti Hauā

Environmental Management Plan: *Wai* aligned with Te Hauora o Te Wai, *Whakapapa* aligned with Te Hauora o Te Tangata, and *Mahi* aligned with Te Hauora o Te Taiao. *Mahinga Kai* remained the same. The holistic concept of interconnectedness between the key themes and values were maintained by using a circular design. The koru, all linked and unfurling in different directions, along with the text written on an angle, highlights the importance of all themes and values. No one theme or value is ranked as having more importance than the other.

The framework development was guided by whānau feedback, where a visual representation of the framework, that connected the themes would be more appropriate for the whānau of Waimakariri and Te Iti o Hauā Marae. A local tribal member and artist was commissioned to create a conceptual image that reflected whānau perspectives and representation of the framework diagram.

Discussion and Conclusions

This collaborative research project between Ngāti Hauā Mahi Trust and Manaaki Whenua provided an opportunity to co-design and co-develop a wetland mauri framework that focused on identifying key overarching themes and associated values, resulting in the formation of foundational themes and values to assist future wetland restoration priorities and projects within the Mangaonua and Mangaone Stream Catchment. This will enable the whānau of Waimakariri and Te Iti o Hauā Marae, in partnership with Ngāti Hauā Mahi Trust, to guide and lead their own initiatives embedded with mātauranga-a-iwi, -a-hapū, -a-marae, -a-whānau o Ngāti Hauā.

Next steps

It is recommended that the themes and values recognised within the Ngāti Hauā Wetland Mauri Framework be used as a foundation for the development of a practical wetland monitoring tool for projects undertaken throughout the Mangaonua and Mangaone Stream Catchment. A kaupapa Māori-based approach will ensure that monitoring measures are based on mātauranga-a-iwi, -a-hapū, -a-marae, -a-whānau o Ngāti Hauā. This will encourage the whānau of these marae to take a proactive approach in understanding the state of their wetlands throughout their rohe. Unfortunately, the development of a wetland monitoring tool was beyond the scope of this project. However, existing adaptable culturally led tools have been identified.

1 Introduction and Background

*Ngā awa itiiti e pā ana ki te wai o Waikato, ko ngā uaua o tō tatou awa.
Tō tatou awa he manawa.*

All the little streams and rain that flow into the Waikato River
are like the veins of the body. The River is the heart. – Sir Robert Mahuta

The Biological Heritage National Science Challenge (BHNSC)¹ "aims to enhance and restore New Zealand's land-based and freshwater ecosystems – on the conservation estate or in private ownership – by deepening our understanding of which species we have, and seeking science-based solutions to dealing with threats: pest animals and insects, weeds, pathogens, and climate change". Supporting mātauranga Māori and collaboration with Māori research partners is a strategic priority for the Challenge within BHNSC Project 3.2 – Customary approaches and practices for optimising cultural and ecological resilience. This is also supported by Strategic Science Investment Funded (SSIF)² Resilient Wetlands Programme led by Manaaki Whenua Landcare Research (MWLR). This kaupapa aligns with Ngāti Hauā Mahi Trust (NHMT) project Ngā Puna o Mangaonua me Mangaone ki Waikato – Ecological Catchments Plan, funded by the Waikato River Authority (WRA).³ Wetlands are a key habitat and taonga for many iwi and hapū around the country, and of critical importance when exploring solutions for freshwater management.

In the Waikato, there has been a loss of 92% of wetland extent since 1840 (Ausseil et al. 2008, p. 74). The peat bogs of the Waikato and Hauraki Plains were some of the most extensive in the country, and the largest bog (Kopuatai Peat Dome) is now a Ramsar Site (Myers et al. 2013). There are significant issues with water quality and loss of biodiversity and taonga species in the Waikato. Waikato-Tainui, and the 68 tūpuna marae in this wider rohe (tribal boundary) are both leading and collaborating on initiatives to reverse and mitigate the damage that current agricultural, horticultural and urban practises are having on the freshwater environment and their taonga species. This project was seen as an opportunity for MWLR, through the BHNSC and Resilient Wetland Programme, to support current work in freshwater and wetland restoration in the Waikato. This enabled a pathway to work with local iwi to develop approaches for wetland restoration using a kaupapa Māori approach and align with the values and aspirations of mana whenua.

For this project, Manaaki Whenua have worked alongside the Ngāti Hauā Mahi Trust, based in Morrinsville, an iwi, community and church-established charitable trust that leads environmental and restoration projects within the Ngāti Hauā rohe. Over 20 years ago, Ngāti Hauā Mahi Trust was established by Ngāti Hauā kaumātua of the time, in partnership with the Matamata-Piako District Council and the Anglican Church. Its purpose focused on connecting Ngāti Hauā rangatahi with job-training and employment

¹ New Zealand's Biological Heritage National Science Challenge – Ngā Koiora Tuku Iho integrates science initiatives to protect biodiversity, improve biosecurity, and enhance the country's resilience to harmful organisms.

² Strategic Science Investment Fund (SSIF) for Crown Research Institutes administered by the Ministry of Business, Innovation and Employment.

³ Waikato River Authority administers the fund for rehabilitation initiatives for the Waikato River in its role as trustee for the Waikato River Clean-Up Trust.

opportunities. In mid-2010, the Trust was reignited by current-day leaders of the original partner entities – Ngāti Hauā, the Matamata-Piako Council, and the Anglican Church. With a revitalised vision of '*Tiaki manaakitia te tangata, tiaki manaakitia te taiao*', the Trust is driven to strengthen and inspire pride amongst the mana whenua and people of its local communities by working in the environment field and providing employment opportunities and on-the-job training that will strengthen and contribute to improving the health and well-being of our precious local environment.

Ngāti Hauā is an iwi whose rohe extends from the eastern suburbs of Hamilton City to Te Aroha on the eastern Hauraki Plains. To illustrate the context and drivers for this partnership, the maps of historic (1840) and current wetland extent (Figs 1 and 2) demonstrate the key issues, for example, the significant loss of wetlands north of Te Iti ō Hauā Marae, as well as the marshes and swamps south of Waimakariri Marae (Figs 1 and 2). The two sites that are being restored as part of the NHMT WRA projects at Puke K (started 2016) and Puke E (started 2017) fall within the rohe of Waimakariri and Te Iti ō Hauā Marae (Fig. 3). Restoring wetlands and associated freshwater habitats is of highest importance to Ngāti Hauā.

In 2017, Ngāti Hauā Mahi Trust applied to the Waikato River Authority to initiate a 21-year whole catchment restoration plan of two tributaries of the Waikato River – the Mangaonua and Mangaone Streams near Tamahere, Hamilton because of their cultural significance to Ngāti Hauā. They were successful in this bid, and have funding for the next 3 years (2018–2020) to restore the streams and surrounding wetlands (Fig. 3), and support the clean up initiatives of the Waikato River. Ngāti Hauā Mahi Trust wants to ensure the values and priorities of both the whānau of Waimakariri and Te Iti o Hauā Marae, are included in the restoration process, and that Ngāti Hauā iwi members are connected to the site through on-the-ground work, i.e planting, monitoring, and ongoing maintenance.

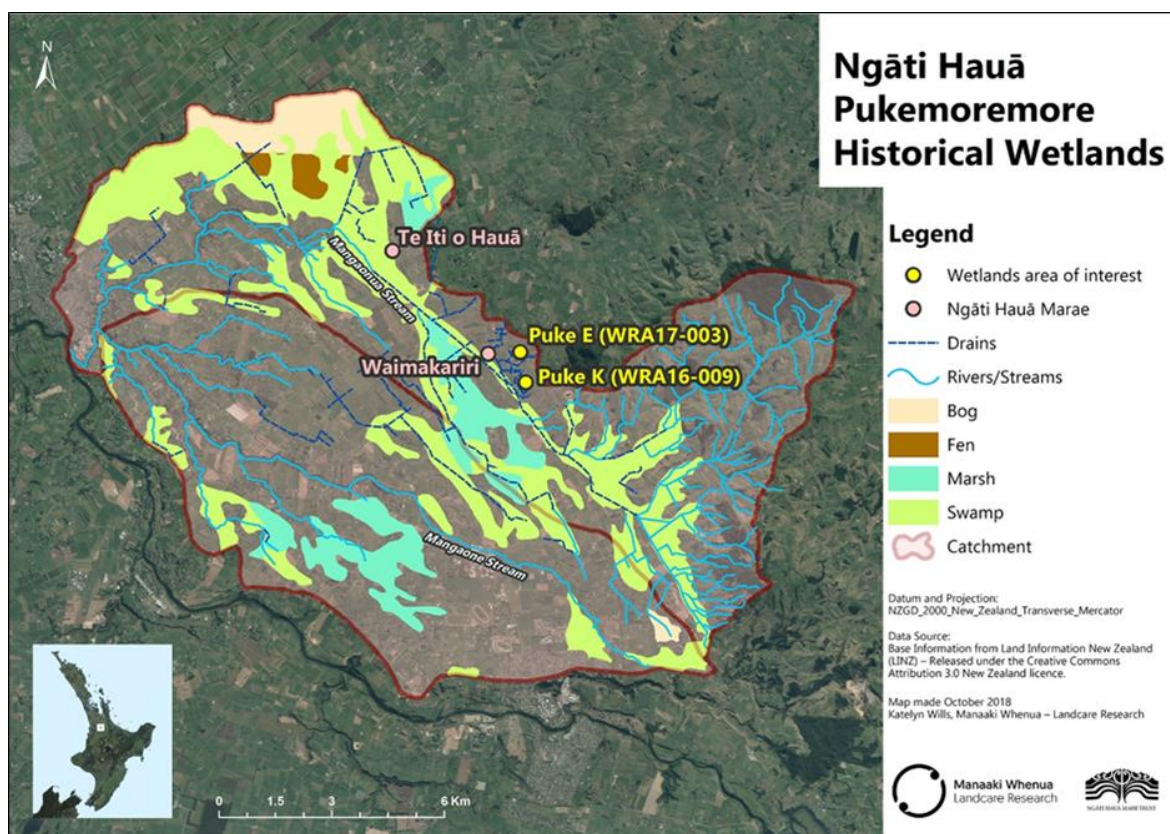


Figure 1. Historic wetland extent within the Ngāti Hauā tribal rohe, as of 1840. (Source: MWLR, 2018)

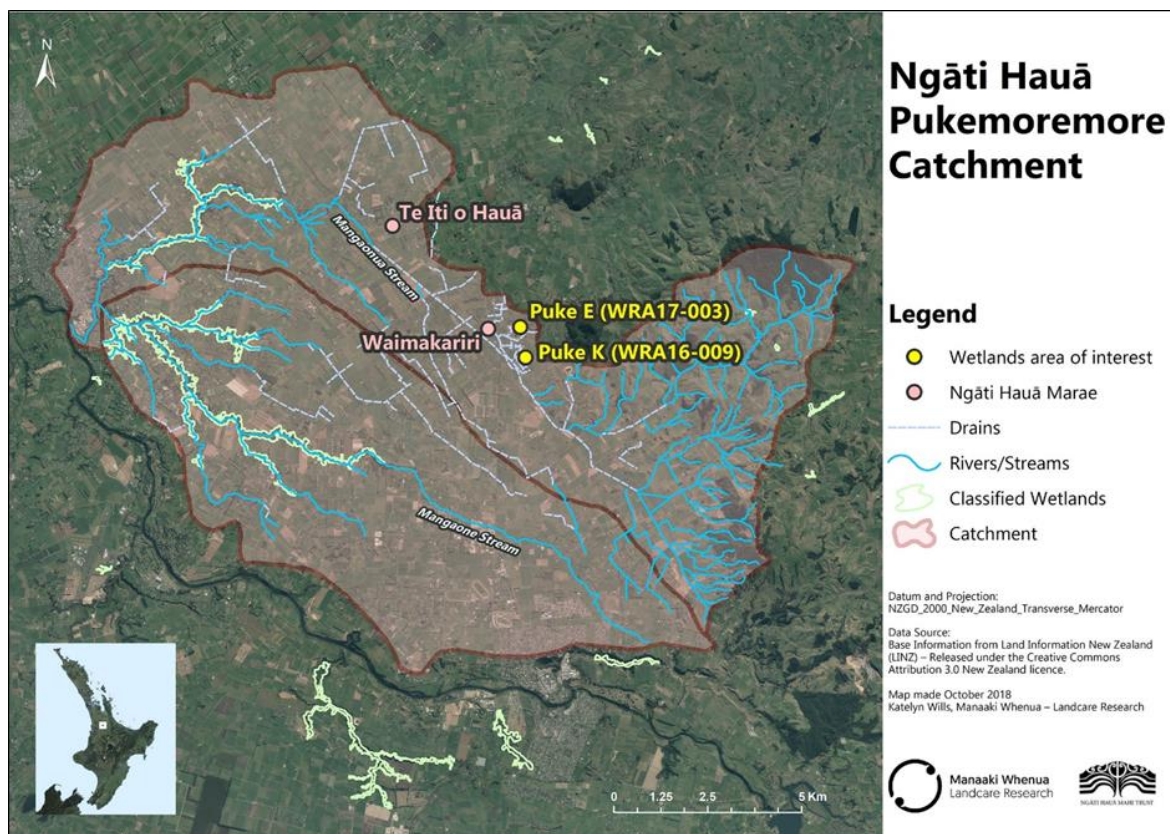


Figure 2. Current wetland extent within the Ngāti Hauā tribal rohe, as of 2012. (Source: MWLR, 2018)

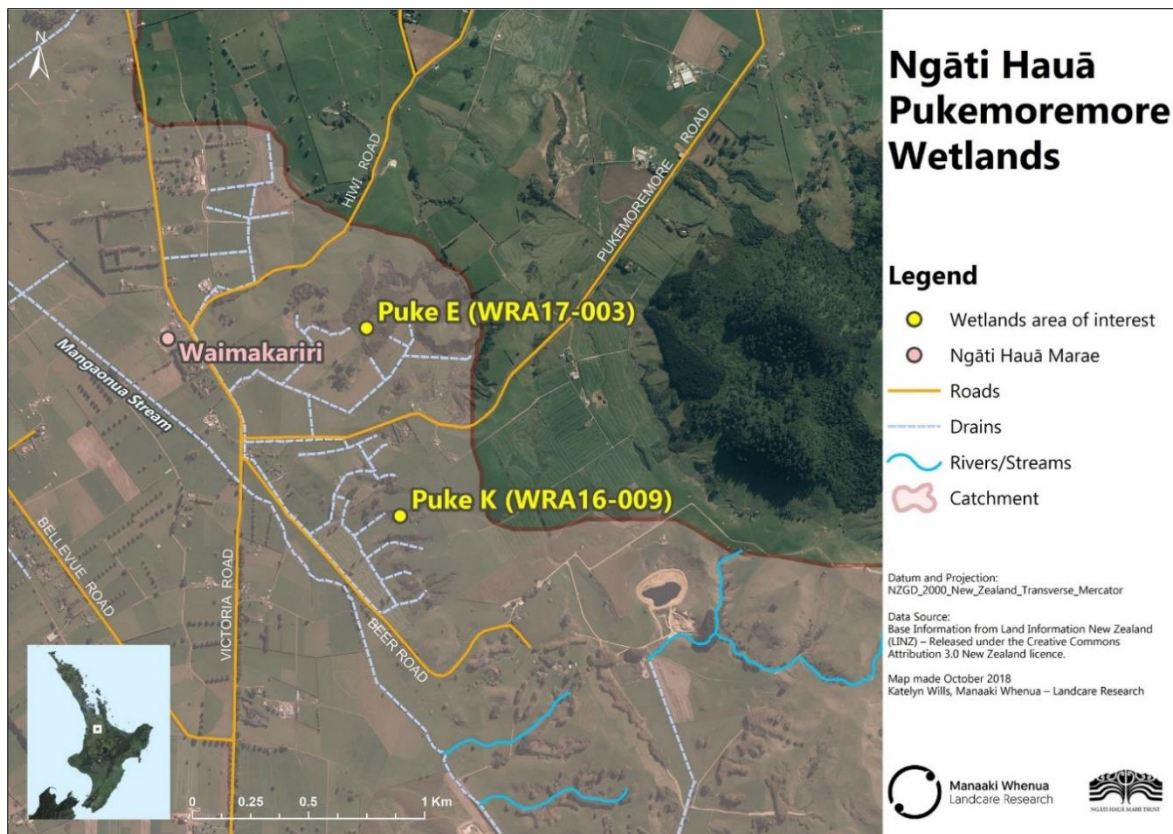


Figure 3. Wetland restoration sites, Puke E and Puke K. (Source, MWLR, 2018)

1.1 Ngāti Hauā te iwi

The people of Ngāti Hauā descend from Hoturoa, the Captain of the Tainui waka. Hauā is the eponymous ancestor of Ngāti Hauā. His father Koroki married Tumataura, daughter of Wairere, and had two sons, Hape and Hauā, from whom Ngāti Koroki Kahukura and Ngāti Hauā respectively descend (Ngāti Hauā Iwi Trust 2018). Defined by significant landmarks, specifically maunga, their customary rohe extends from Te Aroha and Te Rapa in the north, south to Te Weraiti and to Maungatautari (New Zealand Parliament 2014).

The hapū of Ngāti Hauā are Ngāti Te Oro, Ngāti Werewere, Ngāti Waengau, Ngāti Rangitaupī, and Ngāti Rangi Tawhaki. There are five marae: Rukumoana and Kai a Te Mata located in Morrinsville; Raungaiti in Waharoa; Waimakariri in Cambridge; and Te Iti o Hauā in Tauwhare. Each marae recognises the traditional, spiritual, and cultural significance of sites within their own hapu and act accordingly as kaitiaki (Ngāti Hauā Iwi Trust 2018). Ngāti Hauā had occupied Maniapoto Pā, the paramount pā, in the Tamahere region.

The people of Ngāti Hauā have a rich history of strength, unity, faith, and service to the Kingitanga that was founded in the 19th century by their rangatira Wiremu Tamihana Tarapipipi Te Waharoa, the kingmaker, and is still apparent and relevant today. Te Waharoa Tarapipipi was born c. 1805 at Maniapoto Pā and became paramount chief of Ngāti Hauā. Maniapoto Pā is located on the banks of the Mangaone Stream, at the western end of Tauwhare Road, close to Te Iti o Hauā Marae. Maniapoto Pā was well-known for its rich fertile soils for mahinga kai, tuna (longfin eel, *Anguilla dieffenbachii*),

and kōkopu (whitebait species, *Galaxias* spp.) and the gully systems provided inhabit for kūkupa (wood pigeon, *Hemphaga novaeseelandiae*) (Tangata Whenua Working Group 2014).

Traditionally, the large swamps, gullies, and streams served as highways connecting the hapū to the Waikato River, providing a relatively safe haven to travel by foot and waka (canoe). They were also kai kete (food basket) of taonga species such as tuna, īnanga and kōkopu, kōura (freshwater crayfish, *Paranephrops planifrons*), and kāeo (freshwater mussel, *Echyridella menziesi*), and rongoā Māori gathering areas for the iwi who resided in the area. Two Ngāti Hauā marae, Waimakariri (Cambridge) and Te Iti o Hauā (Tauwhare), are located within the catchment. The whānau of these marae, Ngāti Waenganui (Waimakariri) and Ngāti Te Rangitaupi (Te Iti o Hauā), have held mana whenua over the catchment for centuries.

Whānau of both marae have committed to achieving a number of aspirations and priorities including te taiao, which was set out in the Ngāti Hauā Environmental Management Plan (Ngāti Hauā Iwi Trust 2018). These aspirations and priorities include:

- Sustain physical and spiritual relationship with wai and whenua Māori
 - Mahinga kai, rongoā Māori
- Preserve and protect taonga
- Ngā uri whakatapu
 - Support opportunities and participation in environmental wānanga, hui, and conferences
 - Maintain and preserve a physical connection and access to wai, whenua and maunga
- Mātauranga Māori
 - Maintain knowledge gained from past generations, and the intimate connection with te taiao
 - Maintain knowledge gained from current connection with te taiao
 - Work in partnership with western science
- Fulfil roles as kaitiaki to care for wai Māori
 - Appoint and resource one Marae Kaitiaki from each marae to maintain the health and well-being of te taiao
 - Create an Environmental Monitoring Framework to monitor the use of resources and minimise risk to te taiao

1.2 Ngā puna o Mangaonua me Mangaone ki Waikato

The catchment of Mangaonua and Mangaone arises next to the Karapiro Stream and flows in a northerly direction, covering the Matangi, Tauwhare, and Fencourt settlements (Waikato Regional Council 2012). The Mangaone Stream flows northwest, parallel to SH1 in Tamahere, before joining first with the Mangaharakeke Stream and then with the Mangaonua Stream, and then flows into the Waikato River at Riverlea (Bennett 2010). Most of the catchment area is relatively flat. The Mangaonua Stream which runs past Te Iti

o Hauā (Tauwhare Pā), is considered to be the blood vein of Maungakawa Maunga, and therefore is culturally significant to Ngāti Hauā (S. Karena, kaumātua of Ngāti Hauā, pers. comm., 2018).

Traditionally (1840s), the area was covered in indigenous secondary growth vegetation (Leathwick et al. 1995), later modified by land development, predominately dairying, industrial activities, and, most recently, extensive residential subdivisions (Waikato Regional Council 2012). The Mangaonua and Mangaone Stream Catchment is located in the Hamilton Ecological District in the Waikato Ecological Region. The Hamilton Ecological District comprises a basin of peat and alluvium known as the Hinuera formation (Wall et al. 2001). Over the last 15,000 years, the substrate has eroded, resulting in a network of steep sided gullies common in the Hamilton area.

The Mangaonua and Mangaone gullies are characterised by steep slopes with both streams running through a wide floodplain at the base of the gully. Ecological restoration has been carried out within both gullies to fulfil mitigation requirements for the adverse impacts posed on indigenous flora and fauna habitats to develop the Hamilton Section of the Waikato Expressway (Large 2015a, b). The gully systems provide important habitat for many indigenous fauna species, including threatened indigenous species such as black mudfish (*Neochanna diversus*) and tuna (longfin eel) in the streams and wetlands, and pekapeka (long-tailed bats, *Chalinolobus tuberculatus*) in the canopy of the riparian margins (van der Zwan et al. 2017).

Both gullies contain moist wetland soils (that are consistently wet during most of the year) throughout the floodplain and comprise a mixture of indigenous and exotic vegetation. The Mangaonua floodplain dominant native species include *Carex* spp., *Cyperus* spp., tī kouka (*Cordyline australis*), wheki (*Dicksonia squarrosa*), patē (*Schefflera digitata*) and mamaku (*Cyathea medullaris*). The most dominant exotic species include crack willow (*Salix fragilis*) and grey willow (*Salix cinerea*) as both canopy and dense understorey regeneration, periwinkle (*Vinca major*), Japanese honeysuckle (*Lonicera japonica*), *Tradescantia fluminensis*, Chinese privet (*Ligustrum sinense*), and blackberry (*Rubus fruticosus* agg.). The Mangaone floodplain contains an understorey of indigenous species, including silver fern (*Cyathea dealbata*), wheki, tī kouka, *Carex* spp., *Asplenium flaccidum*, and putaputaweta (*Carpodetus serratus*). The dominant exotic species include crack willow, grey willow and weeping willow (*Salix babylonica*), as well as reed sweet grass (*Glyceria maxima*), *Convolvulus* sp., pampas (*Cortaderia selloana*), and arum lily (*Zantedeschia aethiopica*).

Rongoā Māori species are important to the whānau of Ngāti Hauā, therefore the inclusion of planting a variety of rongoā Māori species within the ecological restoration plan was essential (Large 2015a, b). These species include papapa (*Pomaderris kumeraho*), kawakawa (*Macropiper excelsum*), korokio taranga (*Corokia buddleioides*), hinau (*Elaeocarpus dentatus*), rata (*Metrosideros robusta*), kohekohe (*Dysoxylum spectabile*), and tataramoa taramoa (*Rubus cissoides*).

Maintaining habitat for the threatened native pekapeka populations is important to the whānau of Ngāti Hauā. Pekapeka populations are known to use a range of habitats throughout the catchment, including indigenous canopy species tōtara (*Podocarpus totara*), kahikatea (*Dacrycarpus dacrydioides*), and tī kouka, as well as exotic species such

as *Populus* spp., *Pinus* spp., *eucalyptus* spp., and crack willow trees (Large 2015a, b). Bats are known to have a wide feeding range and regularly move between roosting sites. They rely on gullies and open areas for feeding, and mature trees for roosting (van der Zwan et al. 2017).

1.3 Kaupapa Māori assessment tool

In response to increasing demands and pressures in Aotearoa New Zealand on freshwater resources, as well as widespread and worsening degradation of freshwater ecosystems, new policy and planning processes were introduced between 2009 and 2017.⁴ Their purposes were to provide an effective policy and planning framework to incorporate multiple values and improved processes for collaboration, management, and decision-making, and to ensure the long-term sustainability and viability of our freshwater resources. The freshwater habitats of Aotearoa and the species that rely on them are intimately linked to whakapapa and our ways of life, through recreation, industry, tourism, energy production, biodiversity, ecological function or cultural and social values. Freshwater ecosystems are significant to Māori and are integral to Māori cultural identity. An increasing trend, both nationally and internationally, is to engage with indigenous communities for research and collaboration, to include indigenous groups as active participants in resource management decision-making (Rainforth et al. 2019).

To understand cultural monitoring of freshwater resources, such as wetlands, gullies, and streams, it is important to first acknowledge the fundamental concepts of Te Ao Māori (the Māori world view), which underpins mātauranga Māori (Māori ways of knowing). This perspective is derived from traditional mātauranga Māori, providing concepts and values that shape contemporary perspectives. Māori have developed a comprehensive knowledge base of their ecosystems, habitats and species that evolved and endured over intergenerational observations, through an intimate connection (whakapapa) with the natural environment, usually within their own tribal rohe. Freshwater resources were sustained, managed, and regulated through tikanga (customary practices), based on iwi and hapū values and principles, such as kaitiakitanga,⁵ whakapapa (genealogy, interconnectedness), and rangatiratanga (sovereignty, self-determination), linked to and managed through spiritual atua (deity) domains. This connection and knowledge provide Māori today with a unique indigenous perspective for planning, policy, decision-making (Rainforth et al. 2019).

Since the late 1990s, Māori have become increasingly active in local and national environmental programmes, and Māori monitoring approaches were developed to complement and contribute to mainstream State of the Environment monitoring and reporting. At the heart of most kaupapa Māori approaches is the concept of mauri (life force), which provides the fabric for defining Māori aspirational targets and outcomes. Cultural monitoring tools and frameworks are developed to articulate perceptions of

⁴ Resource Management Act (RMA 1991 reforms, National Policy Statement for Freshwater Management (NPS-FM 2011) and its amendments in 2014 and 2017, including the National Objectives Framework (NOF).

⁵ Kaitiakitanga as a concept embodies the responsibility of iwi and hapū, to care for and protect their natural resources. A kaitiaki is a person, group or being that acts as a carer, guardian, protector, and conservator of their natural resources.

environmental change, environmental health, and Māori well-being. These monitoring programmes take into account a blend of mātauranga Māori, traditional concepts, and Western science knowledge, and are continually being adapted and modified for local use. The use of mātauranga Māori alongside scientific knowledge is developed to complement science-based monitoring while also ensuring culturally appropriate outcomes (Awatere et al. 2014; Rainforth et al. 2019). Most cultural monitoring tools and frameworks have developed a set of standard indicators or values (e.g. water quality, taonga species, mahinga kai), which builds up a knowledge base specific to the local iwi and hapū of that area.

Cultural monitoring can be used to build the capacity and capability of Māori communities, identify cultural values and priorities, strengthen connections between Māori and freshwater resources, build skills and knowledge in both mātauranga Māori and Western science, and measure progress towards agreed goals to achieve desired freshwater outcomes and Māori aspirations (Robb 2014). It has also been found that cultural monitoring and cultural projects provide a basis to build understanding, share learnings, and develop methods (e.g. through wānanga and field work) in order to set standards and limits within freshwater ecosystems. Cultural monitoring is typically used to articulate values as well as assess, measure, and monitor changes to the environment from a Māori perspective, and report those changes.

Over the past two decades, a variety of different kaupapa Māori-based cultural monitoring tools and frameworks have been developed to assist iwi and hapū to assess and monitor their freshwater resources. These range from decision-making tools (e.g. Mauri Model (Morgan 2006)), to digitally-based assessments (e.g. Wai Ora Wai Māori (Awatere et al. 2017; Taura et al. 2017), and Mauri Compass <https://www.mauricompass.com>), to mapping approaches for understanding and recording cultural knowledge (e.g. cultural mapping), preferences and monitoring requirements (Māori environmental performance indicators for wetland condition and trend (Harmsworth 2002)), to research around important species (e.g. taonga species monitoring), through to kaupapa Māori assessments of the state and health of a waterbody (e.g. Cultural Health Index (Tipa 2003, 2006)). Most of these tools, frameworks, and methods are adaptable to suit local priorities, preferences, and protocols (Rainforth et al. 2019).

The Ngāti Hauā Environmental Management Plan (2018) was developed to express Ngāti Hauā values and aspirations for their taiao, with specific focus for the health and well-being of their lands, air, waterways, wetlands, and fisheries. It is important for Ngāti Hauā to express themselves and articulate their relationship and whakapapa with traditional sites, landscapes, and resources. The purpose of a kaupapa Māori assessment tool is to ensure that the values and aspirations of Ngāti Hauā are expressed within a framework, to guide restoration and monitoring of their wetlands, gullies, and streams.

2 Objectives

The aim of the Wetland Mauri Framework is to begin a journey into Mauri Assessments by exploring with whānau from Waimakariri and Te Iti o Hauā Marae to identify their key values, indicators, and goals for the restoration and monitoring of wetlands, gullies, and streams. The framework has been developed to help plan appropriate methods for future monitoring programmes. Mātauranga-a-iwi (iwi specific knowledge) and cultural values are inherent, while restoration priorities can be based on scientific principles and ecological understanding. We envisioned that whakapapa and ahikāroa (burning fires of occupation) are key values for restoration and underlie many of the priorities Ngāti Hauā have identified.

The Ngāti Hauā Environmental Management Plan (2018) identifies some key values, principles and beliefs of Ngāti Hauā for the taiao; these include whakapapa,⁶ wairua and mauri,⁷ kaitiakitanga,⁸ whenua,⁹ and wai.¹⁰ These all align and work to develop the foundation of the Ngāti Hauā Wetland Mauri Framework. Te Mana o Te Wai – the integrated and holistic approach that represents the holistic well-being of a water body (wetlands, lakes, rivers, and streams) and its ability to provide for:

- Te Hauora o Te Tangata (health of the people)
- Te Hauora o Te Taiao (health of the environment)
- Te Hauora o Te Wai (health of the water body, in this case wetlands)

This ensures that any partners working with Ngāti Hauā takes a holistic approach by considering and providing for the range of values that iwi and community hold for their water bodies. To ensure the health and well-being of water for current and future generations.

3 Methods

3.1 Relationship building

This research project ensured a kaupapa Māori approach by forming a working relationship between both parties. In December 2017, Manaaki Whenua researchers from the SSIF Resilient Wetlands programme attended a pōwhiri at Rukumoana Marae, Morrinsville, to formalise the commencement of a working relationship with Ngāti Hauā Mahi Trust (Fig. 4). This research was co-led by kairangahau Māori Yvonne Taura and

⁶ Whakapapa – the world view of Ngāti Hauā and acknowledges their connection with the taiao and with each other.

⁷ Wairua and mauri – all natural resources are considered to have the qualities of spirituality and life supporting capacity and considered to be living and interconnected.

⁸ Kaitiakitanga – acknowledges the importance of tangata whenua in managing resources sustainably for current and future generations.

⁹ Whenua – intrinsic connection to the health and well-being of Papatūānuku, and all that she sustains.

¹⁰ Wai – important to Ngāti Hauā as it is considered to be the blood of Papatūānuku that falls upon her as the tears of Ranginui.

Mahuru Wilcox (Manaaki Whenua), alongside Ngāti Hauā Mahi Trust General Manager Keri Thompson, who assigned Waikohu Keelan (administrator) to be the intern throughout the research process.

The research team then co-designed a research plan to co-develop a Wetland Mauri Framework to support the wetland restoration work that NHMT was undertaking within the Mangaonua and Mangaone Stream Catchment. It was through this restoration work that the whānau of Waimakariri and Te Iti ō Hauā Marae were engaged. A Mana Enhancing Agreement (MEA, see Appendix I) was developed to formalise the research relationship, and also set out the terms of reference and relationship protocols.

As part of this partnership, Manaaki Whenua supported a paid summer internship for Waikohu Keelan as a way to build capacity and support research experience within NHMT. This internship also assisted Manaaki Whenua in working with the whānau from both Waimakariri and Te Iti ō Hauā Marae. Waikohu organised the interview schedule, attended interviews and supported the data analysis process.



Figure 4. Ngāti Hauā Mahi Trust kaimahi, kaumātua from Rukumoana Marae, Manaaki Whenua kairangahau, and international guests from Australia and Canada. Rukumoana Marae, 2017.

3.2 Social Ethics

To follow proper research procedures, the research team applied to the MWLR social ethics application process. The ethics application, along with an Intellectual Property (IP) Agreement, Participant Information Sheet, and Consent Form (Appendix II) were written in collaboration with Ngāti Hauā Mahi Trust to ensure all intellectual property was safeguarded and that the research process followed the appropriate tikanga (protocols). The ethics application was approved in March 2018.

3.3 Interviews

Semi-directed interviews were conducted with nine whānau members (kaumātua, kaitiaki, rangatahi, iwi managers and practitioners) in total, two from Te Iti o Hauā Marae, three from Waimakariri Marae, and four from the Ngāti Hauā rohe. These interviews were conducted in a space familiar to the participant, either at the marae or the Ngāti Hauā Iwi Trust Office (Morrinsville). Each interview was approximately 60–90 minutes, and was audio-recorded to enable transcription for further analysis. The following open-ended questions (Table 1) were used to gently guide discussion and were adapted depending on the experiences and knowledge of each participant. First, participants were asked to talk about their background (i.e. who they are, where they are from, their position and role if institutional members). Participants were also asked about their experience with both traditional and contemporary customary interaction and management of the environment, e.g. experience with interacting with their wetlands, and their connection to them. More detailed enquiry emerged depending on the nature of responses of the participant.

Interviews were conducted partly in te reo Māori and partly in English, depending on fluency of participants. They were audiotaped and transcribed verbatim. The interviews were recorded with participant consent so that accurate transcripts could be produced for thematic analysis (coding for themes). Audio-recording allowed the researcher to fully focus on listening to the participant, thus showing empathy and respect for the participant. All participants were guaranteed anonymity. Koha in the form of petrol and supermarket vouchers were given to each participant, and morning or afternoon tea was provided at the time of the interview. This process of small offerings was to show appreciation to each participant for their time and valued contribution to the research.

Table 1. Interview questions

Pātai – Questions?	
1.	Can you please tell me a bit about your connection to this area (especially the wetland areas)?
2.	What was important about the wetlands to your parents and tūpuna?
3.	What is important about the wetlands to you now?
4.	What state or condition are your wetlands in now?
5.	What have you lost (or gained) from the degradation of your wetlands? Why do you think restoration is necessary or important?
6.	What are the attributes of wetlands and connection with community that need to be restored?
7.	What would 'successful' restoration look (feel or sound) like to you? In other words, what would you want to see or experience to judge restoration as a success?
8.	Are there other goals that you would like the restoration effort to achieve (beyond physical changes)? What are the benefits that you think restoration would (or should) contribute to the area (whānau, iwi, or wider community)?
9.	What role do you see mātauranga-a-Ngāti Hāua having in the restoration of your wetlands?
10.	Have you had any involvement with wetland restoration projects? What motivated you to be involved? Why are you supporting it? If not, why not?
11.	Do you think those things that are important to you will be reflected as the restoration proceeds? Are there any 'barriers' that you can see preventing successful restoration (as you see it)?
12.	Are there any aspects that would be particularly important to you to see included as the restoration progresses? Are there aspects that are important that you haven't mentioned yet?
13.	Is there anything else that you haven't had a chance to talk about yet?

3.4 Thematic analysis of key values

Thematic analysis is a method for 'identifying, analysing, and reporting patterns (themes or values) within data' (Braun & Clarke 2006, p. 79). This method of analysis is concerned with identifying recurring and important patterns, known as themes or values, to develop meaning and understanding from particular textual data. Themes are identifiable by their frequency, extensiveness, and intensity (Owen 1984; Wilkson 1998). This approach enabled flexibility to move between narratives as experiences and allowed the application of a Māori lens to the analysis. Key values were identified at the time of interview, and then again during analysis of the written transcription. The research team met to discuss the initial findings, to ensure that a similar approach was taken among each team member. Language used and values identified were adjusted based on group feedback, to ensure consistent analysis.

3.5 Relative word frequency analysis (word clouds)

Repetition is one of the easiest ways to identify themes and values. Some of the most obvious themes and values are topics that occur and reoccur often, recurring regularities. The more the same concept occurs in the text, in this case, interview transcript, the more likely it is to be a theme (Ryan 2003). The NVivo software¹¹ can create word frequency queries to list the most frequently occurring words or concepts from a body of text. Each interview transcript was entered on NVivo software for further analysis. It was recommended to cross-reference the thematic analysis approach by generating word clouds to analyse the relative frequency with which individual terms were used by each participant. This process was also to ensure that the lens/bias of the research team had not significantly skewed the analysis process. Before NVivo analysis, each interview transcript had to be cleaned up, by removing adjectives, pronouns, prepositions, conjunctions, determiners, exclamations, and ensuring nouns (e.g. marae) and verbs (e.g. swim, swimming) remained. For consistency, the kupu Māori (Māori word) for a term was made the superior, e.g. wetland = repo, water = wai, flax = harakeke, work = mahi, etc. All dialogue from the interviewer was removed (e.g. questions and remarks) to prevent skewing the frequency of words mentioned, thus ensuring the dialogue was made only by the participant. One restriction of the NVivo software, is that it only recognised singular words and not double or triple words, such as Ngāti Hauā or Te Iti o Hauā. In these cases, it was assumed that the term 'Hauā' represented Ngāti Hauā or Te Iti o Hauā.

4 Results

4.1 Thematic analysis of key values

Key values identified through thematic analysis and relative word frequency (word clouds) methods were summarised in Table 2, along with quotes made by the whānau members (participants). The following values were identified through both methods:

- Mātauranga Māori
- Restoration
- Tikanga
- Connection/disconnection
- Impacts
- Taonga species
 - Harakeke and raranga
 - Muka and paru
 - Tuna, koura, kāeo, kōkopu
 - Kereru, tui, kahu
 - Pekapeka
 - Kawakawa, watercress, puha

¹¹ Nvivo 12 Pro is a qualitative data analysis software.

- Wāhi tapu/wāhi taonga
- Sites of significance
- Opportunities/ capacity and capability building
- Relationships/collaboration
- Water quality/quantity
- Access
- Mahinga kai
- Intergenerational
- Aspirations
- Challenges

These values were integral to understanding the values, principles, and beliefs that were raised by the whānau members.

Table 2. Key values identified through interviews transcript analysis, and relevant quotes made by the participants

Values	Quotes from whānau members (participants)
Mātauranga Māori	<p><i>"My grandfather was an advocate for mātauranga Māori, strong advocate. So, that was passed down to his children. Our whānau was lucky enough to still hold strong to that."</i></p> <p><i>"The environment is the closest connection we have to our atua."</i></p> <p><i>"Mātauranga Māori is important to work and connect to the environment."</i></p>
Restoration	<p><i>"It's all based around kai, everything's based around kai in terms of taonga and things like that, it's kai or whatever feeds that kai. So, making sure that the water that feeds or the nutrients that feed that particular kai that you're gonna eat is looked after as well."</i></p> <p><i>"I'd like to leave it [repo] in a better state than what it is now, for my mokopuna."</i></p>
Tikanga	<p><i>"The only guide book is our tikanga..... not so much preserve our tikanga but to preserve Papatūānuku, preserve Tangaroa, preserve ana tamariki."</i></p> <p><i>"Do we need to revive tikanga or do we need to re-affirm tikanga or do we need to re-invent tikanga to preserve these things that are important to us?"</i></p> <p><i>"To invent tikanga to protect ourselves of these things today. Tikanga our tupuna never knew of."</i></p> <p><i>"A lot of our old tikanga and old ways are just not relevant now. We don't have the same environment as we did then. So, the exercise for us as tangata whenua is to understand what's not relevant now. Why was it relevant then? So, what's not relevant to us now and what is relevant to us now."</i></p> <p><i>"[Tikanga] could be actually as important as teaching te reo [Māori]. Teaching ourselves about our environment and with a Māori perspective."</i></p> <p><i>"You threw back the boot laces 'small tuna' to make sure you only took reasonable size tuna."</i></p> <p><i>"We have to make sure that we always follow best practice around our interactions with the environment, whether that be through mahinga kai or restoration."</i></p> <p><i>"Make sure that too much kai isn't taken from the one area, that they [whānau] are moving around and sourcing kai from different areas to ensure the regeneration of kai. That some areas are left and used only for special occasions."</i></p>
Connection/ disconnection	<p><i>"A connection spiritually, but there's no physical connection. It would be wonderful to get back to that phase."</i></p> <p><i>"They [rivers] all come from here [Maungakawa Maunga], these are our tributaries that link us back to the Waikato awa and I look at them as being key veins of Maungakawa, that's an important maunga for us."</i></p> <p><i>"Te Waharoa used swamps as prime location for pa site."</i></p> <p><i>"The women would go to the [Waimakariri] stream to wash their pakikau, then they would wash the children. The children would shiver and squeal at the coldness of the water, thus naming the stream Waimakariri. Whānau no longer practice this."</i></p> <p><i>"It was common for areas to be named after environmental conditions of the area – Waiharakeke (abundance of harakeke), Te Waikaukau (swimming water), Waimatao (cold water)"</i></p>

Values	Quotes from whānau members (participants)
Impacts	<p><i>"Isn't enough trees around."</i></p> <p><i>"Farmers pulling out harakeke because it contaminates the milk".</i></p> <p><i>"There used to be plenty of repo but they've [tauiwi] done away with them all".</i></p> <p><i>"I kite engari kaore i kite, i rongo engari kaore i rongo – They saw but have not seen, they hear but have not heard."</i></p> <p><i>"You can see them [farmers] stomping our whenua."</i></p> <p><i>"We grew up down at the creek and now I won't let my kids swim in it."</i></p>
Taonga species	<p><i>"Heaps of harakeke used to be around the marae."</i></p> <p><i>"Ki au, te harakeke he taonga hirahira – the harakeke was all so nurturing"</i></p> <p><i>"Different harakeke used for different things, piupiu harakeke was different to kete harakeke, which would be different to harakeke used for making mats."</i></p> <p><i>"Harakeke filtered pollutants in the water."</i></p> <p><i>"Harakeke was used for rongoā to help with constipation, the root is boiled and made into a drink."</i></p> <p><i>"Yeah, we have lots of raupō but it would be good to see kuta back down here."</i></p> <p><i>"It was just a small bit of it [paru], yeah just the edge of it. [wetland]. But to do that, they had to clear out a lot of the bush and dig up some of the paru."</i></p> <p><i>"The numbers [of tuna] aren't as high as they once were, but it does depend where you go."</i></p> <p><i>"The knowledge around catching tuna is lost [seasons etc.]"</i></p> <p><i>"There are no more kōura."</i></p> <p><i>"I think I was around five and we went eeling once, we were just going along the banks but the old man just pointed me into the depths of the water, it was quite deep and I'd say it was about two metres, I could see the freshwater kōura on the ground running."</i></p> <p><i>"[rotting willow stands] creates whare for ngangara (insects) to live in. Allowing pekapeka (bats) to adjust as the willow dies away, giving those whanaunga of ours a chance to be a part of the change instead of just go through and scorch earth it, which isn't the approach when it comes to environmental restoration, 'cause your trying to retain as much of the biodiversity within the place as possible and the ecology of it."</i></p>
Wāhi tapu/ wāhi taonga	<p><i>"If you go a bit higher (up the catchment) you can find pipi shells and all that, mussel shells and all that, which is quite unique."</i></p> <p><i>"Yes, cause apparently the type of mud in repo is a good preservative. So, yeah, treasures. Cause that's the type of soil that's in the gullies, muddy, swampy lands. So, those are the kinds of things we can keep an eye out for. Waka or parts of whare."</i></p>

Values	Quotes from whānau members (participants)
Sites of significance	<p><i>"Waitakaruru Stream was the traditional site for baptisms in Tauwhare. But the lack of access and degradation of the depth of the stream means that whānau can no longer use that site for baptisms. It used to be our swimming hole too."</i></p> <p><i>"Pukemoremore was known for having a lot of springs where a Ratana settlement was. Residents of this settlement were known to have a spring each and would draw their water from their personal springs."</i></p> <p><i>"Taonga were buried into those [Mangaonua] repo to preserve them. In mid-1970's out at Maungakawa Maunga, all the taonga from the original Kauhanganui were found in the swamp, buried in the swamp. They had been there for over eighty years retrieved out of the swamp, the Museum, archaeologists and scientists said they were well preserved."</i></p> <p><i>"A lot of occupation involved pulling of waka in the swamp loaded with cargo that needed to get to the awa. Swamps contained the tracks along the banks to pull the waka along to get them out of the Waikato river."</i></p> <p><i>"Moremore is a historical fish that gave Pukemoremore its name."</i></p> <p><i>"Te Oko Horoi (Cambridge Lake) was named this because in that area he [Tawhiao] washed his mind, body and soul."</i></p> <p><i>"There is a sacred tree used for burying placenta that is ancient to Waimakariri Marae."</i></p>
Opportunities/capacity and capability building	<p><i>"...business plan of actually growing watercress, like hydroponically"</i></p>
Relationships/collaboration	<p><i>"...if you're coming here as an entity, a corporation then treat us like that, as a partner. Let's work collectively together. So, that's I think that's where part of our marae direction is heading towards."</i></p>
Water quality/quantity	<p><i>"Then I'd go home and say no it's dry. Where else do I go?"</i></p> <p><i>"We used to swim in the Mangaonua, under the bridge, but no longer swim there anymore because the water has depleted."</i></p>
Access	<p><i>"So, yeah it was access and then water levels, but now there's cows."</i></p>

Values	Quotes from whānau members (participants)
Mahinga kai	<p><i>"Probably just mainly about eeling. They (kaumātua) said there were hundreds and thousands of eels, but they said you know you just want a feed of eels and in a couple of minutes you'd have eels or even watercress actually."</i></p> <p><i>"I remember being tasked with the kaupapa of supplying tuna for my first cousin, for her 21st and set out hinaki down at Parata Falls down behind Kaia te mata and set the hinaki just on dusk, used some liver or kidney or something for bait and went back about not even two hours later and that hinaki was full, it was packed (late 1990's)."</i></p> <p><i>"A Dutch style net was used, I recall about at least 30–70 tuna caught in the net. A couple were let go [too small] while the others ranged from 600–700mm in length, 50cm diameter. Predominantly short fin (silverbelly)..... Just recently [2017/18], in the same spot, the numbers aren't there, a few smaller ones and relatively good condition. More longfin than shortfin – "I call those kuwharu (yellow belly) but that's a name for tuna that I learnt from up north."</i></p> <p><i>"The size of tuna are bigger at the beginning of Mangaonua where the water is beautiful."</i></p> <p><i>"You can tell the differences in taste of the tuna, from the different areas of Mangaonua Catchment – Pukemoremore is known to have the best."</i></p> <p><i>"Kai gathering was sort of the main time to really interact with the whenua, with our taiao in those areas in the catchments and especially for tangihanga."</i></p> <p><i>"I just remember our whole street go for little missions. Some of the uncles taking all of us kids and just getting connected to it [mahinga kai]."</i></p>
Intergenerational	<p><i>"So, mahinga kai obviously and the practice of it and that's slowly dying out. Our old people are getting old, so they're finding it hard to teach our younger ones and especially with them having to venture further out by foot."</i></p> <p><i>"As a young fulla it was the catching of kai, catching of tuna was the main one. My dad's brother was kind of that ahi kā person for us down here [Ngāti Hauā]..... he was kind of the go to person around that mahinga kai kaupapa."</i></p> <p><i>"But I guess in terms of the background in the fundamental hononga for me as an individual to the taiao ki te taiao was under the teachings of my father and I guess my koro and kui..... and their teachings around kai. But not just kai, learning about a lot of the different aspects of the environment, like the wind, the moon, the sun, the dark and how all these different elements affect, particularly the kai resources."</i></p> <p><i>"No one talked about it [moremore] for years and years"</i></p>
Aspirations	<p><i>"I reckon you've got to sit down with the iwi and ask them, what is it of our tūpuna that's relevant to us today about these taonga? Is it still relevant today? Do we need to revive tikanga or do we need to re-affirm tikanga or do we need to re-invent tikanga to preserve these things that are important to us? Today we going to have to invent new tikanga because of the new activities that are going on today, because they're not recognised in old tikanga. I understand that. If our kaumātua that were here fifteen, twenty years ago were here, they wouldn't understand that."</i></p> <p><i>"Topehaehae [river] from the swimming hole to the marae, which is about 2.5 kilometres of main stream and about five or six different wetland systems. But in terms of the big picture for that, it would be looking at the whole catchment from the swimming hole upstream and the restoration of all of those areas."</i></p> <p><i>"Tauwhare [Te Iti o Hauā] Marae has a self-sustainable water supply from historical wells based on or near the marae because of the expense of town water."</i></p> <p><i>"To restore the baptism site at Waitakaruru stream."</i></p> <p><i>"For native birds to return to areas of the native bush."</i></p> <p><i>"I'd love to see every potential area that can be a wetland to be reestablished into a wetland."</i></p> <p><i>"To see mātauranga Māori strengthened within the iwi of Ngāti Hauā."</i></p>

Values	Quotes from whānau members (participants)
Challenges	<p><i>"I think personally part of that [the challenges] is the social healing of mauri. You know not just the environmental healing of mauri but looking at the people as well and the state that they're in. And I guess you know, if you wanted to look at it like that it's reflected in the water. Until the water is in a pristine state, it's hard to get the people in that state too, I think and vice versa."</i></p> <p><i>"Pākehā farmers aren't going to listen to a brown boy turning up at their gate. It needs weight behind it and that's where Regional policy and central Government legislation comes into play, so it's kind of piggy backing off that weight and going in and saying we're kind of on the ground people trying to get this mahi done."</i></p> <p><i>"Over the last couple of years, I've seen a more passionate kaimahi, so the kaimahi that are coming in are passionate about the environment. They have more connection to it, they're younger, they're a younger demographic of people that are coming in. I think passion and drive is massive and I think a willingness to learn is also."</i></p> <p><i>"[Establishing relationships with adjacent landowners] is where it starts ay, the whanaungatanga between yourself and the landowners. There are two farmers that I work quite closely with and they're the two dairy units that are adjacent to our marae. They're really good, like they've come a long way in terms of how they do things and they've been farming there, one farmer's been there for a hundred years and the other ones been there about forty years."</i></p>

4.2 Relative word frequency analysis (word clouds)

Examples of relative word frequencies illustrate key words mentioned frequently by whānau members (participants). The words 'marae' and 'stream' were frequently mentioned by two whānau members in the examples below (Figs 5 and 6). Word clouds produced for all whānau members can be seen in Appendix III. Figure 5 illustrates the relative word frequency mentioned by one whānau member. The word 'marae' was mentioned most frequently, indicated by the largest text size. The words kōura, kōrero, whānau, and wai were also mentioned relatively frequently, while other words were mentioned least frequently (indicated by smaller text size), e.g. friend, farm, and care, etc. Figure 6 also illustrates the relative word frequency mentioned by another whānau member. In this interview, the word 'stream' was mentioned most often. The words tuna, kai, wai, and whānau were mentioned less frequently, while other words were mentioned least frequently (indicated by smaller text size), e.g. baptised, exist, beautiful, and experience.



Figure 5. Example #1 of relative word frequency (word cloud) used by a participant interview. The word 'marae' is the most frequently used word in this example.

etc.). The *Mahi* theme included kōrero about “work on the ground” and collaborative working relationships. This was particularly important as Ngāti Hauā and kaitiaki work with private companies, and local and regional councils to address environmental impacts, development and restoration projects. The key indicators associated with the *Mahi* theme were to restore taonga, inclusion of iwi and marae aspirations, capacity building and meaningful collaboration and kōrero. For the last theme, *Mahinga Kai*, much of the kōrero was centred on the presence and absence of mahinga kai (both aquatic plants and animals). Many of the traditional mahinga kai sites were impacted by water quality and quantity issues as well as the whānau no longer having access to particular sites due to historical loss of land during the raupatu (confiscation), or an increase of private land ownership. The main indicators associated with the *Mahinga Kai* theme were health and availability of kai species such as watercress and puha, and tuna, kōura, kaeo, and kōkopu. Intergenerational connection and learning tikanga processes were important as well as access to sites, and understanding and reversing environmental impacts on mahinga kai. The quotes summarised in Table 2 highlight specific details, places and events associated with the four key themes.

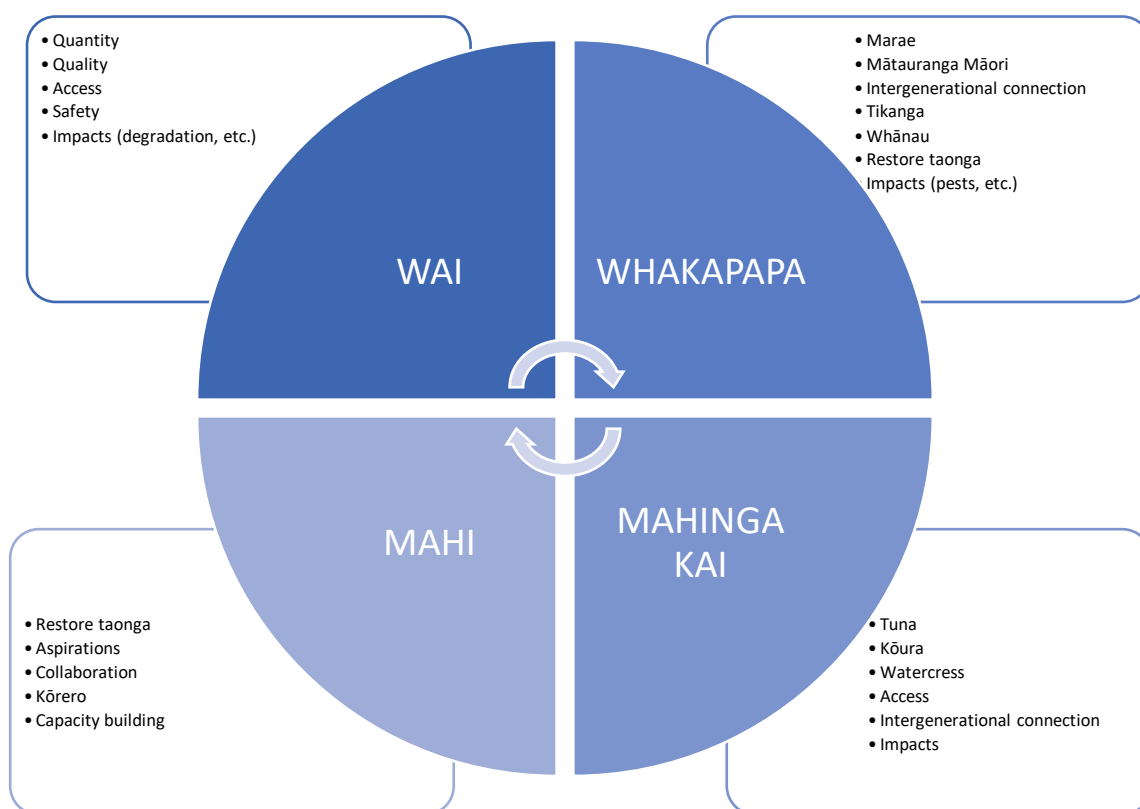


Figure 7. Draft Ngāti Hauā Wetland Mauri Framework based on key values from interviews. The framework was presented to the whānau members from both Waimakariri and Te Iti o Hauā Marae for feedback.

The draft framework in Figure 7 was altered to align to the key values, principles and beliefs of Ngāti Hauā (Ngāti Hauā Environmental Management Plan 2018, p. 45) and three of the four themes were updated to reflect the Environmental Management Plan (Fig. 8). The theme *Wai* aligned to Te Hauora o Te Wai, the theme *Whakapapa* aligned to Te

Hauora o Te Tangata, the theme *Mahi* aligned to Te Hauora o Te Taiao, and the theme Mahinga kai remained the same.

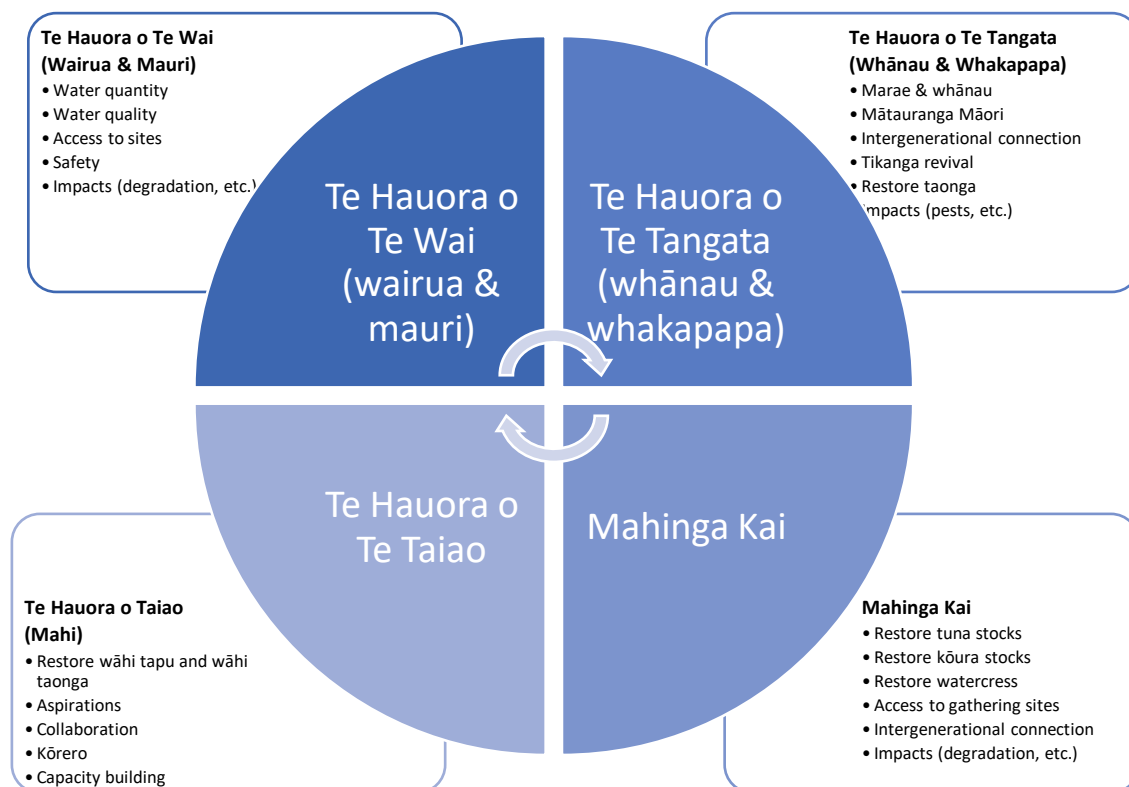


Figure 8. The Ngāti Hauā Wetland Mauri Framework based on feedback from whānau members and key themes from the Ngāti Hauā Environmental Management Plan, which align with the values identified by both Waimakariri and Te Iti o Hauā Marae, in Figure 7.

The draft framework was presented back to each of the whānau members, who were asked to provide feedback either kanohi kitea (face to face), or via email. The feedback was reasonably consistent between the four of the seven whānau members who responded with feedback, and covered the following points:

- Too many words, preferred a visual representation
- Required a brief background document to explain the values and indicators
- Clarity as to how these values were measured was necessary, as they were not clearly represented in the framework.

Therefore, the research team decided that a visual representation of the framework would be more appropriate, in order to clearly connect the themes for the whānau of Waimakariri and Te Iti o Hauā Marae. Weka Pene, a local artist, tā moko artist, and a former kaimahi of Ngāti Hauā Mahi Trust, created a conceptual image (Figs 9 and 10) to align with the kōrero provided by the whānau and representation of the diagram (Fig. 8).

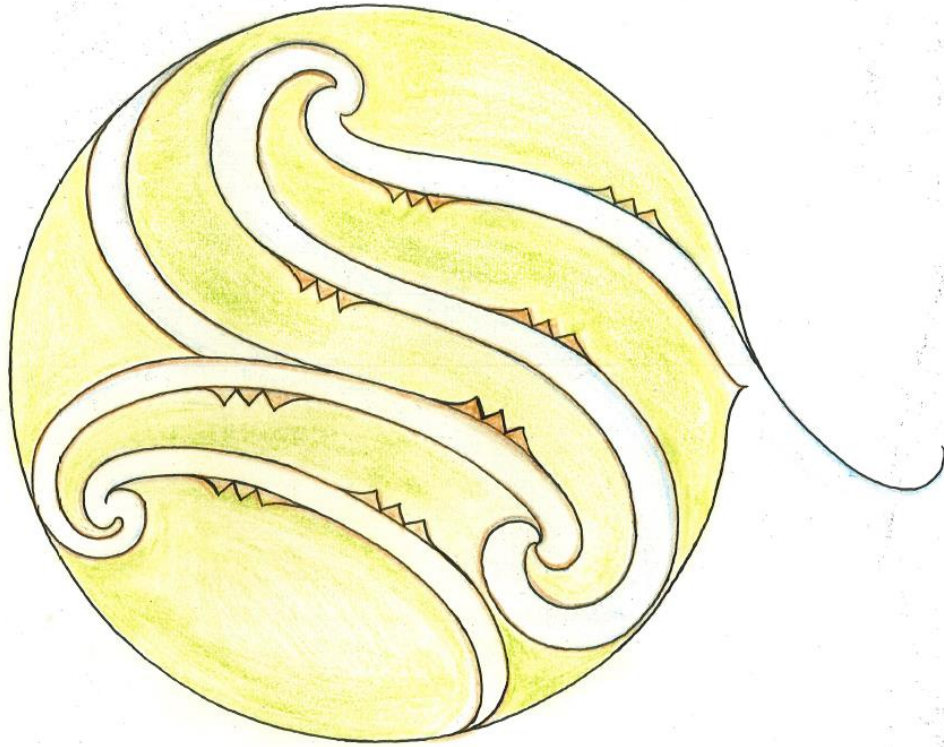


Figure 9: Draft conceptual illustration of Ngāti Hauā Wetland Mauri Framework (without text). (Artist: Weka Pene)



Figure 10. Final conceptual illustration of Ngāti Hauā Wetland Mauri Framework including four key themes. (Artist: Weka Pene)

The following brief of the conceptual illustration was provided by the artist: the circular image is a representation of the interconnectedness of our environment, of the relationship each element of the environment has with each other. It is symbolic of the important roles each living thing has for the health and well-being of our environment and for each other, which is exemplified in this whakatauki:

Ki te kore a Rakahore, ka kore a Rakataura

Without the pull of Rakataura's current, the pebbles of Rakahore won't turn

If the pebbles of Rakahore aren't turned by the current of Rakataura, the water will become paru and consequently affect that entire eco-system. The koru in this image are representations of all the important aspects of our environment: the flowing water, trees and plants, birds, tuna and kōura (and other fish species), insects, people, and their kōrero. We are all significant and responsible for the health and well-being and mauri of our taiao.

Figure 11 illustrates the final Ngāti Hauā Wetland Mauri framework with the four key themes, connected to the important values identified by the whānau from Waimakariri and Te Iti o Hauā Marae (in text boxes). The holistic concept of interconnectedness between the key themes and values were maintained by using a circular design. The koru, all linked and unfurling in different directions, along with the text written on an angle, highlights the importance of all themes and values. No one theme or value is ranked as having more importance than the other. This final framework can form the foundation for future wetland restoration priorities and projects within the rohe of Waimakariri and Te Iti o Hauā Marae, in partnership with the Ngāti Hauā Mahi Trust.

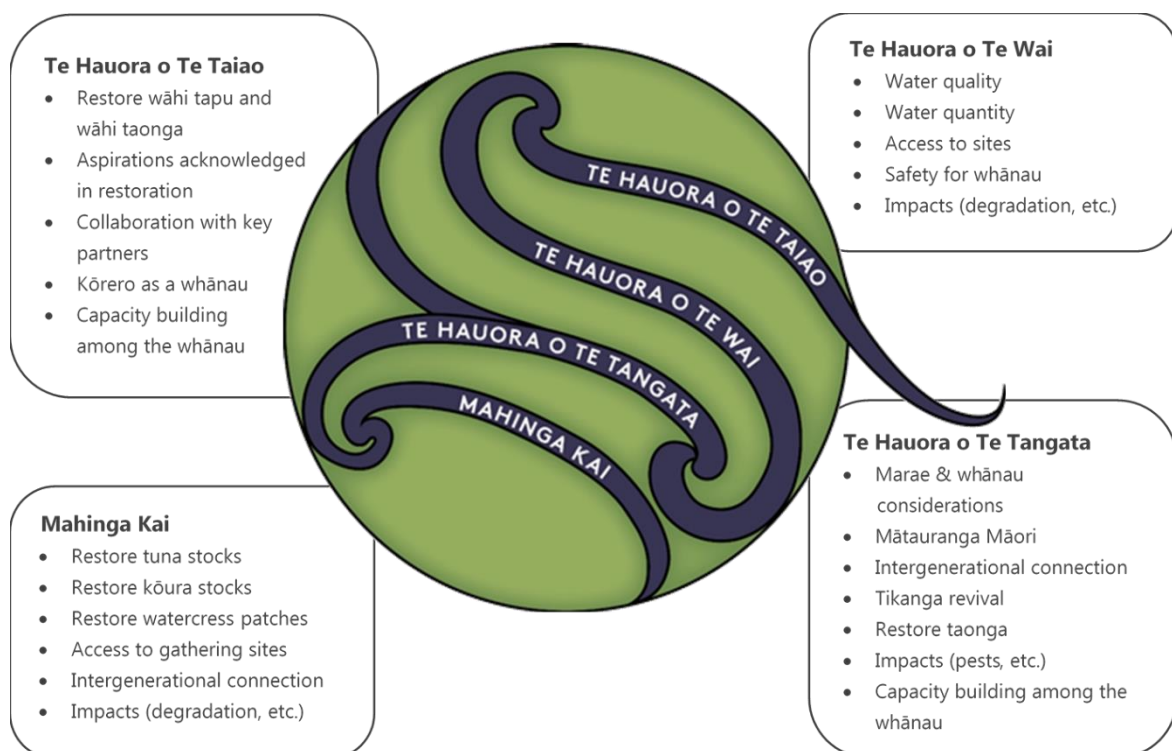


Figure 11. Final conceptual illustration of Ngāti Hauā Wetland Mauri Framework including themes and values (in text boxes) identified by participants. (Artist: Weka Pene)

5 Discussion and Conclusions

This collaborative research project was interesting, informative, and full of opportunity for reciprocal learning. The positive working relationship between Ngāti Hauā Mahi Trust and Manaaki Whenua was officially cemented with both the Mana Enhancing Agreement and pōwhiri at Rukumoana Marae, in 2018. It was through NHMT that the research team were able to connect with the whānau of Waimakariri and Te Iti o Hauā Marae. For future projects like this, we would recommend the marae whānau being included in the formation of the initial research relationship (i.e. included in the powhiri at the marae) to work collaboratively to co-design and co-develop the project (i.e. milestones and outcomes). This would ensure all parties involved in the project understood each stage of the project, the level of commitment, and project timeframes.

The willingness and openness of those who did participate in the interviews and feedback sessions were really appreciated, especially as we acknowledge the demands on kaitiaki and kaumātua who are committed to other tribal matters. Because of this, it was difficult at times to create opportunities for the research team to meet with the whānau members on a regular basis. Although koha was provided for everyone on this occasion, in future there could perhaps be better reimbursement/acknowledgement of people's time and knowledge sharing, possibly through meeting fees or contracted time.

When analysing the interview transcripts, the research team were very aware of researcher bias and the impacts of analysing information through our own world views and lenses. The best approach to manage this was to use both the thematic analysis and relative word frequency (word cloud) analysis methods. Before either method was used, we removed any kōrero dialogue made by the interviewer from the transcript. This ensured that our words did not influence the relative word frequency, and allowed the voice of the whānau member to be truly represented. We also provided the analysis and draft framework to each of the whānau members for feedback. The feedback we received was very helpful when refining the key themes and how we presented the framework.

The relative word frequency (word clouds) provided a visual representation reflecting the themes and values that were identified in the thematic analysis. As a stand-alone method, relative word frequency analysis is not sufficient, as single words do not necessarily convey important values or themes in this context. However, single words can be indicative of particular themes. For example, the reoccurring theme of 'intergenerational connection', was illustrated by the words whānau, kaumātua, and tamariki.

A draft framework was created based on the values and themes identified in the thematic analysis and relative word frequency methods. Four overarching key themes were identified: *Wai*, *Whakapapa*, *Mahi*, and *Mahinga Kai*, which then became the frame for the values raised by the kōrero of the whānau members, noted in the quotes. The themes were altered to align with the overarching themes set out in the Ngāti Hauā Environmental Management Plan: Te Hauora o Te Wai, Te Hauora o Te Tangata, Te Hauora o Te Taiao; the theme Mahinga Kai remained the same.

Feedback provided by some of the whānau members about the draft framework, required some attention. They were concerned about the visual representation, and required clarity about the values identified and how they were measured. It was important to incorporate this feedback into the final framework design, therefore the team then decided that a visual representation of the framework would be more appropriate, in order to clearly connect the themes for the whānau of Waimakariri and Te Iti o Hauā Marae. A local artist of Ngāti Hauā was selected to create a conceptual image that aligned with the kōrero provided by the whānau and representation of the diagram.

We believe that the final framework, with the explanations of values and incorporation of a conceptual design, can be used to form the foundation for future wetland restoration priorities and projects within the rohe of Waimakariri and Te Iti o Hauā Marae (Mangaonua and Mangaone Stream Catchment), in partnership with the Ngāti Hauā Mahi Trust. It was important that this project focused on setting the foundation by first exploring and recognising the values, principles, and beliefs embedded by the whānau of Ngāti Hauā, more specifically Waimakariri and Te Iti o Hauā Marae. The overarching themes and associated values will form the basis for developing a kaupapa Māori-based monitoring tool embedded and guided by mātauranga-a-iwi, -a-hapū, -a-marae, -a-whānau o Ngāti Hauā.

6 Next steps

We recommend that the themes and values recognised within the Ngāti Hauā Wetland Mauri Framework be used as a foundation for the development of a practical wetland monitoring tool for projects undertaken throughout the Mangaonua and Mangaone Stream Catchment. Both the framework and subsequent monitoring tools can be utilised in current and future wetland restoration projects led by the whānau of Waimakariri and Te iti o Hauā, or in collaboration with Ngāti Hauā Mahi Trust, and other external organisations. A kaupapa Māori-based approach will ensure that monitoring measures are guided and led by mātauranga-a-iwi, -a-hapū, -a-marae, -a-whānau o Ngāti Hauā. This will encourage the whānau of these marae to take a proactive approach in understanding the state of their wetlands throughout their rohe. Unfortunately, the development of a wetland monitoring tool was beyond the scope of this project. However, we recommend the following resources to guide this process:

- Wai Ora Wai Māori kaupapa Māori freshwater monitoring tool
- Māori environmental performance indicators for wetland condition and trend
- Cultural Health Index for stream health
- Mauri compass

7 Acknowledgements

Ehara te toa o te kaupapa nei i te toa takitahi, he toa takitini. Nā whero, nā pango i oti ai te mahi, i whaongia tēnei kete mātauranga, ā, he kai kei ēnei ringa. Nō reira, e te hapai ō, e kore te puna mihi e mimiti.

The success of this project is not defined by the actions of the research team alone but by the collaborative effort from knowledge-seekers eager to share in the understanding of the importance of Mauri. From kaitiaki to kaimahi to kairangahau, the contribution of their work has helped to weave this basket of knowledge for future generations and for the betterment of our rohe of Ngāti Hauā. It is this collective effort that we have to share. We would like to thank:

- The kaumātua and whānau of Waimakariri and Te Iti o Hauā Marae
- Ngāti Hauā Kaitiaki-a-rohe
- Ngāti Hauā Iwi Trust
- Waikato River Authority
- Manaaki Whenua – Resilient Wetlands Programme
- Biological Heritage National Science Challenge
- Waikato-Tainui Mercury Partnership
- Department of Conservation
- Weka Pene
- Norman Hill (Boffa Miskell)
- NIWA
- Waikato Regional Council

Tēnei anō te tuku mihi ki a koutou.

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Appendix I - Mana Enhancing Agreement (MEA)



Mana Enhancing Agreement Between Ngāti Hauā Mahi Trust and Manaaki Whenua – Landcare Research

1 Preamble

- 1.1 *Ngāti Hauā Mahi Trust (NHMT) and Manaaki Whenua – Landcare Research (MWLR) are undertaking a collaborative research project 'Ngāti Hauā Mahi Trust Wetland Connection and Restoration'. The Biological Heritage National Science Challenge (BHNSC) "aims to enhance and restore New Zealand's land-based and freshwater ecosystems – on the conservation estate or in private ownership – by deepening our understanding of which species we have, and seeking science-based solutions to dealing with threats: pest animals and insects, weeds, pathogens, and climate change". Supporting mātauranga Māori and collaboration with Māori research partners is a strategic priority for the Challenge within BHNSC Project 3.2. – Customary approaches and practices for optimising cultural and ecological resilience. This is also supported by SSIF funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment's Science and Innovation Group (Wetlands Project). This kaupapa aligns with NHMT project Ngā puna o Mangaonua me Mangaone ki Waikato – Ecological Catchments Plan, funded by the Waikato River Authority. Wetlands are a key habitat and taonga for many iwi and hapū around the country, and of critical importance when looking at solutions for freshwater management.*
- 1.2 The program focuses on co-developing multiple freshwater and wetland restoration initiatives. Manaaki Whenua supports Ngāti Hauā Mahi Trust to develop a restoration framework grounded in their whakapapa-based principles and connection between their land and taonga species. A tool that can empower kaitiaki to build iwi capacity, knowledge sharing and transfer to support intergenerational succession.

2 Purpose of Agreement

- 2.1 This agreement sets out the terms and conditions for the collaborators participating in this research project. This agreement will clearly identify the obligations of each party in accordance with the principles stated in the *NHMT* IP guiding principles attached.

3 Obligations of the Parties

- 3.1 Where relevant and appropriate both parties, that are the named *NHMT* and *MWLR*, will have consideration for the relationships between the Partners (*NHMT* and *MWLR*) and *other collaborators* that are involved in the wider project.

3.2 *NHMT* will ensure that the following obligations are met:

- i* Appoint kaitiaki to oversee the coordination and management of the project. Their responsibilities will include interacting with, and instructing the research team of decisions of *NHMT* concerning the study;
- ii* Participate in and support the project (wānanga discussions, feedback on the project and the information gathered);
- iii* Review and consider for release unpublished reports, media releases, peer-reviewed publications, presentations, photographs, and all results and information for distribution to the scientific and general community;
- iv* Provide guidance, advice and support to *Researchers (MWLR)* on all cultural matters where assistance is required;
- v* *NHMT* agrees to a moratorium on the release of mātauranga and data (e.g interview transcripts) collected as part of the research project to any other researchers or third parties for the funded life of the research project. This provides the researchers the opportunity to publish and present on the information collected as part of the research project, as per guidelines outlined below;
- vi* The mātauranga and data collected is not used as part of the research project for any other purpose except that agreed with *NHMT*;
- vii* Act in accordance with the IP guiding principles attached.

3.3 All *Researchers* will ensure that they comply with the following conditions:

- i* Act in good faith and uphold the IP guiding principles attached;
- ii* Consult on all cultural matters and interpretation of mātauranga and any re-framing of mātauranga with the appropriate individuals from *NHMT*;
- iii* Ensure all mātauranga is handled with appropriate respect;
- iv* Ensure that confidentiality is maintained when they conduct their research;
- v* Ensure that *NHMT* participants are provided with all necessary advice and guidance when interpreting scientific results obtained as part of the project.

3.4 It is acknowledged that both parties will have tikanga and Standard Operating Procedures, (e.g. Health and Safety Regulations) to guide safe and appropriate conduct in field operations. Both parties agree that when operating in field situations that employees and representatives from each party will comply with tikanga and SOP's pertaining to *NHMT* and the *Researchers (MWLR)*.

4 Obligations of the Parties

- 4.1 The first point of contact of any results and interpretations from the study will be the kaitiaki appointed by *NHMT* to oversee the coordination and management of the project;
- 4.2 All mātauranga and Intellectual Property relating to mātauranga is owned by *NHMT* and/or its hapū, whānau, and individuals;

- 4.3 The kaitiaki hold power to veto inclusion of any mātauranga provided by *NHMT* participants to the project. However, this power of veto shall not apply to scientific outcomes that do not involve mātauranga provided by *NHMT* participants. *NHMT* acknowledges that research may occur in a broader context in partnership with other iwi, and that mātauranga sourced from other iwi belongs to that particular iwi;
- 4.4 All scientific information, data and IP generated as part of the project will be jointly owned by the *Researchers (MWLR)* and *NHMT*;
- 4.5 *NHMT* will be responsible for reviewing and providing prior written consent for the release of research results and information including mātauranga, meeting minutes, general dialogue, and photographs in peer-reviewed publications, popular articles, interviews, presentations, and any other form of media. This consent may be distributed by email by the appointed kaitiaki or project coordinator;
- 4.6 The kaitiaki will provide feedback and decisions regarding the release of all research results and information, mātauranga (traditional knowledge), meeting minutes, general dialogue, and photographs in peer-reviewed publications, popular articles, interviews and presentations to the appointed project coordinator within two weeks. The appointed project coordinator will then immediately notify the *Researchers (MWLR)* of feedback and decisions made by the kaitiaki;
- 4.7 Within reason all *Researchers (MWLR)* must be willing to report the results of the research at hui, wānanga, meetings, conferences, workshops, or any other gathering as directed by *NHMT*.

5 Media

- 5.1 No statements are to be made to the media, research providers, or any other agency unless expressly agreed to by both parties. As far as possible, all public statements about the research programme will be made by representatives from *NHMT*.

6 Confidentiality

- 6.1 Information disclosed by one party to the other concerning the project and the arrangements between the Parties that are detailed in this Agreement are confidential.
- 6.2 Neither Party will disclose any confidential information to any third party, other than MBIE and SSIF, without the express agreement of the other Party.
- 6.3 The Parties agree that confidential information received under this Agreement will not be used for any purpose other than carrying out this Agreement and any future Research Agreements relating to the project.
- 6.4 This confidentiality provision will survive the expiration or termination of this Agreement and shall be legally enforceable by one Party against the other.

7 Breach of terms and conditions of this Agreement

- 7.1 Where any terms within this agreement have been breached, then the following process will be followed:
 - i NHMT will be notified of the nature of the breach;

- ii The *Researchers (MWLR)* will be asked to attend a meeting with the kaitiaki or its representatives from *NHMT* to discuss the incident;
- iii *NHMT* will determine the severity of the breach in consultation with Manaaki Whenua – Landcare Research (MWLR) and then discuss the course of action to be taken;
- iv The *Researchers (MWLR)* will then be notified of the outcome.

8 Dispute Resolution

- 8.1 Any dispute concerning the subject matter of this Agreement will be settled by full and frank discussion and negotiation between Parties. These discussions will take place *kanohi ki te kanohi* (face to face) and be conducted in a manner that is non-threatening and nurtures resolving of issues.
- 8.2 Should the dispute not be resolved satisfactorily by these means, the Parties agree that they will engage in mediation conducted in accordance with the terms and conditions of the LEADR New Zealand Inc Standard Mediation Agreement.

Appendix II - Intellectual Property Agreement, Consent Form and Participation Information Sheet



Intellectual Property Guiding Principles Ngāti Hauā Mahi Trust

Background

These guiding principles are to outline the management of Intellectual Property (IP) which may arise in the research project 'Ngāti Hauā Wetland Connection and Restoration'. *Ngāti Hauā Mahi Trust (NHMT)* and *Manaaki Whenua – Landcare Research (MWLR)* are undertaking a collaborative research programme. *NHMT* would like to acknowledge funding from the Waikato River Authority programme *Ngā puna o Mangaonua me Mangaone ki Waikato – Ecological catchments plan*. *MWLR* would like to acknowledge funding from New Zealand's Biological Heritage National Science Challenge, Project 3.2 *Customary approaches and practices for optimising cultural and ecological resilience*. Supporting mātauranga Māori and collaboration with Māori is a strategic priority for the Challenge. As well as SSIF funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment's Science and Innovation Group (Wetlands Project). Both parties recognise a major task will be managing IP and that a number of collaborators and end-users will be engaged in the project. Capacity building is a major outcome for all project participants; this will include information and knowledge sharing as a key feature to enable this outcome.

Intellectual property includes but is not limited to:

- Mātauranga Māori (including oral histories and narrative)
- Scientific data
- Māori and Western assessment tools and systems
- Process methodologies
- Kaupapa Māori research
- Databases, models, and software
- Printed and electronic publications
- Research proposals, data and results
- Know-how, trade secrets and other non-codified IP
- Applications of knowledge

Principles

The principles governing the ownership, use and beneficiaries of any intellectual property, either existing or potentially being developed, will be as follows:

- All Parties will respect and work within agreements and existing relationships regarding use of knowledge, information data, publications, release, publicity and confidentiality of all material;
- Ownership of all existing proprietary data and information (including mātauranga) used for the Work remains with the originating Party (*NHMT*), and such existing data and information may only be used for the purpose for which it is supplied. Further use or disclosure of such existing data and information by any Party will require the written approval of the owning Party;
- Agreements with individuals, whānau, hapū and other iwi/hapū organisations participating in the research will determine the methods for eliciting this information, its form, and transfer mechanisms and what can be released to various audiences and in various forums. Sensitive or confidential knowledge will not be used or released into the public domain;
- The cultural intellectual property of mātauranga Māori will reside with the originating party (i.e. the tangata whenua, in this case *NHMT*) and will be used in accordance with agreements developed with those providing the knowledge, except in cases where that knowledge is already in the public domain. Intellectual and cultural property includes, but is not restricted to: Traditional Māori knowledge (oral, narratives, written); place names, cultural sites (e.g., wāhi taonga) art and design (toi iho, whakairo), icons, symbols, images, brands, motifs, photographs, paintings, prints, historic records and archives, printed and electronic publications;
- Information may be made available with consent from originating parties through meetings, workshops, hui, reports, case studies, peer-reviewed scientific publications, web sites, and presentations at conferences;
- Any uses, products, processes, tools, concepts or methodologies generated in whole or in part from the use of cultural data or mātauranga Māori supplied by tangata whenua during the course of the research project will acknowledge the community of origin and the owners of such knowledge;
- No Party will disclose or distribute any information that is supplied and marked, or stated to be, 'in-Confidence' by the originating Party, except as and to the extent authorised by the originating Party. This includes information deemed to be culturally sensitive such as wāhi tapu;
- This Project incorporates data and functionality from existing databases, tools, models and software that have existing access protocols and ownership arrangements in place. This Project will respect and work within these existing protocols, agreements, and arrangements;
- Current access protocols and ownership arrangements from existing databases, models and software will be respected;
- In agreement with originating Parties, information and knowledge sufficiently altered and modified for the purposes of this research (e.g. generic Māori values)

will become the property of the research team and receiving organisation. Generic Maori values include mātauranga Māori that has been generalised, changed, and modified for the purposes of this research;

- A formal approval process will be put in place for publication of scientific papers, reports, popular articles, and any form of media release;
- New data and information obtained during the project shall be jointly owned by developing parties. Methodological approaches developed by either party shall be the property of the developing party;
- Furthermore, each Party agrees not to represent the other Party in any forum, without the express written permission of the other Party;
- In agreement with both parties a Mana enhancement relationship will permeate, which places the principle of mana at the centre of this collaboration to regulate the guiding principles in working towards the common goals of the Iwi mātauranga project.
 - This places obligation upon all parties to uphold with integrity, even excel in, aspects of the initiative that are detailed in the project agreement. Behaving in ways that are generous, uplifting and supportive to each other is imperative. To do so creates a 'favourable view' in the way the collaborators are perceived by others, accordingly, their mana is enhanced. On the other hand, to act in contrary fashion can have negative implications resulting in partner's mana being diminished

Tiriti o Waitangi and WAI 262

Manaaki Whenua – Landcare Research will have due regard to the Treaty of Waitangi and the WAI 262 claim relating to cultural and intellectual property. This will be to assert exclusive and comprehensive rights of cultural knowledge and property such as taonga protected under Article 2 of the Tiriti o Waitangi including the four main categories:

- Mātauranga Māori (traditional knowledge)
- Māori cultural property (tangible manifestation of mātauranga Māori)
- Māori intellectual and cultural property rights
- Environmental, resource and conservation management

Collaboration

Manaaki Whenua – Landcare Research and *Ngāti Hauā Mahi Trust* have agreed to collaborate under certain terms and conditions. The research will be regularly peer-reviewed by each party through appropriate tikanga and western science processes.

Management of Commercialisable IP

Should any intellectual property that may have commercial benefits (such as models and tools) be created either during or as a result of the research partnership, a formal structure will be established to manage the equitable sharing of costs and benefits.

IP Management Plan

Freedom to Operate:

Where we draw upon knowledge that is within the public domain we have complete freedom to operate. Where freedom-to-operate is assessed to be limited, licenses will be obtained for any research or commercial activities prior to the commencement of any project.

Identifying and protecting IP:

The Research Team will also actively identify IP as it arises from the programme of work and will seek advice from Ngāti Hauā Mahi Trust on how to proceed with commercialisation. All publications and reports will be reviewed for IP and peer reviewed internally before submission. Where IP has been identified and protected, Manaaki Whenua – Landcare Research and Ngāti Hauā Mahi Trust will identify the most appropriate pathway to market.

Managing IP:

All IP developed by this programme where research providers are deemed to have an ownership share will be managed using the approved internal processes of each provider. Best Practice Guidelines will be made available to and will be adopted by *Manaaki Whenua – Landcare Research*. The lead researchers *Yvonne Taura* and *Mahuru Wilcox* will seek appropriate guidance as the initial point of contact to manage and execute IP protection within this programme.



Ngāti Hauā Wetland Connection and Restoration Participant Information Sheet

Purpose

The purpose of this interview is to support the development of a restoration framework for Ngāti Hauā, grounded in whakapapa-based principles and connection between their whenua and taonga species. The research team is interested in identifying values and goals for wetland restoration sites, identify wetland key restoration priorities, choose an appropriate method for a monitoring programme, and develop a cultural monitoring programme based on these values and goals.

Your Involvement

If you choose to take part in this study, your involvement in this project will be to talk about your experience with wetlands and freshwater habitats within the rohe of Ngāti Hauā. The interview will last between 60 and 90 minutes and will be audio and/or video-recorded for transcription and analysis. As a follow-up to this investigation, you will be asked to review the interview transcript and confirm that this is an accurate transcription of the interview (within two weeks of receiving the transcript).

Participation is voluntary and you have the right to withdraw at any stage. You may ask for your raw data to be returned to you or destroyed at any point. If you withdraw, any information relating to you will be removed. However, once analysis of raw data starts (approximately one month after your interview) it will become increasingly difficult to remove the influence of your data on the results.

The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation: your identity will not be made public without your prior consent. To ensure anonymity and confidentiality, only the named researchers (see below) will have access to the interview recording and transcript. The audio/video-recording and transcript will be saved onto secure drives at Ngāti Hauā Mahi Trust and/or Ngāti Hauā Iwi Trust and Manaaki Whenua – Landcare Research for the duration of the research. You will be allocated a code so that transcripts are not labeled with anything which may identify you.

Following the completion of the research, your recording and transcript will be destroyed on your request, provided to you or your whānau for storage, or stored with Ngāti Hauā Mahi Trust and/or Ngāti Hauā Iwi Trust. A summary and report of the research results will be provided to you. Please indicate to the researcher on the Consent Form if you agree to have

your information stored with Ngāti Hauā Mahi Trust and/or Ngāti Hauā Iwi Trust, and Manaaki Whenua – Landcare Research.

Project Background

This research is being conducted as part of a collaborative project between Ngāti Hauā Mahi Trust and Manaaki Whenua – Landcare Research, with the support of Ngāti Hauā Iwi Trust. It is funded by the Biological Heritage National Science Challenge and SSIF funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment (Wetland project). It is supported by Ngāti Hauā Mahi Trust and Ngāti Hauā Iwi Trust, and operates under a Mana Enhancement Agreement signed by Ngāti Hauā Mahi Trust (see Keri Thompson for more information on this). The research project is being led by Yvonne Taura (Ngāti Hauā) and Mahuru Wilcox (Ngāti Awa, Ngāti Ranginui), with the support of Waikohu Keelan (Ngāti Hauā Mahi Trust). This project has also been reviewed and approved by the Landcare Research Human Ethics Committee, and participants should address any complaints to: The Chair, Human Ethics Committee, Landcare Research, PO Box 69040, Lincoln, 7640 (GreenawayA@landcareresearch.co.nz).

If you agree to participate in the study, you are asked to complete the consent form, which I will collect from you before the interview starts.

Researcher Contact Details	
Keri Thompson Ngāti Hauā Mahi Trust PO Box 347, Morrinsville, 3340 keri.thompson@nhmt.org.nz	Waikohu Keelan Ngāti Hauā Mahi Trust PO Box 347, Morrinsville, 3340 admin@nhmt.org.nz
Yvonne Taura Manaaki Whenua Private Bag 3127, Hamilton, 3240 tauray@landcareresearch.co.nz	Mahuru Wilcox Manaaki Whenua Private Bag 3127, Hamilton, 3240 wilcoxm@landcareresearch.co.nz



Ngāti Hauā Wetland Connection and Restoration Consent Form

I have read the **Participant Information Sheet** my participation in this project has been fully explained to me. The questions about the project have been answered to my satisfaction, and I understand that I may ask further questions about the project at any time.

I also understand that I am free to withdraw from this research at any time, or decline to be involved or and free not answer any particular questions as part of this project. I understand I can withdraw any information/knowledge I have provided up until the researcher has reported my conversations/knowledge. I agree to provide information/knowledge to the researchers under the conditions of confidentiality set out on the **Participant Information Sheet**.

I agree to participate in this project under the terms and conditions set out in the **Participant Information Sheet**.

Signed: _____

Name: _____ Date: _____

Additional Consent as Required

- ☐ I wish to remain anonymous in future publications/media that use information from hui/wānanga, interviews I participate in.
- ☐ I agree to my kōrero and responses being audio recorded.
- ☐ I agree to my images being used as part of the research project
- ☐ I understand that all data collected for the study will be kept in locked and secure facilities with Manaaki Whenua – Landcare Research and Ngāti Hauā Mahi Trust.
- ☐ I agree to my voice being recorded during a one-on-one, semi-structured, or group interview. Also after, if I decide to not start or complete the interview all associated data and recordings will not be used, and will be destroyed.
- ☐ I would like a summary of the results of the project.

Signed: _____

Name: _____ Date: _____

Researcher's Contact Information:

Yvonne Taura: tauray@landcareresearch.co.nz; Mahuru Wilcox: wilcoxm@landcareresearch.co.nz

Email address (for report of findings, if applicable): _____

Please return a signed copy of this consent form to the researcher on the day of the interview.

Appendix III – Relative Frequency Analysis (Word Clouds)

*All anonymous to protect individuals' identity and mātauranga shared in the project.

