

7.3 HEI WHENUA ORA TE HĀKARI DUNE WETLAND

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Historically, Māori culture has survived by being intimately coupled in a co-evolutionary sense with the wellbeing and survival of natural ecosystems – one goal cannot be achieved without the other. From the worldview of tangata whenua (indigenous people), therefore, ecological restoration efforts involve human intervention in a highly complex socio-cultural-ecological system.

We often hear ecological systems being described as a component of the wider 'natural landscape' – those places where living organisms and plants co-exist in a co-evolutionary relationship with each other and interact with soils, atmosphere, and hydrological features and processes. However, intrinsic to these are the 'cultural landscapes' – those places where humans have transformed natural areas, or where natural settings have shaped people's way of life. Humans have greatly influenced nature, so that it could be said that virtually all landscapes are cultural landscapes.

A cultural landscape can also be an ancestral landscape that refers to the activities of tūpuna (ancestors) and ensuing generations, whose influences and adaptations have shaped lands and waterways over time. The larger ancestral landscape of Te Hākari wetland, therefore, comes under the guardianship of

hapū (subtribe), Ngāti Te Rangitāwhia, Te Mateawa, and Ngāti Kapumanawawhiti ki Kuku, who affiliate to the iwi (tribe), Ngāti Tūkorehe, in the region of Kuku, Horowhenua. Ngāti Tūkorehe are also affiliated to, and politically aligned with, Ngāti Raukawa ki te Tonga.

The understanding of cultural landscape in the Kuku rohe (region) grew from lands and waterways that existed in hapū and whānau (family) ownership, which continues today for coastal areas retained in Māori title. Over generations, a range of close relationships and associations have accumulated among these natural and cultural entities, specifically, among people, land holdings, and freshwater, marine, and forest resources.

A repo (swamp) like Te Hākari Dune Wetland or coastal foreshore ecosystems, or a river ecosystem, or a forest, could be considered, with the people it sustained, to be a living being and be termed a taonga (treasure) because of the associations our people have accumulated with it. Hapū also inherited their mana (authority) for lands and waterways through their close associations with the intrinsic power that these natural areas produced. Such associations sustained their lives and contributed to their wellbeing and security.

The cultural or ancestral landscape of Te Hākari is bounded by the Tasman Sea and where it meets the Ōhau River and estuary; where prevailing north and north-westerly winds blow across adjacent sandy fore dunes.



Te Hākari Dune Wetland (on left side of road) adjacent to dunes and Ōhau Estuary, 1946. Photo: National Archives, Wellington

ABOUT TE HĀKARI

Te Hākari Dune Wetland was once part of an extensive coastal forest encompassing a series of lakes, lagoons, and dune wetlands located within an ancestral area along a coastal plain in southwest Horowhenua. Originally, it was hydrologically and ecologically linked to the dune lakes and wetland systems of Ōhine Lagoon, Lake Waitaha, and Ōrotokare Wetland at Muhunua just north of Waiwiri Stream. There are subsurface waterways beneath dune lakes and related spring systems. In recent years the coastal area has been mapped as having high-risk susceptibility to liquefaction, due to earthquake.

Te Hākari sits within ancestral lands retained under the ownership and kaitiakitanga (the exercise of guardianship) of local hapū of Ngāti Tūkorehe. A kawenata (covenant) established in 2002 in partnership between the then Minister for Conservation, Sandra Lee, with Tahamata Incorporation (mana whenua (indigenous people with primary rights and responsibilities over an area) and adjacent farm owners) encompasses an area of:

- 13.7 hectares (33.85 acres)
- a paddock on its southwest
- ephemeral wetland adjacent to the Tahamata Incorporation farm pine forest
- the larger wetland system itself
- Te Hākari Stream

Since ancestral occupation, the coastal lands and waterways have been retained by hapū on the southern side of the Ōhau River. There are shared responsibilities for the Waiwiri region (north of the Ōhau River) for affiliated tribes like Ngāti Kikopiri and Ngāti Hikitunga, and for neighbouring Muāūpoko, who also have responsibilities for areas bordering the northern Waiwiri region.

The lower reaches of the Ōhau River include the meander known locally as the 'loop', which is hydrologically linked to the tidal estuary, Te Hākari dune wetland and the larger system stretching southward towards the Waikawa River. The coastal, flood plain then extends inland to the Mangananao, Tikorangi, and Kuku Streams confluence that flows into the Ōhau River adjacent to older dune systems.

Our tūpuna depended on wetlands and coastal estuaries for food and as sources of material, e.g. fibre for making clothes. Over time they generated an intimate closeness with the environment and shaped and influenced the landscape, wetlands, and waterways through their actions. They lived, procreated, died, and sustained themselves by their seafaring, fishing, gardening, and housing skills using natural resources from the biodiversity rich wetlands, and coastal and estuarine regions. They entreated spiritual entities and their associated environmental properties.

What are kawenata?

A kawenata is a covenant under section 29 of the Conservation Act 1987 that, with the agreement of Māori landowners, can be put in place over an area deemed to be of high conservation significance. Kawenata are reviewable and can be set for an initial time period of 25 years. Their central purpose is to manage, preserve, and protect natural and historic resources, and to bolster the spiritual and cultural values of the interrelated region.

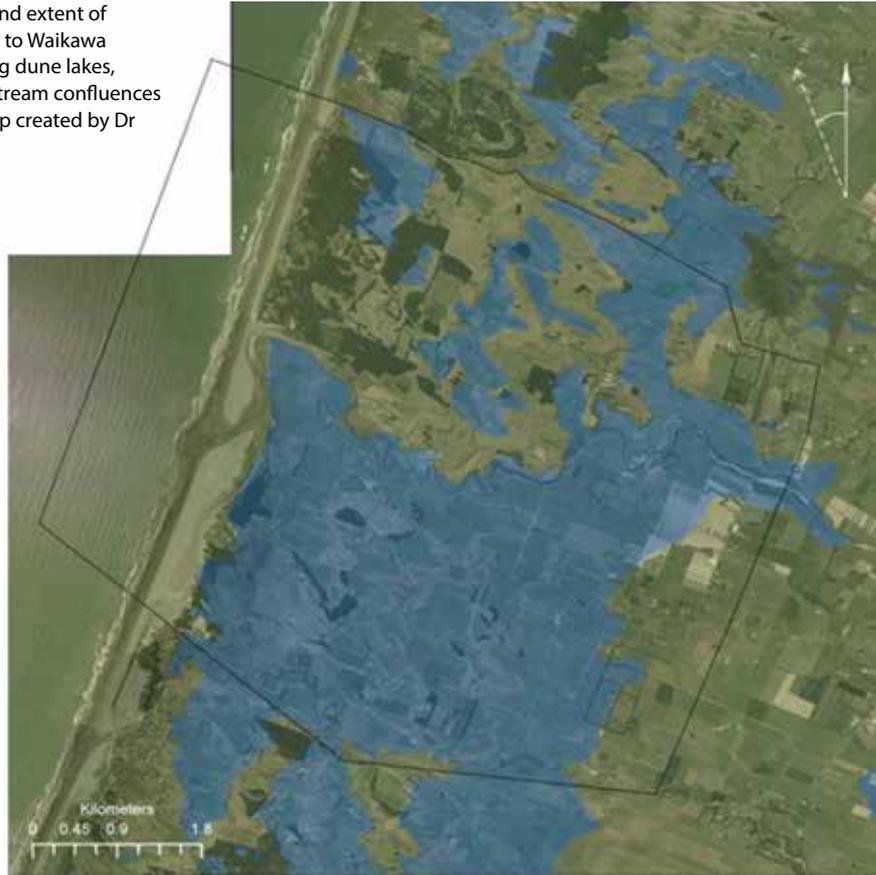
Benefits for Te Hākari:

- It acknowledges the mana whenua status of Tahamata Incorporation and its iwi and hapū shareholders
- It protects and enhances the cultural and spiritual values by recognising the historic, archaeological, and educational values associated with the land and its related water bodies. It maintains landscape amenity values of the land
- It provides for the public's recreational use and enjoyment of the land consistent with the objectives and consent of Tahamata Incorporation as a leading economic entity of Ngāti Tūkorehe

For more information about kawenata see:

www.doc.govt.nz/ngawhenuarahui

Pre 1840s wetland extent of Muhunua, Kuku to Waikawa region, including dune lakes, wetlands, and stream confluences (blue areas). Map created by Dr Anthony Cole



2009 waterways in Muhunua, Kuku to Waikawa region, including dune lakes, wetlands, and stream confluences. Map created by Dr Anthony Cole

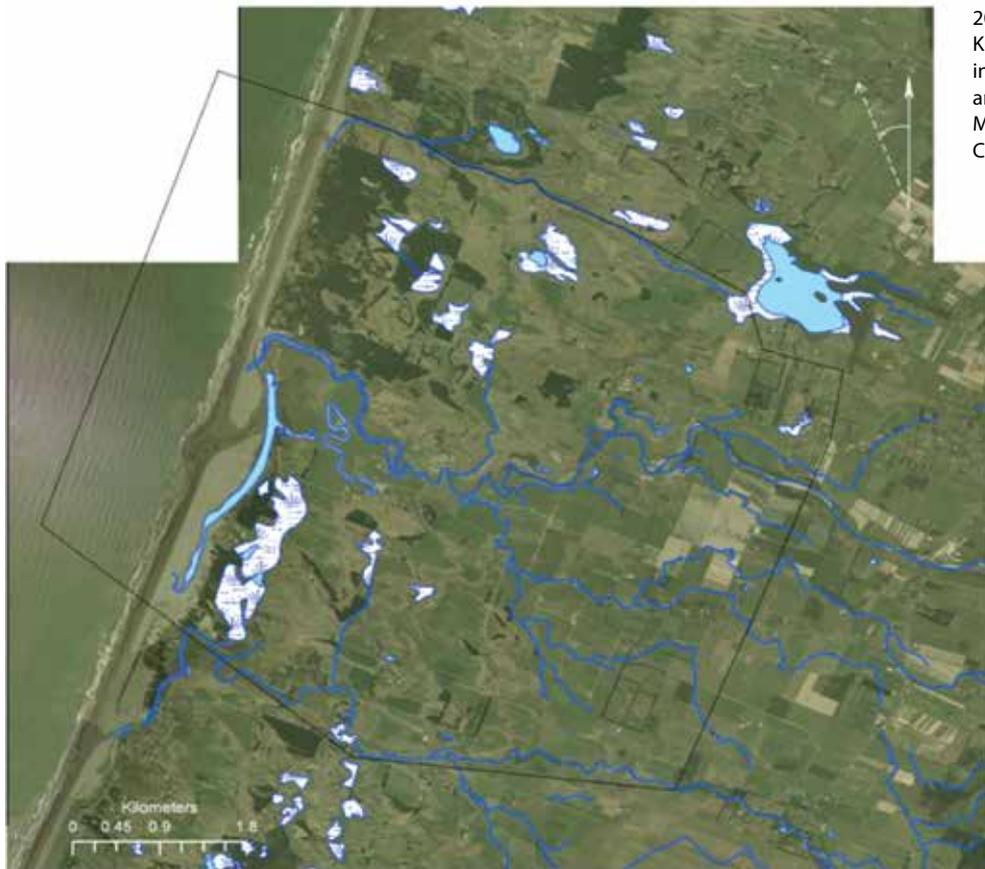


Table 1.
Some native plants found on fore dunes of Te Hākari

Plant (common and Māori name)	Scientific/ botanical name	Image
Pīngao Golden sand sedge	<i>Ficinia spiralis</i>	
Spinifex Kowhangatara	<i>Spinifex sericeus</i>	
Tarakupenga Sand coprosma	<i>Coprosma acerosa</i>	
Tauhinu	<i>Ozothamnus leptophyllus</i>	
Rauparaha Shore bindweed	<i>Calystegia soldanella</i>	
Māakoako Shore pimpernel	<i>Samolus repens</i>	
Tidal ureure Glassworts	<i>Sarcocornia quinqueflora</i>	

All photos: Jeremy Rolfe

Table 2.
Important native animals found in Te Hākari

Māori name/ common name	Scientific name
Matuku Australasian bittern	<i>Botaurus poiciloptilus</i>
Matuku-moana White-faced heron	<i>Ardea novaehollandiae</i>
Kotuku	<i>Egretta alba modesta</i>
Kotuku Little egret	<i>Egretta garzetta immaculata</i>
Kotuku ngutu-papa Royal spoonbill	<i>Platalea leucorodia regia</i>
Banded kōkopu	<i>Galaxias fasciatus</i>
Giant kōkopu	<i>Galaxias argenteus</i>
Tuatua, kahitua	<i>Amphidesma subtriangulatum</i>

CHANGES TO THE WETLAND

"In 1914, the area in Kuku under bush was only one quarter what it had been in 1890. Trees were felled and burnt and the ashes sown with English varieties of grass e.g. cocksfoot, clover. Swamp drainage, an extensive and expensive undertaking, was not carried out in Kuku in the first part of this period. The fact that the swamp zones at the coast were owned by a group of impecunious*, easy-going Māoris helps to explain this lack of economic development."

John Rodford Wehipeihana (1964)

Coastal wetlands and dune lakes systems between the Waiwiri and Waitohu Streams have been severely degraded over the past 100 years.

At the time of ancestral occupation in the early 1820s, significant natural forest cover existed. The forest clearance in the coastal and inland district 100 years later was swift and relentless, as the areas were cleared and converted to pasture. The development of wetlands like Te Hākari was more constrained or protected by communal Māori ownership, but by the 1930s they too had fallen victim to agricultural pressures.

* Impecunious; relates to a 'cash poor' status

Important ahu otaota (shell middens) within the coastal landscape.
Photo: Huhana Smith

Table 3. Estimated percentage loss of native ecosystems in the Manawatu/Horowhenua region

Wetland loss since 1900	97.4%
Native forest cover loss since 1920s	73.8%

When first subjected to intensive drainage, Te Hākari dune wetland (like many other dune lakes in the wider district) became a captured, groundwater and rain-fed, enriched system, with a stream that flowed west to meet the modified course of the Ōhau River. By 1935, Te Hākari lagoon was greatly diminished in size, and choked with raupō and hornwort.

Decision-making and management of the system (with associated problems) has been historically led by non-Māori groups:

- Kuku Drainage District scheme (1927–1963) controlled inland streams and springs as part of a broader local drainage and waterways modification scheme
- Manawatu Catchment Board (1963) continued to control, modify and channel natural waterways
- Ōhau Manakau River Scheme (present day) this group is overseen by Horizons Regional Council who upgrade stop banks, extract gravel, and modify smaller waterways for flood control.

The last group has developed a wider environmental/ biodiversity protection focus as part of its activities, with designs for fish-friendly passes and the use of new technologies to mitigate and monitor flood risk.



TE HĀKARI DUNE WETLAND RESTORATION PROJECT THE CAPACITY FOR CORRECTION

In our highly fragmented modern natural/cultural landscape, the outcome of the wetland project for Te Hākari is highly significant. This refers not only to research on ecological restoration, but also suggests that a focus only on a species, and restoring only for that species (and its wider ecosystem) will ultimately founder if it fails to also acknowledge human relationships with the natural and cultural landscape, with place, and with the sacred realm. The implication of this for tangata whenua is unmistakable.

The restoration project for Te Hākari is grounded in a kaupapa (issue) and tikanga (values and practices) Māori epistemology of knowledge development. The hands-on project, underway since 2000, highlights how restoration of fragmented ecological systems is interdependently related to the healing of a community and its relationships with the natural and cultural landscape. For mana whenua (indigenous people with primary rights and responsibilities over an area), this is an essential related goal of ecological restoration in a broader cultural and system-wide context.

Central to the work underway for the wetland and wider coastal system has been the establishment of the Manaaki Taha Moana: Enhancing Coastal Ecosystems for Iwi and hapū (MTM) 2009–2015 research project.

This project explored kaupapa Māori approaches (approach underpinned by Māori values) to defining and valuing coastal ecosystem services of importance to iwi and hapū, and facilitated the appropriate uptake and communication of such knowledge so that it is 'heard' in decision-making processes. MTM therefore:

- identified those coastal ecosystem services that are important to iwi and hapū
- explored and activated ways of 'measuring' them alongside the traditional 'Western science' indicators of ecological health
- conducted research in such a way that tangata whenua were reunited with their natural and coastal environments
- gained understanding of aspects of customary and remaining local knowledge, and applied it in a different context from what our tūpuna might have faced in the past.

Since 2002, Te Hākari Dune Wetland has been well supported by Nga Whenua Rahui and Mātauranga Kura Taiao agencies through Te Papa Atawhai – Department of Conservation. Their objectives align with the concept of active kaitiakitanga, where hands-on projects are grounded in kaupapa and tikanga, whole-of-system, multiple-goal and action-orientated methodologies.



Processes of transformation to wetland forest from December 2002 (top) to August 2011 (bottom). Photo: Huhana Smith

CHALLENGES FOR RESTORATION OF TE HĀKARI

Impacts of environmental decline on integrity of cultural or ancestral landscape

Ideally, restoration projects led by mana whenua build on well-established oral narratives, whakapapa (genealogy), dialogue, and synthesis of research and other relevant information. The process of combining these different components into a new whole is based on the experience of hapū and iwi participants undertaking revitalisation of the fragmented ecosystems within their ancestral landscape. However, as much as there have been complex restoration challenges, there have been impacts on culture from multiple sources, including individuals, government and privately owned institutions.

Kaitiaki (guardian) working within the wider Te Hākari Dune Wetland restoration project often wondered both how well they were actually doing when dealing with such fragmented ecosystems and about the impact the project was having on their human condition. As key informants in our older generations die, knowledge, observations, and experience of place decline. This results in generations being increasingly separated from once intricate relationships to an ancestral place.

Key matters to consider for ensuring healthy water or waiora of Te Hākari Dune Wetland

- Sound research of the subsurface waterways. Research undertaken at Te Hākari (2004–2006) notes that water can be lost through evaporation from open water, transpiration from plants, flows out of drains and streams, and through groundwater outflow
- The water balance of a wetland describes the balance between the sources and discharges of water. These dynamic flows and water levels can vary substantially, both seasonally and from year to year. For example, a heavy rainfall event would cause water levels to rise temporarily. Alternatively, a seasonally depressed groundwater level may cause the wetland to dry because groundwater inflows decrease
- Groundwater-level monitoring provides information on how the wetland interrelates with the underlying water table, and how this relationship may change through the year. Monitoring data calculate the direction of groundwater flow around the wetland during the summer and winter seasons.

A strong relationship exists between the groundwater and wetland surface levels, suggesting that the wetland is vulnerable to nearby groundwater abstractions and to any contamination of groundwater by farming and nutrient pollutants in the recharge areas to the east.



PROJECT OUTCOMES TO DATE

Since allowing water to return to the wetland, the wet delta has become a significant, reinvigorated ecosystem interlinked with Te Hākari Stream, the wetland itself, the dune systems, the Ōhau River flowing to sea, and the subsurface water that flows under pressure into the ground depression, wetland itself.

Applying tikanga to, and getting it right for, Te Hākari Dune Wetland has included karakia (prayer), protocols for all researchers, and extensive rehabilitation work. Since first planting took place in September 2002,

hapū members, shareholders, and other interested parties have planted thousands of pioneer tree species into former cow-grazed paddocks. From 2003 to 2006 important hydrology research assessed subsurface water quality and the size of waterbodies beneath the wetland. Raising wetland water levels to a near natural contour since 2003 has transformed surrounding marginal pasture that was once cow pugged and nitrified. In particular, since restorative processes began with simultaneous pest control, efforts have resulted in rare birds like the matuku (Australasian bittern) breeding, and the reinstated wet delta region and Te Hākari Stream to the Ōhau River, are again teeming with inanga (whitebait).



Te Hākari Dune Wetland in 2002 (left) and after raising water levels in 2005 (right). Photo: Lawrie Cairns

CONCLUSION

Ecosystem revitalization, when drawn from local knowledge about place, relies on a promise of future wellbeing. Kaumātua (elders) and resource gatherers offered what they knew about place – particularly about Te Hākari Dune Wetland and the Ōhau estuary and coastline – based on their personal experiences and recollections. Their stories of encounters with local taniwha (spiritual guardians) or protocols observed about special places in the coastal estuarine and wetlands region, highlighted a value system that stressed respectful interactions with the natural and cultural environment.

Our tūpuna supported their activities with knowledge systems based on generations of understanding from talking about place, observing place, and developing place in a detailed way. These ways of knowing were prerequisites for maintaining a healthy environment and its customary knowledge rights, based on interactions with resources such as:

- shellfish gathering
- freshwater fishing for tuna (freshwater eels) and fish in streams, rivers and wetlands
- fishing activities at sea, and
- horticulture.

These essential activities made sense of their local world.

Because Māori values remain fundamental for forming principles and guiding philosophies for culturally based sustainable development, practical environmental projects help improve closer relationships with lands and waterways. Providing a space for our current generation to interact with their resources and to maintain active kaitiaki roles through the restoration of their wetland and coastline, means they can renew and enhance their understanding of the true significance of the cultural or ancestral landscape and the significant waterways and ecosystems with which they are dealing.



Rare and endangered matuku (Australasian bittern) feeding on inanga (whitebait) in Te Hākari Dune Wetland, October 2009.
Photo: Huhana Smith



WĪWĪ – HELPING TO RECOVER THE WETLAND'S 'MEMORY'

Wīwī (*Juncus edgariae*) is the common Māori name for a number of *Juncus* species that grow profusely in repo (wetlands), along stream banks and in other damp places. Wīwī is tolerant of a wide range of conditions and produces large quantities of microscopic seed that remain viable in the soil for years.

A healthy, revegetating fringe habitat rich with native sedges, rushes, and other appropriate wetland plants helps remove stock nutrients from water and can facilitate increases in the wider biology of the system. For example, frog numbers increase in shallow fringe habitat like those supported by wīwī, which in turn, attracts greater numbers of wading birds to feed. Reeds and rushes were also important resources for finishing off the inner linings of whare raupō (house made from raupō cladding and lining).

In the Te Hākari Stream area wīwī literally helped the dune wetland recover its memory with flushes of other rush and sedge species growing on the banks and into the former pasture area. The higher water levels led to increased sedge, local sea rush, and bulrush. Since this time, a new fish-friendly culvert has been installed, with Te Hākari Stream revegetated to estuary as part of the Kuku Ōhau Estuary revitalisation project funded by Te Papa Atawhai 2014–2017.



Wīwī in wet delta region surrounding Te Hākari Stream. Photo: Huhana Smith

WANT TO LEARN MORE?

Note: If you are having problems with the hyperlinks below, try copying and pasting the web address into your browser search bar.

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Useful websites

Manaaki Taha Moana: www.mtm.ac.nz

A Ngā Whenua Rāhui article on the project: www.doc.govt.nz/news/stories/2015/june/a-legacy-of-lost-relationships

Author research

Huhana's PhD research thesis:

Smith SM 2007. *Hei whenua ora: hapū and iwi approaches for reinstating valued ecosystems within cultural landscape*. Unpublished PhD thesis. Te Pūtahi ā Toi, School of Māori Studies, Massey University, Palmerston North. <http://mro.massey.ac.nz/xmlui/handle/10179/2133>

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