Biodiversity Strategy for the Ngāti Pahāuwera Core Area

Adopted:

This strategy has been prepared by Perception Planning Limited for Ngāti Pāhauwera and the Department of Conservation.

Wildlands Consultants Limited undertook the field surveys and provided technical ecological and conservation advice which was used extensively in the development of this report.

Contents

Part I Direction and Context

1. Vision and Purpose

The vision for biodiversity protection and enhancement within the Ngāti Pāhauwera Core Area (see Figure 1) is set out as follows:

That the important biodiversity values within the Ngāti Pāhauwera Core Area are protected and enhanced. The management of these values is led by Ngāti Pāhauwera, as kaitiaki, in collaboration with the Crown and the wider community.

Water quality in the lakes, rivers and streams is enhanced by an expanded network of riparian planting and important taonga species within this area flourish and can be used in accordance with Ngāti Pāhauwera tikanga.

Ngati Pāhauwera and the Crown will work in partnership to protect and manage the important natural and cultural values at Te Heru o Tūreia. Which will become a place known for its high natural and cultural values respectfully enjoyed by tangata whenua and manuhiri alike.

The purpose of this plan is to set out how indigenous biodiversity in the Ngāti Pāhauwera core area can be managed to protect and enhance their important ecological and associated cultural values to achieve the stated vision. Ngāti Pāhauwera are kaitiaki of the area and as such have the responsibility to ensure that the important taonga are protected. The Department of Conservation (the Department) have a statutory responsibility to manage the land they administer as well as facilitate conservation efforts in the wider landscape.

More active management of these areas will not only mean the protection and enhancement of the important natural values but also the cultural values and associations will benefit too. The cultural values associated with these sites should not be considered as separate from the natural values and any future management of these areas needs to consider this.

These areas are owned and managed by a range of entities including Ngāti Pāhauwera and the Crown (Department of Conservation). The job of protecting and enhancing these areas is in everybody's best interests and through working together and working smart, the job of looking after these areas can be done more effectively.

The focus of this strategy is on the protection and enhancement of terrestrial biodiversity however the importance of the roles that rivers and lakes play in this work has still be considered. The protection and enhancement of biodiversity on land will lead to benefits to these waterways. Taking a holistic approach to the management of these areas means that resources can be shared, joint programmes can be initiated, and a wider range of funding opportunities can be accessed.

Tangitū ki te moana
Maungaharuru ki uta
Mōhaka te awa
Ko Ngāti Pāhauwera te iwi

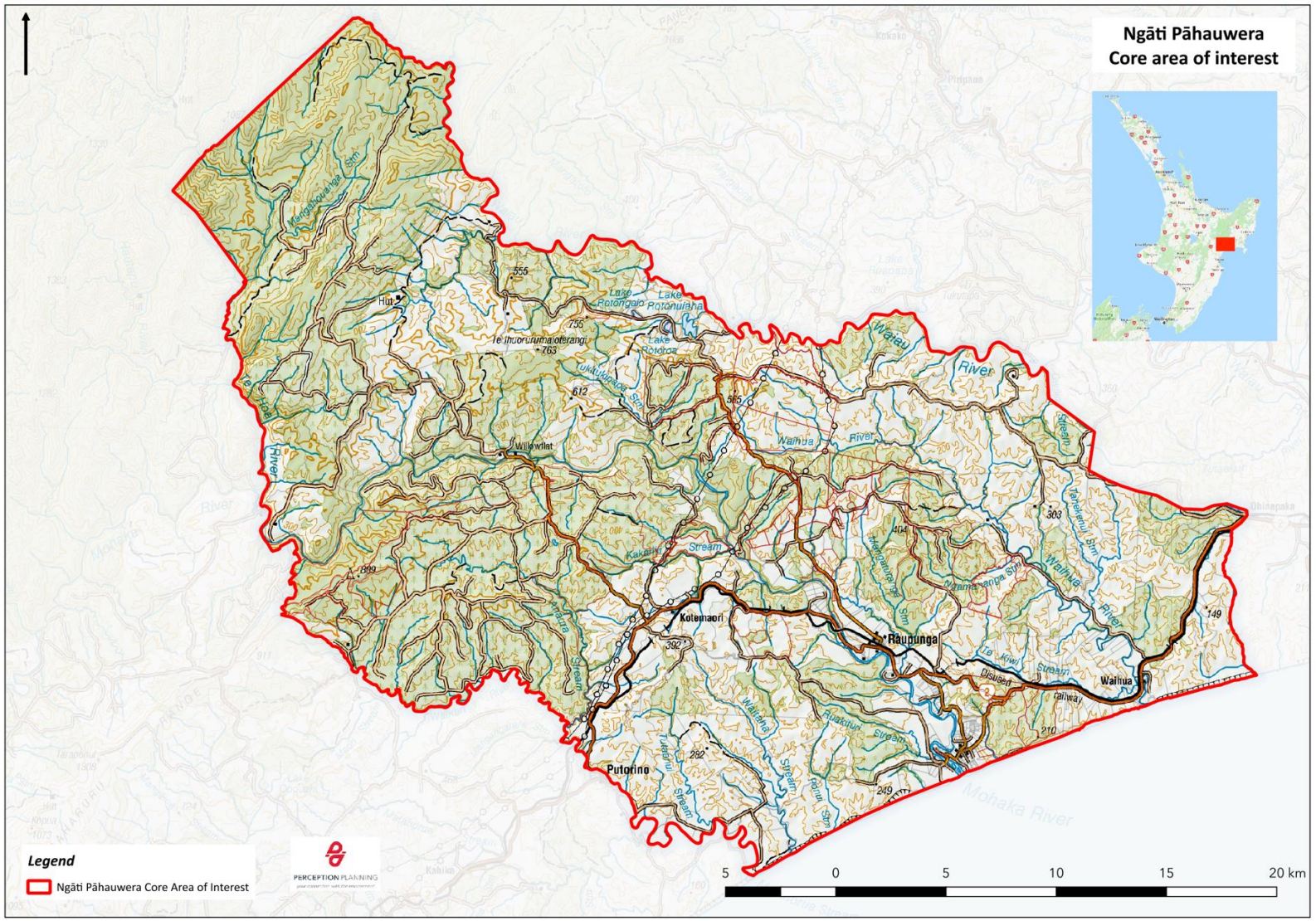


Figure 1 Ngāti Pāhauwera Core Area

2. Nga Kaupapa

The following principles have been identified to guide the development and application of this strategy. The Objectives and Actions in Section 9 of the Plan have been developed to align with one or more of these principles.

These principles are based on tikanga māori and are Ngāti Pāhauwera and the Department's expression of the most appropriate way to protect and enhance the important values of the area to meet the vision.

He whenua ora, he tangata ora – Enhancing the mana of the people by protecting and enhancing the mana of the land. Growing the wellbeing of the local community through conservation. Healthy land, healthy people.

Kotahitanga – Unity and collaboration and working with others to create enduring and more effective outcomes.

Rangatiratanga – Leading the way through action and innovation. Walking the talk and following through on commitments, integrity and honesty.

Kaitiakitanga – Active guardianship of the land. Ngāti Pāhauwera are kaitiaki of the land and its values.

Mātauranga Ngāti Pāhauwera – The ancestral and traditional information and knowledge held by Ngāti Pāhauwera developed through the generations. It covers knowledge of the environment and the relationships between things; it informs practice.

3. Nga Whenua

The focus of the Plan is the land within the Ngāti Pāhauwera Core Area of interest and particularly areas of terrestrial biodiversity on crown and Ngāti Pāhauwera tribal land. *This Core Area*[1] is shown on Figure 1 and is 95,000 ha in size and located between the City of Napier and the town of Wairoa on the East Coast of the North Island of New Zealand. The Core Area is located wholly within the Hawkes Bay Region and the Wairoa District. It also falls within Department of Conservation's North Island Region with management of this area split between the Napier and Gisborne area offices.

The core area is largely within the Mōhaka River Catchment and to a lesser extent, the catchment of the Waihua River to the north. The area is dominated by the Mōhaka River valley and the adjacent Maungaharuru Range which is composed of a plateau of sandstones, siltstones and limestones which have been uplifted, tilted and dissected, producing a complex landscape, steep

[1] Also known as the Ngāti Pāhauwera Charter Area in the Ngāti Pāhauwera Deed of Settlement Co-Management Charter.

escarpments, limestone outcrops, deeply gorged streams and slumps in many areas.

The original vegetation has been greatly modified since human settlement of the area. Prior to human settlement, forests cloaked the whole landscape. Some (modified) forest remnants remain in areas like Te Heru o Tūreia but most of the original forests have been logged or burned and cleared for farming and/or exotic forestry. The land now is characterised by low intensity pastoral farming and production forestry with the indigenous land cover mainly to the north of the area or scattered in small remnant patches west of SH2.

East of SH2 the land runs down to the coast where it meets the Pacific Ocean. As this land is generally more accessible and has larger areas of gently contoured river flats, it is more developed and there is less indigenous vegetation and more areas of pastoral farming and plantation forestry.

The area contains river systems, including the Mōhaka and Waihua Rivers, providing ecological, recreational and cultural importance to the people of this place and the wider region. Foremost of these rivers is the Mōhaka River which is widely known for its wild and scenic attributes, and the diversity of landscape types through which the river flows is considered the most memorable feature of the river. The Mōhaka's constant presence throughout the area is a strong linking factor for the wider landscape to the main river valley. The Mōhaka River has a Water Conservation Order (2004), recognising its importance as an angling and general recreation amenity in this place. The Mōhaka is joined by an abundance of smaller tributaries which incise the soft sedimentary rock giving rise to the rugged landscape. In the eastern part of the area the Waihua River is the main waterway.

Most sites within the area have a strong linkage to these waterways. Most are either located adjacent to a river or stream and others form headwater areas for the smaller tributaries. In a lot of cases, however these linkages were stronger in the past when the forest cover was wider. The interrelationship between forested areas and waterways is very important as these waterways provide connecting corridors between the sites and the forested areas protect the water quality of the river systems. The importance of these waterways and them being an intrinsic part of the landscape, cannot be overlooked and they map out an opportunity for ecological enhancement by strengthening and enhancing key ecological flows along the river and between these sites generally.

Prior to human settlement, the much of the lowland and hill country of the region, would have been covered in dense forests and wetlands. When settlement of the area started, modification of the land began including removal of much of the forests that once covered this Place and wetlands were drained. The remaining indigenous forests and wetlands that remain have high ecological significance and are home to species such as kākāriki/yellow-crowned parakeet, forest gecko and the Hawke's Bay tree weta.

There are a range of recreation activities undertaken within this area including fishing, rafting and hunting. The Mōhaka river is

one of the country's top wilderness white water rafting rivers and attracts many commercial rafters each year. While a lot of the sites are used for recreational hunting, they are not generally used for other public recreation purposes. There is an appetite from Ngāti Pāhauwera for more active recreation opportunities to be considered for these areas, especially those which respect and complement the important natural, cultural and scenic values associated with the area.

3.1 Ecological Districts

The area is the juncture of no less than five ecological districts (see Appendix One). This matches the nature of Ngāti Pāhauwera as a tribe "which came to be as a karangatanga or calling of no less than 80 traditional hapū that rallied in former times against common enemies and for common purpose.

The respective hapū descend from those ancestors, who had customary use rights and long occupation within the lands of those hapū". (Toro Waaka) Similarly, Ngāti Pāhauwera have a whakatauki 'Mohakaharara, Taupunga Opunga' which references the name of different types of hāngi stones and is symbolic reference to the unity of the different hapū and whanau.

These ecological districts are (from north to south):

Ikawhenua Ecological District which covers the Ikawhenua ranges to the north west of the core area. That part of the Ecological District within the core area is wholly covered by dense native bush and contains the highest part of the area at 1087m above sea level. It also contains the upper catchment of the Te Hoe river which roughly forms the western boundary of the core area.

Waikaraemoana Ecological District extends northwards of the core area to include lake Waikaraemoana and large parts of Te Urewera National Park. Within the core area this ecological district is dominated by areas of indigenous vegetation and plantation forestry with some pastoral farming to the east.

Tiniroto Ecological District occupies a large central portion of the core area and is bounded to the south by the Mōhaka River in the most part. It also includes the Waihua River. This ecological district extends north east towards Gisborne and is dominated by hill country mainly used for pastoral farming. Within the Core Area there are also large tracts of plantation forests, a lot of which run down to adjoin the Mōhaka river.

Maungaharuru Ecological District within the core area is dominated by the spectacular escarpment of the Maungaharuru Ranges which rise from abruptly the Mōhaka River. These ranges are predominantly covered in plantation forestry crossed by numerous streams. The highest point within this part of the core area is Te Heru o Tūreia which is an area of significant natural and cultural value.

Waihua Ecological District occupies the coastal area including both the Mōhaka and Waihua River mouths. This area is dominated by pastoral landuses with patches of plantation forestry. There is very little indigenous vegetation cover left in this area.

No one of these districts is wholly contained within the core area, nor does one dominate the area either meaning that the area is characterised by a diverse set of topographical, geological, climatic, soil and biological features with an equally diverse range of landscape and biological communities. These ecological districts were surveyed in the 1990's as part of the governments Protected Natural Area Programme (PNAP). These surveys identified a set of areas (Recommended Areas for Protection or RAP's) which were recommended for some form of protection based on their high conservation values. The reports which were developed as part of the PNAP provide valuable base information to inform the development of this plan and the identification of sites.

4. Nga Tangata

4.1 Ngāti Pāhauwera

Ngāti Pāhauwera are a confederation of hapu centred on Mōhaka in Hawke's Bay. Ngāti Pāhauwera have many traditional hapu and ancestors who had customary use rights and long occupation (take-whenua/noho tuturu/ahikaroa) of the area within the traditional iwi boundaries (rohe tawhito) set by Te Kahu o te Rangi prior to Te Tiriti o Waitangi/the Treaty of Waitangi.

The traditional boundary of Ngāti Pāhauwera, confirmed by Te Kahu o Te Rangi, extended inland from the coast north of the Waihua River across to the Waiau River and followed its course to the headwaters in the Huiarau. From there the boundary extended across to Tatarakina (Te Haroto) and on to Puketitiri and from there across to Te Wai o Hinganga (Esk River) and followed its course to the sea.

Ngāti Pāhauwera association with Te Heru o Tureia stems from the arrival of the ancestral waka Takitimu. As the waka traversed Te Whanga o Ruawharo (Hawke Bay) approaching the mouth of the Waikari River, there loomed before them a huge mountain range. The principal tohunga, Tupai, muttered an incantation and threw his papauma (magical staff) into the air. The papauma transformed into a bird form and flew inland to investigate this lofty range. As the papauma flew about the range the beating of its wings resounded so loudly in the depth and breadth of the valleys about the mountain that they could be heard from the voyagers on board the Takitimu. Thus the name Maungaharuru (the tremendous beating of wings) was bestowed on this taonga.

It is also said that the papauma landed in an ana (cave) where it remains to this day and so the mauri of birdlife was planted on Maungaharuru. Before the arrival of Europeans to this land Maungaharuru was famed for its birdlife and was one of the principle food gathering areas of Ngāti Pāhauwera. This is encapsulated in the following whakatauaki:

Ka pa Tangitu ka puare Maungaharuru, Ka pa Maungaharuru ka puare Tangitu

When the fishing grounds of Tangitu are closed then Maungaharuru is open, and when Maungaharuru is closed then we return to fish at Tangitu.

Before the arrival of Tureia from Te Mahia the area about Maungaharuru was inhabited by the descendants of Tahu. However, through conquest, gift and intermarriage mana whenua over this region fell to Tureia. Tureia soon set about cementing his relationship with his neighbours to the south, at Heretaunga and Whanganui a Orotu, and to the north at Wairoa through the marriage of his children. His descendants and followers soon spread over the land and became known as Te Tini o Tureia (the multitudes of Tureia).

He mano nga whetu ki te rangi

He mano nga kahawai ki te moana

He mano nga tangata o Tureia

Hei tiaki kai mau

One thousand stars in the sky

One thousand fish in the sea

One thousand people of Tureia

upon the land to look after you

The mana and tikanga of Tureia was permanently fixed over the land from Waihua through Mohaka down to the Waikari river, and inland to the Maungaharuru range. As the highest point around, Maungaharuru became the jewel in Tureia's crown and so the name Te Heru o Tureia was born.[2]

The Crown has, through legislation, assumed regulatory control over resources and the environment. This has limited opportunities for Ngāti Pāhauwera to develop and use those resources themselves. Over time, the environment been degraded and there has been a decline in species of importance to Ngāti Pāhauwera. Mahinga kai and rongoā gathering places of Ngāti Pāhauwera have been polluted or lost. The loss of these resources also led to the loss of knowledge and ritual associated with them, including rongoā and crafts.[3]

On 5 November 2010, Ngāti Pāhauwera presented a Deed of Settlement detailing the historical Treaty settlements aspects of this Agreement to their people. The Deed was then ratified, and signed on 17 December 2010.

Ngati Pāhauwera have been active kaitiaki protecting and restoring waterways and sites of important ecological value in their rohe. They have been successful in securing funds from central government and other agencies for protection of waterways (i.e. Mohaka river riparian fencing and planting

[2] Ngāti Pāhauwera and The Crown, Deed of settlement: Documents Schedule

[3] Ngāti Pāhauwera Treaty Claims Settlement Act 2012

(including Rawhiti station gullies) Putere Lakes Restoration, Te Awaawa Stream project etc.) and ground-based animal pest control.

Ngāti Pāhauwera have prioritised the use of whānau, especially those who live locally to undertake the mahi involved in such initiatives. All actions resulting from this strategy will have this same priority as a key principle when delivering on those actions.

In addition to reliance on locally based whanau, Ngāti Pāhauwera will also prioritise the use of locally sourced or raised species for restoration projects. For previous restoration projects, trees are sourced from local nurseries and planted in whānau groups, and are connected to adjacent planting which are considered to be part of the wider hapū of plants. As these plants are sourced locally they are considered to be Tangata whenua and those plants bought into the rohe are manuhiri and are welcomed to the area through a whakatau. Such Tikanga is an important aspect of how Ngāti Pāhauwera work with the environment and helps to strengthen their linkages with their whenua through conservation activities. It is important that such Tikanga is applied in any future work.

Ngāti Pāhauwera also have an in-principle opposition to the use of 1080 in the control of animal pests in their rohe. When considering actions to implement this strategy, this will need to be considered as an important parameter to inform the design of pest control work.

4.2 The Department of Conservation

The Department of Conservation is the government agency charged with conserving New Zealand's natural and historic heritage. They have a vision of New Zealand being the greatest living space on Earth, "Kāore he wāhi i tua atu i a Aotearoa, hei wahi noho i te ao".

The Department's vision means ensuring that New Zealanders gain a wide range of benefits from healthy functioning ecosystems, recreation opportunities, and through living our history. To do this, the Department has organised their work around five outcomes:

- the diversity of our natural heritage is maintained and restored
- our history is protected and brought to life
- more people participate in recreation
- more people engage with conservation and value its benefits
- conservation gains from more business partnerships.

All of these outcomes are considered to be relevant to this strategy as they are relevant to the opportunities associated with the area and to deliver on positive conservation gains.

The core area is located within the Department's Lower North Island Region and the Hawkes Bay and East Coast Districts. The closest Department offices are located in Wairoa and the next closest in Gisborne. Within the Core area there is 5,536 ha of land managed by the Department. The biggest of which is Te Heru o Tureia which, due to its size and the presence of important

species such as Kākābeak, also currently receives the most management effort.

At the time that this plan was developed the Department was in the process of revising the Conservation Management Strategy for the area, so the Department's priorities are not as yet finalised.

The Department is a key party in delivering the outcomes associated in this plan. Not only do they have a statutory role in managing some of the identified areas but it also has valuable local and national resources, including research and technical expertise in conservation. The Department has a statutory mandate[4] to work with Ngāti Pāhauwera as treaty partners.

Ngāti Pāhauwera Deed of Settlement – Co-Management Charter.

As part of the settlement process, a co-management charter (the Charter) between the Ngāti Pāhauwera and the Minister of Conservation was developed.

The charter sets out how Ngāti Pāhauwera and the Department will:

establish and maintain a positive, co-operative and enduring partnership regarding the co-management of conservation activities in the core area,

improve the quality of conservation management decisions by obtaining a better understanding of each other's perspectives and, where possible, seeking consensus on outcomes,

provide a framework and mechanisms to achieve co-management in respect to conservation ion the core area, and

provide a mechanism for the Department to give effect to the principles of Te Tiriti o Waitangi as required by section 4 of the Conservation Act 1987 (recognising that compliance with the charter does not derogate from the Departments obligations under that section).

The Charter establishes a framework for the Department and Ngati Pāhauwera to work together in their dual role for protecting and, where possible, enhancing public conservation lands and natural resources in the core area.

The Charter sets out a number of requirement relating to the parties working together and managing the land, it also includes a requirement for an operational plan to be developed by the parties for Te Heru O Tūreia.

4.3 Hawkes Bay Regional Council

The Core Area is contained within the Hawkes Bay Region which is administered by the Hawkes Bay Regional Council (HBRC). The HBRC has its administrative offices in Napier and also has a smaller office based in Wairoa. HBRC's functions of relevance include pest control, land management, environmental education and environmental research. They have also developed a biodiversity strategy for the region which is a non-statutory

[4] Section 4, Conservation Act 1987

document that has a collaborative focus to inform the Hawkes Bay community in their biodiversity efforts. The strategy has a specific focus on tangata whenua and biodiversity that identifies that:

"Māori are interconnected with the natural environment. As kaitiaki, Māori have a unique and important role in the protection, management, enhancement and restoration of indigenous biodiversity."

The strategy recognises:

- The unique and important role that Māori have in the management, restoration and sustainable use of indigenous resources
- The importance of effective working relationships between iwi, hapū, statutory agencies and the community
- That biodiversity management must reflect different iwi and hapū priorities to ensure benefits are shared, economic and social aspirations are met and kaitiaki responsibilities are fulfilled
- The need for Mātauranga Māori to guide biodiversity management.

The strategy contains five biodiversity objectives to ensure that the region's biodiversity is enhanced, healthy and functioning and that biodiversity activities undertaken throughout the region are aligned towards common goals. These objectives are as follows:

1 We will sustain, protect, and improve native habitats and the ecosystem services they provide.

2 We will support education, engagement, care for the environment 'kaitiakitanga', and actively connect our community through biodiversity programmes.

3 We will sustain, protect, and improve populations of native species.

4 We will collaborate effectively, align programmes and share responsibilities to achieve biodiversity outcomes.

5 We will recognise indigenous biodiversity as a taonga to be protected for future generations

Importantly for biodiversity work led by Ngāti Pāhauwera, the regional strategy establishes a set of principles which complement and support community-based conservation initiatives such as that done by Ngāti Pāhauwera. The strategy establishes an environment which is supportive of community-based consultation work, such as that proposed by Ngāti Pahāuwera.

This strategy was followed up with an action plan that establishes six priority actions under four objectives. These actions are very relevant to this strategy and will be key to facilitating Ngāti Pāhauwera and the Department achieving positive conservation results within the core area. The Regional Council's documents establish a positive collaborative conservation context for which Ngāti Pāhauwera can advance conservation priorities more easily.

4.4 Pan Pac

Pan Pac is a Japanese-owned forestry management company which has been operating in Hawkes Bay for over 40 years. Not

only are they forest managers, but they also process timber at their mill at Whirinaki. Pan Pac manage approximately 34,000 ha of forests in Hawkes Bay.

The forests within the core area were managed under crown forest licence meaning that they were managing those lands for the government. As part of Treaty settlement 15,484ha was returned to Ngāti Pāhauwera have a lease agreement with Panpac which runs out in 2053.

Within these lands there are just under 1,000ha of indigenous vegetation which have been mapped and, in some cases, been surveyed. These areas are generally small fragments often adjacent to waterways.

Pan Pac are a Forest Stewardship Certified (FSC) business meaning that they have environmental requirements to meet. These requirements are to ensure that the timber is sourced in an environmentally sustainable manner including the protection of waterways and areas of indigenous vegetation.

Pan Pac are active in supporting community conservation initiatives and are an important part of the Poutiri Ao ō Tāne initiative.

4.5 The Local Communities

In addition to the wider groups who have an interest in the Core Area there is also the resident population. There are a couple of small communities based in Raupunga, Putere, Kotemaori, Mohaka and Putorino (situated just west of the core area). In 2013 the population for the Raupunga census area (which includes all the settlements listed above) was 630 persons. There are also primary schools / kura located at Kotemaori, Putere, Putorino and Mohaka. These schools cater for students Years 1 to 8 with roles ranging from 5 to 25 students. The majority of the community in the core area work in the rural industries (including service industries) which make up the dominant land use and employer in the area.

5. Conservation Initiatives

As a result of government, community and private conservation initiatives, there is a range of established large-scale conservation projects in the wider area. These initiatives represent a number of opportunities for Ngāti Pāhauwera to advance our conservation aspirations, not just through collaborative opportunities with this other mahi but also on the back of the conservation advances from these initiatives. These advances include a growing amount of locally relevant research, a growing local conservation infrastructure and resources, and, importantly, the conservation benefits (i.e. reduced pest numbers) which will all have positive influences on Ngāti Pāhauwera work.

Of relevance to this strategy, Ngāti Pāhauwera are involved in all of the following initiatives and have been considered in developing the strategy.

5.1.1 Cape to City

Cape to City is a Hawke's Bay based collaborative ecological restoration project that has been running since 2010. The project is working to restore native species across 26,000 hectares of mainly primary productive farmland from Havelock North to Cape Kidnappers and encompasses Waimarama and forest remnants at Kahuranaki.

The Cape to City vision is to bring native species back to Hawke's Bay to thrive as part of the community landscape.

Their work includes:

- **Habitat Restoration:** Improving whitebait habitat, planting native trees and improving water quality are just three examples of habitat restoration projects in Cape to City. They are also working with landowners to connect public conservation land and private property to restore habitat corridors.
- **Pest Control:** Cape to City is developing innovative low-cost tools that will make predator control accessible to landowners everywhere.
- **Species Reintroduction:** Cape to City have a vision of a future in which native birds like whio, kākā and kiwi roam freely across the region. They work with other conservation areas like Poutiri Ao ō Tāne, creating stronger connections across Te Matau a Māui to facilitate their translocation programmes.
- **Research:** Including innovative pest control technologies, to monitoring recovery of native species, to understanding what motivates people to get involved with conservation. Numerous scientists from agencies across the country are collaborating on this project to inform the future of conservation efforts nationally.

At the time of developing this strategy the Trust behind Cape to City were applying to Predator Free 2050 for funding to be able to roll out 6-8 new large-scale predator control projects around the region. These projects would be for areas between 25,000 to 40,000 ha and can be over multiple land tenures.

5.1.2 Poutiri Ao ō Tāne

Poutiri Ao ō Tāne is a collaborative ecological and social restoration project located at the Maungaharuru-Tutira catchment, 60km north of Napier with Boundary Stream Mainland at its heart. This area is located on the south-western boundary of the Ngāti Pāhauwera core area. Aimed at bringing native flora and fauna back into the lives of the local people by embracing the knowledge of a wide range of partners (including Ngāti Pāhauwera). The project plans to see the return of native species that have been lost to the area over time – and to see these species flourish, not only in areas of native bush, but also within the agriculture and forestry landscape. It is a sister project of Cape to City.

The project has multiple work streams including:

- Habitat restoration

- Species reintroductions (Cooks petrel, Mottled Petrel, Kākāriki and Kākā)
- Predator control (goats, rabbits, possums, cats, ferrets, stoats, hedgehogs and rats)
- Research
- Education, and
- Communications and Engagement.

Given the location and the collaborative nature of this project, it presents multiple opportunities to Ngati Pahauwera and protection of the biodiversity in the core area.

5.1.3 Forest Lifeforce Restoration Trust

The Forest Lifeforce Restoration Trust was established in 2006 to provide direction and funding for the restoration of threatened species of fauna and flora, and to restore the mauri of the ngahere (forest lifeforce) in Maungataniwha and Pohokura native forests within the Central North Island.

The Trust own 25,138 ha of land, which is being actively restored. Large tracts of this land are within the core area (see figure 2) and there is also large area west of the core area. The blocks within the core area are:

1. Maungataniwha Native Forest (6,120ha)
2. Maungataniwha Pine Forest (6,294ha)
3. Te Hoe Station (1,376ha)

The Forest Lifeforce Restoration Trust conducts a comprehensive programme of controlling plant (wilding pines, buddleia, blackberry, pampas) and animal (Possums, goats, Mustelid, Feral Cats) control work as well as undertaking plant (Kaka beak, *Pittosporum turneri*, mistletoe, *dactylanthus taylori* etc.) and animal (kiwi, whio, lizards and NZ Falcon) restoration projects.

Seed from kakabeak at the Maungataniwha Native Forest site has previously been used to help the Kakabeak protection programme at Te Heru o Tūreia.

The Trust present a significant opportunity as a landowner within the core area who is actively working towards similar goals to Ngāti Pāhauwera and the Department. Their broad range of conservation work aligns well with the management priorities identified in Section 9.5 of this strategy.

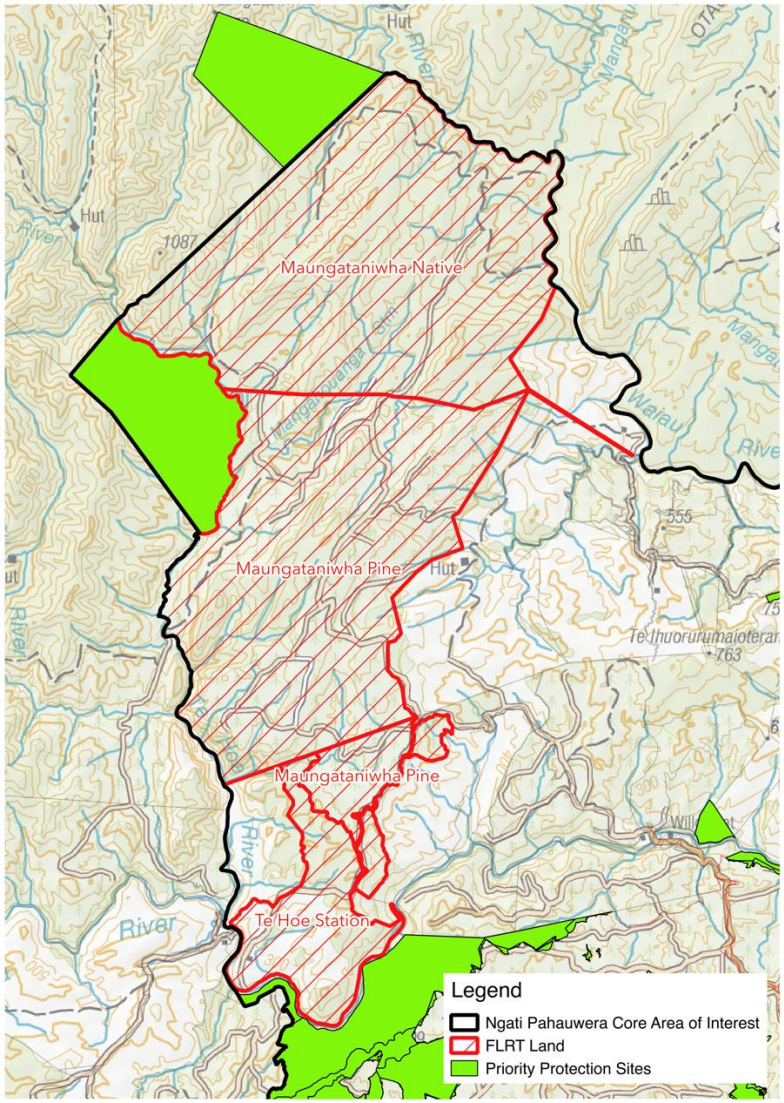


Figure 2 Forest Life Force Blocks within the Core Area

6. Priority Sites

The whenua being primarily considered as part of this strategy is the Ngāti Pāhauwera core area shown on Figure 1. Within this core area 297 priority sites have been identified. These priority sites are those which are areas of terrestrial biodiversity located on land in crown ownership / control and Ngāti Pāhauwera ownership or control (Ngāti Pāhauwera Lands of Interest).

The ownership and management of these sites are summarised in Table 1.

Table 1 Lands of Interest

Type	Ownership	Managed By
Reserves	Crown	Department of Conservation
OTS Land bank	Crown	LINZ
Co-Managed	Crown	Department of Conservation and Ngāti Pāhauwera
Crown Forestry	Crown	Pan Pac Forests
SOE	Crown	LINZ
Farms	Ngāti Pāhauwera	Farm Managers

These 297 priority sites (8,000 ha) were identified using spatial data sets provided by the Department of Conservation (DOC

Reserves and Recommended Areas for Protection) and Pan Pac Forests. An assessment of aerial photography for those lands without defined sites (primarily OTS, SOE and the Farms), was also undertaken to identify additional sites. These sites were mapped and a site inventory was developed.

The nature of the information provided and the range of tenure meant that there were many sites which were part of a wider, and in a lot of cases, contiguous area of native vegetation. These areas were grouped into 65 Groups. In some instances, these sites are also part of much wider areas of indigenous vegetation not located on tenure of interest. Indigenous vegetation off tenure of interest were not identified as priority areas. In the wider core area, there are additional areas of indigenous biodiversity on private land. These are shown on Figure 3 as Recommended Areas for Protection.

6.1 Field Surveys

These 65 groups were prioritised for field survey on the basis of information gaps on site information and management issues. Grouping of sites was undertaken to combine those sites in the same location or where they were identified as separate sites due to tenure. The site visit brief was to undertake a total of three days of field work to assess ecological values, biodiversity management issues, and biodiversity management options at key sites and other sites as time allowed. Where possible rongoā species were also identified for each site.

The objective of these site visits was not to provide a detailed understanding of the values and threats for each site, instead it was to provide a general overview of the management issues and opportunities to inform the development of the strategy.

Site visits were undertaken by a Wildland Consultants ecologist accompanied by members of Ngāti Pāhauwera, between 16 and 18 October 2017. Site visits took the form of rapid ecological surveys either by way of binoculars from accessible vantage points or by brief walk-through inspections of parts of the sites.

Field surveys of some site groups was not possible due to harvesting operations within Panpac-managed exotic forests. 22 of the 65 site groups were visited during the three days of field work.

Broad vegetation and habitat types were classified and described for each site visited, following the structural classes of Atkinson (1985). Vascular plant species and avifauna seen or heard from each site were noted, and management issues and opportunities were also recorded. Vegetation and habitats present were mapped onto hard copy digital aerial photographs, at a scale of 1: 10,000, where it was possible to do so.

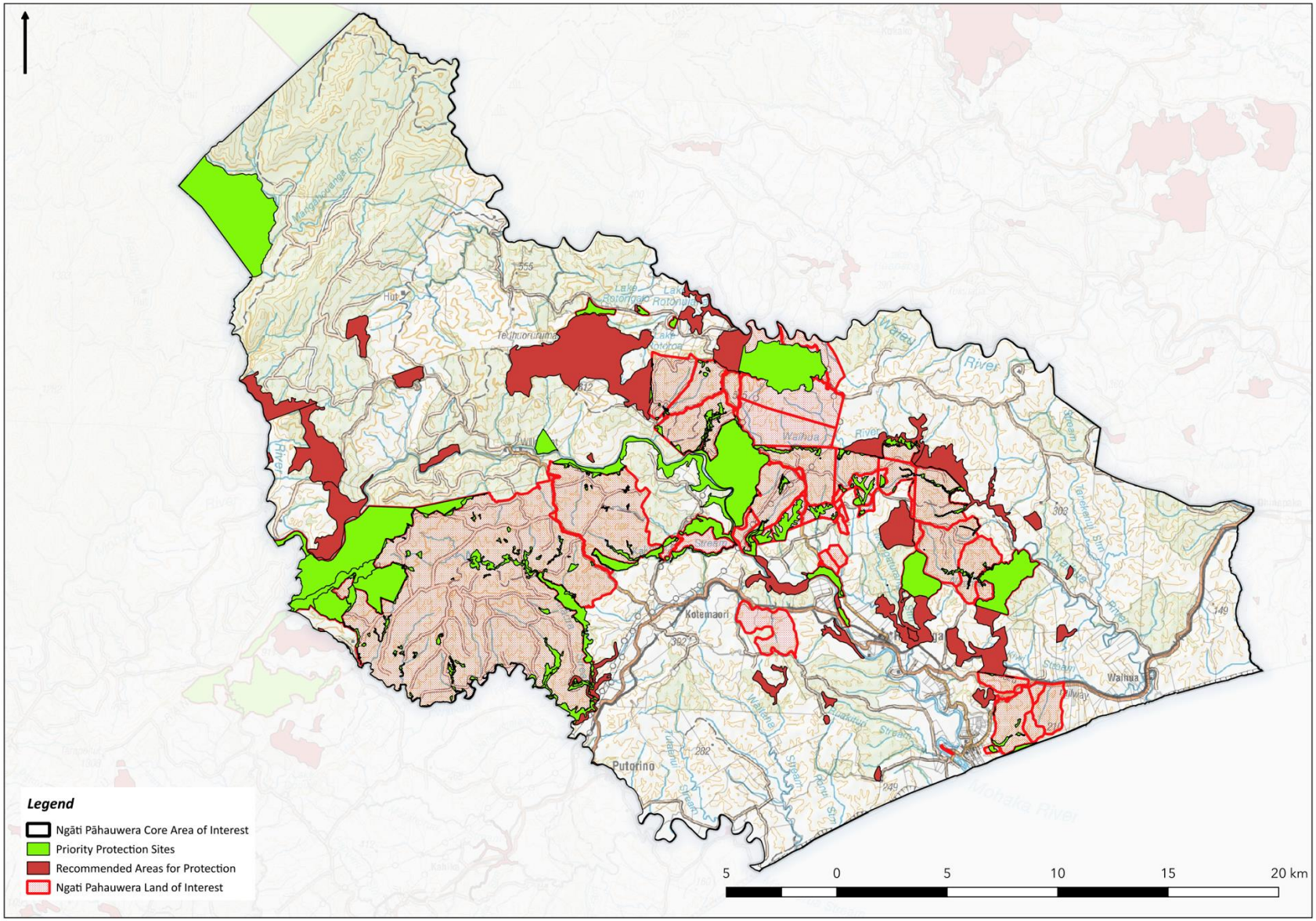


Figure 3 Grouped Priority Sites within the Core Area.

6.2 Key Biodiversity and Ecological values

Most of the sites inspected comprised secondary indigenous vegetation and habitat types dominated by kānuka, with smaller areas of broadleaved species associations dominated by mahoe, mamaku, and makomako with occasional emergent rewarewa and occasional kowhai. Mānuka dominant vegetation was locally common. Some primary and logged primary habitats were also present but these were a relatively small proportion. Primary and logged primary habitats were generally dominated by tawa with occasional to scattered emergent rimu mataī and kahikatea.

Based on inspection of aerial photographs at a broad scale (c.1:10,000) and incidental observations made during the field inspections, the sites that were not viewed during the 2017 field survey are likely to contain similar vegetation and habitat types. That is, most natural areas within the study area appear to be dominated by secondary indigenous forest, scrub, and shrubland dominated by kānuka with mamaku, māhoe, and makomako also common, and locally common kōwhai. Smaller areas of logged primary and unmodified primary forest dominated by tawa with local kahikatea are present, as are small wetland areas. No coastal sites were visited during this survey; consequently, no assumptions can be made on the vegetation or habitat types present in the coastal sites.

Special ecological values that may be present within some of the larger sites include populations of threatened plants (Clianthus puniceus, Pimelea tomentosa, Ileostylus micranthus, Dactylanthus taylorii, and Brachyglottis kirkii var. kirkii) and populations of threatened fauna including; New Zealand dabchick, spotless crake, North Island fernbird, Australasian bittern, North Island brown kiwi, North Island kaka, long-tailed bats.

20 of the 22 of the sites visited have a history of grazing by domestic stock and therefore species richness and understory diversity reflects this past disturbance. However, due to the rapid nature of the field surveys, it is likely that there are pockets of high vascular plant species diversity and special ecological values present within the larger sites, despite past grazing pressure.

6.2.1 Te Heru o Tūreia

Te Heru o Tūreia (the jewel in the crown of Tureia) is a site of extreme importance to Ngāti Pāhauwera within the core area. It is from Te Heru o Tūreia and other taonga tuku iho such as the Mohaka River and the coastal reef known as Tangitu, that Ngāti Pāhauwera derive their mana as tangata whenua.

As a priority site, it includes a number of smaller sites managed under a range of tenure. The reserve at its core, Te Heru o Tūreia includes Kakabeak which is actively managed by the Department with measures to control animal and plant pests at selected sites, and monitoring and propagation initiatives. The area also abuts Boundary Stream Mainland Island (located outside of the Core Area) and is part of a cluster of intensively managed protected areas in the Maungaharuru Ranges. Te Heru o Tūreia is the largest

protected indigenously forested area, with exceptional botanical value within the Core area.

Under the Charter, it was agreed that an operational plan was to be developed by Ngāti Pāhauwera and local Department staff. This operational plan is set out in a separate document.

7. Key Management Issues

The identified threats to these priority sites have been identified as follows:

7.1 Animal Pests

The following animal pests have been identified as being present within the priority sites within the core area.

Grazing of understorey species and substrate damage by domestic stock and/or feral goats and/or and feral pigs was evident in most of the sites visited. Other pest animal species likely to be present include feral cats, possums, hedgehogs, ship rats, Norway rats, mice, stoats, weasels, and ferrets.

Browsing, predation, and other disturbance by pest animals adversely affect the sustainability of indigenous biodiversity in the following ways:

- Whole ecosystems can be browsed by introduced mammals. Seeds that have fallen to the ground are eaten by rodents and pigs, small seedlings are browsed by pigs, possums, and rats, and mature trees are browsed in the canopy by possums (especially new growth) and their flowers and fruits by possums and ship rats. This leads to an inability of the forest to grow and reproduce its self.
- Browsing by feral goats, domestic stock and, in places, by feral pigs has largely eliminated palatable plant species from the understorey in a number of sites, and is affecting regeneration of podocarp seedlings (i.e. totara, kahikatea etc.), as well as highly palatable canopy species such as kanono and kāpuka. Goats will eat the foliage of most trees and plants and quickly destroy all vegetation within their reach, eating seedlings, saplings and litter-fall off the forest floor. Goats will also strip bark off trees and by eating young seedlings they effectively put a stop to forest regeneration.
- Predation by ship rats, possums and stoats will have reduced the breeding success, survival and abundance of all bird species. Not only do these species compete with native birds for habitat and for food such as insects and berries, but they also disturb nesting birds, eat their eggs and chicks.
- Predation will have significantly reduced the populations of lizards and larger invertebrates in the area.

7.1 Plant Pests

The following plant pests have been identified as being present within the priority sites within the core area.

Wilding radiata pines pose the most widespread pest plant issue for most of the sites surveyed within the Ngāti Pāhauwera rohe. Wilding pines are scattered to locally common within 16 of the 22 sites surveyed and are therefore also likely to be an issue for at least some of the 40 site groups that were not visited. Wilding pines compete for space with native trees and plants and don't provide the advantages that native trees do, such as food for native birds or insects. Their needles form an acidic carpet which discourages regeneration of native forest floor species. They can also be visually intrusive in native forest areas. The large areas of production forests in the area mean that there is a significant seed source available for wilding pines.

Other key pest plants that require control within the sites as a high priority include pampas, old man's beard, and tradescantia. These species are capable of changing vegetation structure and composition within a site by excluding indigenous species regeneration, preventing indigenous species colonisation, or through canopy collapse and are therefore a high priority for control.

Although blackberry, gorse, broom, and Spanish heath were also noted during the site surveys, these species are unlikely to pose a significant long-term threat to the ecological values as they are unlikely to spread into the existing indigenous vegetation.

However, control of blackberry species around entrance points is advisable for ease of access.

7.2 Other Threats

Other management issues noted include potential physical damage to marginal vegetation from pine harvest operations, sedimentation and eutrophication[5] of waterways from farm run-off and pine harvest operations, domestic refuse, and maintenance of power line corridors. Wildfire also remains a constant risk in this area too.

8. Key Management Opportunities

As well as consideration of the threats to the biodiversity in the core area there are also a number of opportunities which will facilitate conservation. These opportunities can greatly assist conservation efforts and are important when considering the management of conservation values into the future.

8.1 Land owner / manager buy-in

The development of this strategy was initiated by Ngāti Pāhauwera and the Department of Conservation. These two entities own and manage the majority of the sites of interest

[5] excessive richness of nutrients in a lake or other body of water which causes a dense growth of plant life.

within the core area. In addition to those areas there are other sites in crown ownership which are currently managed by Pan Pac forests. All of these organisations have a demonstrative interest in creating conservation outcomes for their land. Whether this is due to their role as kaitiaki, they have a statutory mandate or an industry responsibility to do so, conservation is an activity consistent with the mandate of the organisation. Not only does this mean that there is good will by landowners and managers towards creating positive conservation outcomes, but there is also skill and expertise present in these organisations that can facilitate an enhancement of conservation activities.

8.2 Community Initiatives

Ngāti Pāhauwera want to continue to work with the wider community to meet the goals of this strategy. Ngāti Pāhauwera is a very active iwi in funding and undertaking conservation within the core area and can see the many benefits in working with partners to grow the outcomes of these and future work.

Local communities are key to creating and sustaining conservation gains. The communities within and around the core area can assist in conservation activities. In the wider Hawke's Bay Region, there is significant investment in conservation outcomes by the Regional Council, private landowners, community groups, iwi and local communities. This interest and investment has created a mature conservation infrastructure in the region. This infrastructure includes research, investment plans, local knowledge and understanding of threats and responses. The learnings from the Cape to City project are seen as applicable to other conservation projects in the Hawke's Bay and nationally. The effort by the Regional Council to support this work means that there is a good understanding of what is effective locally and how conservation outcomes can best be achieved. In addition, there is a high level of comfort and a subsequent appetite for resourcing non-government entities to lead and deliver large scale conservation initiatives.

Closer to home the Poutiri Ao ō Tāne and the Forest Lifeforce Restoration Trust projects means that there are large-scale conservation initiatives on the southern and western borders of the core area. Those projects include research and protection of species and sites which are directly relevant to conservation work in the core area.

Within the core area the Forest Lifeforce Restoration Trust is actively involved in large scale conservation activities. Their site within the core area is adjacent to the Mohaka River and their work will not only be contributing to conservation outcomes in the core area but also the health of the Mohaka River too.

8.3 Conservation Funding

Over the last ten years in New Zealand there has been a significant growth in investment in conservation projects from a range of government, private and community sources. Projects such as Predator Free 2050, Taranaki Mounga and the Million Dollar Mouse etc. have been able to leverage large initial private

investment through partnerships with central and local government.

This growth in funding opportunities provides for more optimism in resourcing conservation initiatives in the core area. Such funding is never certain however and to ensure that a project has the best possible chance of getting funded, relationships should be formed with these funders to collaboratively identify shared conservation priorities. While these are not always known at the outset, alignment with key conservation strategies and planning will help this. In this case it is considering the Hawkes Bay Biodiversity Strategy and Action Plan and also projects such as the Cape to City and Poutiri Ao ō Tāne. These strategies and projects are building important critical mass locally and any leverage that can be obtained from them will greatly assist success in funding conservation projects in the core area.

8.4 Tourism Initiatives

Ngāti Pāhauwera have a tourism strategy and are developing opportunities for tourism initiatives within the core area. The natural features of the area provide opportunities for wilderness tourism experiences within medium to large sites that are located within pastoral land or near the margins of plantation forest. Te Heru o Tūreia and the Mōhaka river are locations where such activities are able to get leverage off the natural features and, where appropriate, the cultural and conservation stories at that place.

Walking, mountain biking, horse trekking, fishing and hunting represent potential sources of income or recreation for the region, particularly for areas that already have farm or forestry tracks within them. For sites that have been identified as suitable for recreational use, particularly for walking/horse trekking tracks, care will need to be taken to ensure that any new tracks do not adversely affect biodiversity values, e.g. horses and people could inadvertently introduce weeds into a site.

Active management of recreational hunters, via permits or similar management tools, would help to achieve some level of pest animal control. The elimination of goats from smaller sites could be achieved in this way.

Activities such as guided walking and biking, fishing as well as accommodation all bring people into the environment and grow their appreciation and understanding of the important values in that area. Such activities can raise not only the profile of an area but also conservation projects in that area. Tourism can also be a means of funding these activities. Wānanga, camps, whānau reunions and hikoi are ways that Ngāti Pāhauwera bring their members back to the area to learn about their history and the environment. For example, in January 2018, Ngāti Pāhauwera and Te Taitimu Trust ran a rangatahi wānanga which had 70 children for 5 days in the Mohaka area to learn about the local environment, Pāhauweratanga and much more. Other wānanga are run through Te Whare Wānanga o Awanuiarangi and are more tailored to adults, although tamariki attend. It is intended to continue to run these wānanga and camps annually.

8.5 Rongoā species present

Campbell (2011) identified rongoā plant species utilised by Māori, and there are also other comprehensive accounts of rongoā species. Eighteen of these were noted within the sites visited: kānuka, mānuka, mamaku, karamū, kareao, rārahu, kōwhai, houhere, tutu, koromiko, kahikatea, kawakawa, ponga, tātarāmoa, mataī, tītoki, piupiu, tāwiniwini, and pate. Based on the rapid site inspections, of these 18 species, only kānuka, mānuka, and mamaku were particularly common. Kawakawa density was relatively high in parts of one site, Kakariki Scenic Reserve, but may not be present in sufficient density to ensure regular sustained harvest.

In-depth surveys of the sites are likely to result in finding additional rongoā species within the sites and more information can be collected and assessed by rongoā practitioners.

Part II - The Strategy

Part II of this strategy sets out the strategy required to achieve the vision identified in Section 1 of this strategy. The following Objectives, Priorities and Actions have been developed, guided by the kaupapa in Section 2 and informed (and directed where there are identified statutory responsibilities) by the wider context and assessment within Sections 3 to 8.

9. Management Objectives:

9.1.1 Ngāti Pāhauwera Kaitiaki

Ngāti Pāhauwera are kaitiaki of their rohe. Ngāti Pāhauwera have an important role to play in looking after the important natural values in this area. Ngāti Pāhauwera will take a leadership role in the actions set out in this strategy. Those Ngāti Pāhauwera whanau who live locally are able to be actively involved in leading and undertaking this work.

9.1.1 Enduring Relationships

Ngāti Pāhauwera and the Department of Conservation will create and maintain strong and enduring working relationships with other organisations (government, iwi, business, communities etc.) and individuals to maximise conservation outcomes.

To be successful, Ngāti Pāhauwera and the Department of Conservation cannot achieve their vision for this land alone.

9.1.2 Pest Free 2050

The Ngāti Pāhauwera core area will be pest free by 2050 as a result of a concerted conservation effort supported by the wider regional community and government.

9.1.3 He Tangata

Participation in conservation activities will be incentivised through the benefits that it creates. There are many ways which people can be involved in conservation both actively and passively. There are opportunities for local communities to be actively involved in this effort as well as visitors to the area also increasing the profile of the area and the conservation activities. Such participation allows for people to stay connected with their environment and for others it allows the opportunity to be actively involved in conservation benefits for direct or more intrinsic benefit.

Ngāti Pāhauwera will utilise mātauranga māori and associated Tikanga as it relates to conservation activities, in their rohe. This will be shared with others to assist their understanding and conservation efforts to provide for a consistent approach across the core area.

9.1.4 Taonga Te Heru o Tūreia

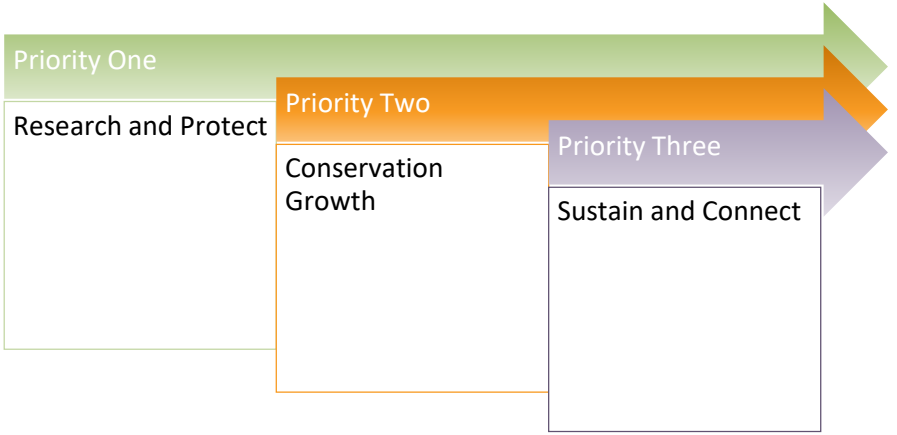
Protection and restoration of Te Heru o Tūreia will be a priority. Te Heru o Tūreia is of immense environmental and cultural significance and is a flagship priority site within the core area. The site will be actively co-managed by Ngāti Pāhauwera and the Department of Conservation to achieve positive and sustained conservation outcomes.

9.1.5 Protected Waterways and Customary Fishing

Have all waterways in the core area vegetated and protected from adverse effects, including sources of pollution. Protecting waterways with fencing and riparian planting etc. not only helps water quality but also provides for a comprehensive network of ecological corridors throughout the area. it will also provide greater protection and better habitat for important freshwater species such as Inanga.

10. Management Priorities

The priorities for the strategy are set out below. The timeframes for these priorities are indicative and if there is resource available or an opportunity for larger and longer-term projects to occur then they should be considered.



10.1.1 Priority One: Research and Protect

Complete the survey for all priority areas and undertake active protection at priority sites within the Core Area. Appendix 2 contains a schedule of sites and includes priority actions which can be used to guide these actions for specific sites based on field surveys. Those priorities do not consider other factors such as cultural values, access and/or communities of interest associated with specific sites however.

The priority sites within the core area are:

- Ngakaoauau Scenic Reserve,
- Te Awaawa Stream,
- Putere Scenic Reserve,
- Lakes Rotongaio, Rotoroa and Rotonuiaha,

- Pihanui Conservation Area, and
- Raupunga Reserve.
- Tanga Kakariki,
- Kakariki Scenic Reserve,
- Pihanui Station,
- Rewarewa Conservation Area,
- Frasers Bush Scenic Reserve,
- Willowflat Conservation Area,

Initiated within the next five years.

10.1.2 Priority Two: Conservation Growth

Grow this protection and conservation initiatives to other areas (including the Mohaka River corridor) in the core area by working with neighbours and other landowners.

Initiated within the next three to seven years.

10.1.3 Priority Three: Sustain and Connect

Connect with wider (local and regional) initiatives (such as Cape to City and Poutiri Ao ō Tāne) to create a protection and restoration project at the landscape level. This will enable opportunities for further funding and will grow local capacity to actively work on such projects.

Initiated within the next five to ten years.

11. Management Actions

The following actions have been developed to provide a practical pathway to achieving the vision and objectives for biodiversity protection and restoration identified in this plan. It is recognised that there are finite resources available to enact this plan and therefore a need to carefully prioritise activity. The following actions address a wide range of issues and take a strategic approach to implementing that plan. These actions have been developed to be delivered by Ngāti Pāhauwera and the Department. In some cases, other parties will also have a role to play and they are identified with respect to each action. The actions have also been prioritised as to fit with the management priorities identified in Section 10 above.

Priority	Action	Description	Responsible Organisations
Short Term - Research and Protection	Action Planning	Department of Conservation, Ngāti Pahāuwera and other parties relevant to meet on a quarterly basis to plan and implement the actions listed below.	Department of Conservation and Ngati Pāhauwera
	Site Assessments	Complete the rapid ecological surveys for those sites which have yet to be assessed. This will provide a good overview of the key values and opportunities for all site groups as well as the management priorities. Comprehensive knowledge of the management priorities will assist in quantifying and planning the other management and protection actions for the area	Department of Conservation, Ngati Pāhauwera and Pan Pac (for areas within forests)
	Biodiversity Surveys	Biodiversity surveys should be undertaken as a high priority for the following sites sites: Ngakaoauau Scenic Reserve, Pihanui Station, Putere Scenic Reserve, Lake Rotongaio, Lake Rotoroa, Tanga Kakariki, Kakariki Scenic Reserve, Rewarewa Conservation Area, Frasers Bush Scenic Reserve, Willowflat Conservation Area, Pihanui Conservation Area, and Raupunga	

		Reserve. These sites are generally large and/or, based on the brief surveys and inspections of aerial photographs, likely to contain a range of vegetation and habitat types that may support special biodiversity features such as rare ecosystem or habitat types and Threatened or At Risk plant and animal species.	
	Fencing	Fencing to prevent stock access from adjacent farm land. Parts of the existing fences are in disrepair and need to be fixed as sheep and cattle are encroaching into natural areas. Stock and, where possible, goats should be excluded from all natural areas.	Department of Conservation and Ngāti Pāhauwera
	Riparian Enhancement	Restoration Plantings around lake margins and small stream tributaries should continue. Priority should be given to those tributaries which connect sites to establish ecological corridors between sites (particularly small isolated areas). Species used should be locally sourced and occur naturally on similar sites elsewhere in that ecological district.	Ngāti Pāhauwera, Hawkes Bay Regional Council and the local community.
	Animal Pest Control	Eradication of possums, cats, rodents, goats and mustelids will enhance biodiversity values within natural areas. Ngāti Pāhauwera has a strong preference for non chemical based pest control means. Simple technological solutions for sustained multi-use pest animal control, which are in a research and development stage at present, may provide a solution for pest animal control in the longer-term for larger sites, or fur harvesters individually approved by the iwi to operate within the large sites.	Ngāti Pāhauwera, Department of Conservation and Hawkes Bay Regional Council

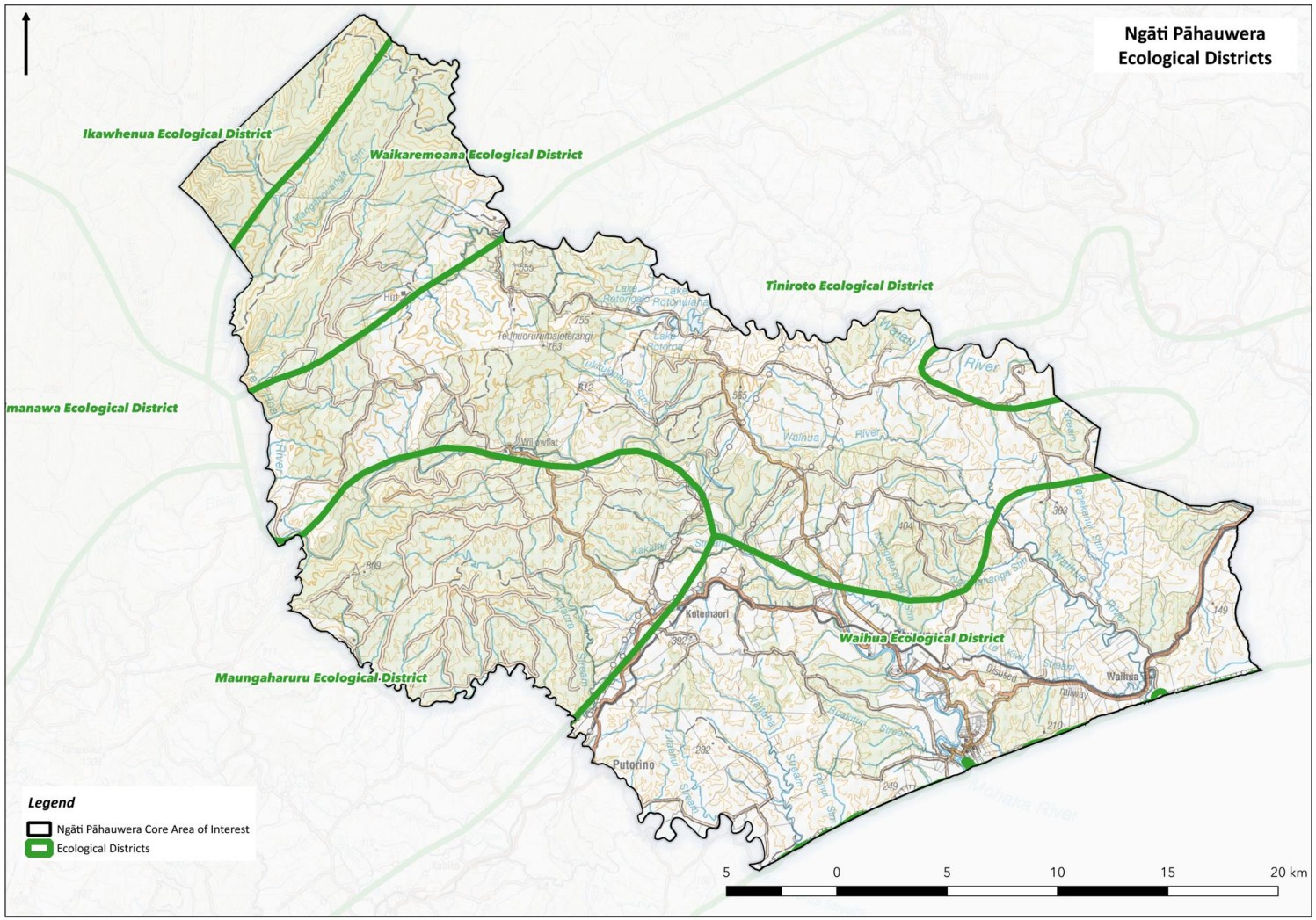
	Wilding Pine Control	Development of a plan to control the spread of wilding pines and eradicate them from priority areas.	Ngāti Pāhauwera, Department of Conservation, Pan Pac and Hawkes Bay Regional Council
	Implementing the Operational Plan for Te Heru o Tūreia	Implementation of the joint operational plan Te Heru o Tūreia	Ngāti Pāhauwera and Department of Conservation
	Rongoā	Identifying key locations of initiatives for rongoā cultivation for use by Ngāti Pāhauwera. Sustainable harvesting of rongoa within reserves by tangata whenua should be provided for in any management plans for the area.	Ngāti Pāhauwera
	Collaborative working	Ngati Pāhauwera and the Department of Conservation[††] will form a combined working group that meets on a regular basis to ensure that this strategy is advanced.	Ngāti Pāhauwera and Department of Conservation
Medium Term – Conservation Growth	Growing existing activities	Continuation of Short Term actions and expanding them to other sites within the core area, i.e. other RAPs and tributaries, through collaboration with other landowners.	
	Recreation and Tourism	Considering recreation and tourism opportunities to support and socialise conservation initiatives in the core area. Priority should be given to Ngāti Pāhauwera initiatives where there is a benefit to the local environment. The benefits of	Ngāti Pāhauwera

[††] This group may include members outside of Ngāti Pāhauwera and the Department.

such initiatives should also be recognised in any management plans for the area.		
Community Conservation Group	Forming a community conservation groups at a catchment level, to engage and empower the wider community to protect and enhance biodiversity on their land within their catchments. These groups could include local authorities, the local school, non-governmental organisations, businesses and private landowners etc. within the core area or catchments within. The role of the group can be to facilitate the implementation of this plan in the wider area including on private land. Such an initiative is likely to require resourcing to be effective.	Ngāti Pāhauwera, Department of Conservation, Wairoa District Council, NGO's, Putere, Putorino, Mohaka and Kotemaori Schools, Marae, private landowners and Hawkes Bay Regional Council, etc.
Plant Pest Management	Develop and implement a strategic approach for the containment and/or sustained control and/or elimination of key pest plant species.	Ngāti Pāhauwera, Department of Conservation and Hawkes Bay Regional Council
Landscape Scale Possum Eradication Project	Expansion of existing pest control programmes to a wider landscape-scale ground-based possum control and/or harvesting to eradicate possums and provide local employment opportunities. More information on what this action could look like can be found in Appendix Three	Ngāti Pāhauwera, Department of Conservation and Hawkes Bay Regional Council, community conservation group.

Long Term – Sustain and Connect	Sustain existing projects	Continuation of short and medium-term actions within the wider core area (i.e. not limited to priority sites or tenure of interest) to be undertaken, where possible, by whānau and local communities.
	Connecting landscapes	Collaborating with conservation initiatives outside of the Core Area, such as Cape to City and Poutiri Ao ō Tāne to not only maximise operational efficiencies and learnings from those initiatives but also create a larger landscape level conservation programme.
	Mainland Island Feasibility	Feasibility studies for some of the larger sites could be undertaken to determine the feasibility of creating 'mainland islands' by potentially using predator proof fences. Sites that could be considered for creation of mainland islands include Raupunga Reserve, Pihanui Station and Pihanui Conservation Area. These are sites which are large and have a compact shape which would make fencing less onerous.

Appendix One – Ecological Districts



Appendix Two – References

Campbell S. 2011: Maori Rongoa: Medicinal Native Plants of New Zealand. Unpublished book. 107 pp. Retrieved from: https://issuu.com/stuey64/docs/medicinal_native_plants_of_new_zealand, 8 November 2017.

New Zealand Government 2017: Ngāti Pāhauwera Deed of Settlement summary. Retrieved from: https://www.govt.nz/treaty-settlement-documents/ngati-pahauwera/ngati-pahauwera-deed-of-settlement-summary-17-dec-2010/, 9 November 2017.

Thorsen M. 2003: Higher plant species list for Te Heru o Tureia Conservation Area, Mohaka River. *Unpublished Species List No. 31*. Department of Conservation, Gisborne.

Whaley K.J., Clarkson, B.D., Emmett D.K., Innes J.G., Leathwick J.R., Smale M.C., and Whaley P.T. 2001: Tiniroto, Waihua, Mahia and Matawai Ecological Districts. *Survey Report for the Protected Natural Areas Programme*. Department of Conservation, Gisborne.

Appendix Three – Landscape Scale Possum Control Project

Landscape-scale ground-based possum control and/or harvesting to eradicate possums.

- Ground-based possum control is viable within some sites, but would be less effective than other measures. Ngāti Pāhauwera has a strong preference for non chemical based pest control mean, and, new control mechanisms and techniques are being actively researched. Self-setting traps have proven successful for possums, but not for mustelids. Opportunities may exist for some of the sites within the region to be used as pest animal control research sites by tertiary institutions, Hawkes Bay Regional Council, and the Department of Conservation.
- A formalised system of managing and collecting data on possum trapping effort on a block basis would need to be instigated. Trapping management would include dividing the treatment area into blocks; establishing a series of tracks; allocating blocks to trappers for a set time period; ensuring trappers conform to any conditions or required performance standards; collecting trapping information (effort and catch); and storing data in a spreadsheet or database for ongoing analysis and reporting. Such a management system will provide:
    - Reporting and analysis of where possum trapping effort is being directed;
    - Indicative levels of possum abundance.
    - Baseline data for future possum control to potentially be integrated into a possum harvesting programme.

Appendix Four – Schedule of Priority Protection Sites

The following information on the priority protection sites came from field surveys (undertaken in October 2017) and a review of information sourced from the Department of Conservation (PNAP Studies, Conservation Management Strategies and Field Assessment Sheets) PanPac (Field Assessment Sheets) and Ngāti Pāhauwera.

The notes throughout the table refers to the following:

1. Viewed from a distance using binoculars.
2. Viewed from the road side using binoculars.
3. Information collected/assessed during the current study.
4. Information updated/refined during current study.
5. Information provided by Perception Planning.
6. Unable to field survey due to locked gates. Vegetation types and management requirements inferred from inspection of aerial photographs and similar vegetation types nearby.
7. A very brief walkthrough survey was undertaken in the part of this site located just south of Cricklewood Road. The northern section was viewed from a couple of vantage points along Cricklewood Road using binoculars.
8. No field inspection was undertaken. The description is based on nearby vegetation types which appear similar to those within the site on aerial photographs.
9. A very small portion of this site was viewed from Kakariki Farm Road using binoculars.
10. Brief walk-through site inspection of upper margins of site.
11. Brief walk-through site survey undertaken.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
1	Rawhiti Station 2	Yes[1]	Ngati Pāhauwera	1.89	Freehold	A small area of secondary indigenous scrub, shrubland, and treefernland dominated by kānuka, mamaku, māhoe, makomako, and whekī.	Kānuka, mamaku, probably karamū.	Fencing to exclude domestic stock to allow natural regeneration of indigenous plant species.[3] Pest animal control. Pest plant control. Poison wilding pines.[3]	**Low**. This site is a relatively low priority for management due to the small size and lack of 'special' features.[3] **Low**. Pest animal control.[3]
2	Rawhiti Station 4	Yes[1]	Ngati Pāhauwera	3.79	Freehold	A small area of secondary indigenous shrubland dominated by mānuka with occasional emergent	Mānuka, kānuka, mamaku. Karamū, kareao,	Fencing to exclude domestic stock to allow natural regeneration of indigenous plant species.[3]	**Low**. This site is a relatively low priority for management due to the small size and lack of 'special' features.[3]

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						kānuka and pockets of tawa, rewarewa, makomako, and whekī forest.	and rārahu likely to be present also.	Pest animal control.[3]	**Low**. Pest animal control.[3]
3	Rawhiti Station 1	Yes[6]	Ngati Pāhauwera	9.92	Freehold	A small, compact area of secondary indigenous vegetation within a gully housing the upper reaches of the Maungaturanga Stream. The vegetation is mainly comprised of secondary forest and scrub. Tawa, rewarewa, kānuka, and mamaku are likely to be the dominant indigenous species with māhoe, makomako, and whekī common.	Mānuka, kānuka, mamaku. Karamū, kareao, and rārahu likely to be present also.	Fencing to exclude domestic stock to allow natural regeneration of indigenous plant species. Pest animal control.[3] Freshwater fish surveys.[3]	**Medium**. This site is a moderate priority for management due to its moderate size and compact shape which will contribute to its long-term viability.[3] **Low**. Pest animal control.[3]
4	Rawhiti Station 3[1]	Yes[1]	Ngati Pāhauwera	41.03	Freehold	A medium-sized gully system housing an unnamed tributary of the Mangapikopiko Stream. The vegetation comprises a mosaic of secondary indigenous vegetation in varying stages of succession including forest, shrubland, and treefernland. Patches of exotic grassland are also present. Tawa, kānuka, and mamaku are the dominant indigenous species with rewarewa, māhoe, makomako, and whekī common.	Kānuka and mamaku. Karamū, kareao, and rārahu likely to be present also.	Fencing to exclude domestic stock to allow natural regeneration of indigenous plant species. Pest plant control. Poison wilding pines.[3] Pest animal control.[3] Freshwater fish surveys.[3]	**Medium**. This site is a moderate priority for management due to its moderate size and because it provides continuity of habitat and buffers Rawhiti Scenic Reserve.[3] **Low**. Pest animal control.[3]
	Ngakaoauau Scenic Reserve (Maulders Conservation Area)	Yes[2]	Ngati Pāhauwera	379.35	Scenic Reserve and Crown Forestry Licence	This grouping comprises the large Ngakaoauaua Scenic Reserve (Maulders Conservation Area) as well as several small forest and shrubland blocks contiguous with the western boundary of the scenic reserve. A very large area of secondary indigenous vegetation located on	Kānuka, mānuka, mamaku.	Fencing. Fencing between grassland areas and forest/shrubland areas. Pest animal control. Undertake more hunting of possums and goats, control mustelids and possums, Protection of adjoining land.[5]	**High**. Biodiversity surveys.[3] **Medium**. Pest plant control.[3] **Low**. Pest animal control.[3]

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						undulating to steep hillslopes west of Waihua Valley Road and containing most of the Ngamahanaga Stream catchment. The site mainly appears to comprise secondary indigenous shrubland and scrub dominated by kānuka and mānuka with some large areas of exotic grassland. Areas of secondary indigenous forest appear to be present towards the southwestern boundary of the site.		Protect long-tailed bat population. Pest plant control (wilding pines, wattle, willow, poplar, blackberry, Japanese spindleberry).[3] Biodiversity surveys (flora, avifauna, herpetofauna, and freshwater fauna) to determine flora and fauna values within the site which will help to target pest animal control.[3] Fencing. Maintain fences. Recreation. Improve access track (horse trekking, walking). Install better signage[5]. Monitoring. Establish photopoints.[3] Honey production.[5]	
6	Waipapa B3 1	No	Ngati Pāhauwera	7.16	Freehold				
9	Pihanui Station	Yes[7]	Ngati Pāhauwera	625.64	Freehold	A very large area of secondary indigenous forest, scrub, and shrubland located on moderate to steep hillslopes between the Waiau River and Pihanui. Contains headwaters of numerous unnamed tributaries of the Waiau River and the Waihua River. Vegetation within the areas surveyed is dominated by kānuka, mānuka, and rewarewa with locally dense stands of wilding radiata pine. This site was identified as RAP TIN129-Cricklewood Road in Whaley *et al.* (2011).	Kānuka, mānuka, kōwhai, karamū, houhere, tutu, mamaku.	Biodiversity surveys (flora, avifauna, herpetofauna, and freshwater fauna) to determine flora and fauna values within the site which will help to target pest animal control.[3] Pest plant control. Wilding pines.[3] Pest animal control (goats, possums, and pigs likely to be present).[3] Management of *Brachyglottis kirkii* var. *kirkii* (At Risk-Declining) which may be present within the site.[3] Rongoa.[3]	**High**. Biodiversity surveys.[3] **Medium**. Wilding pine control.[3]

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
10	Tutumaru Stream	Yes[8]	Ngati Pāhauwera	75.00	Freehold and Crown Forestry Licence	This site comprises one medium-sized and one large area of secondary indigenous forest, scrub, and shrubland located on tributaries of the Tutumaru Stream near the confluence with the Mohaka River. The vegetation mostly comprises mānuka and/or kānuka shrubland with smaller areas of forest and scrub probably containing whauwhaupaku, māhoe, tawa, and rewarewa. Wilding pines are locally common.		Fencing to exclude domestic stock.[3] Pest plant control (wilding pines).[3] Pest animal control (goats).[3] Minimisation of damage from plantation forest harvest.[3] Recreation, e.g. guided horse trekking.[3] Farm tracks are already present through part of the site.	**High**. Fencing, pest plant control.[3] **Low**. Pest animal control.[3]
11	Pakihikura Stream Gully	Yes[2]	Ngati Pāhauwera	83.10	Freehold	A large area of secondary forest, scrub, and shrubland located in steep gullies in the headwaters of the Pakihikura Stream. Dominant plant species within the site include kānuka, mamaku, māhoe, ring fern, and toetoe tūhara. Wilding pines are locally common.	Kānuka, mamaku. Karamū and mānuka likely to be present.	Fencing to exclude domestic stock. Pest animal control (goats). Pest plant control (wilding pines).[3]	**High**. Fencing and pest plant control. **Low**. Pest animal control.[3]
12	Omahara 3	No	Ngati Pāhauwera	28.39	Freehold				
13	Omahara 4	No	Ngati Pāhauwera	4.07	Freehold				
14	Heruiwi	No	Crown	1012.51					
15	Boundary Stream Scenic Reserve	No	Crown	812.16	Scenic Reserve				
16	Putere Scenic Reserve	Yes[2]	Ngati Pāhauwera	47.69	Scenic Reserve	A medium-sized area located on steep hillslopes and cliffs between Pukakaramea Hill and Putere Road.	Kōwhai, kānuka, mānuka, houhere.	Fencing to exclude domestic stock. Pest plant control (wilding pines, pampas, gorse).[3]	**High.** Pest plant control. Fencing. **Low.** Pest animal control. Biodiversity surveys.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						The vegetation comprises a mosaic of secondary indigenous forest, scrub, and shrubland and exotic grassland. Dominant indigenous plant species include kānuka, mānuka, kōwhai, ngaio, māhoe, kōhūhū, and houhere.		Pest animal control (feral stock, goats, possums, rats, ferrets).[3] Biological surveys (flora, avifauna, herpetofauna) to determine flora and fauna values within the site which will help to target pest animal control.[3]	
17	Bed of Lake Rotongaio	Yes	Ngati Pāhauwera	10.56	CA	A survey of the lake bed was not undertaken. Lake margin vegetation within the site includes raupō reedland and mixed indigenous-exotic species shrubland and sedgeland containing *Carex virgata*, *Carex geminata*, kiokio, karamū, mānuka, māhoe, hawthorn, willow, and blackberry. Large areas of mown and grazed exotic grassland are present right down to the lake edge.	Mānuka	Fencing of the western margin of the lake to exclude domestic stock.[3] Restoration planting of the northern and eastern margins of the lake (at least 5 m width). Biodiversity survey and monitoring. NZ dabchick, Australasian bittern, spotless crake, and *Ranunculus macropus* are losing habitat due to increased nutrients, runoff, eutrophication, grazing and pugging. Landowner liaison. Marginal fencing and restoration. Monitoring of lake nutrient levels. Reintroduction of threatened plants and fauna. Land purchase. Wetland area on the western margin of the lake (or negotiate management).[4] Pest animal control. Archaeological survey. Recreation. Access, use, and signage.[4]	**High**. Strategies to reduce runoff and improve the nutrient status of the lake and limit adverse effects on biodiversity i.e. fencing, restoration planting, education, and monitoring.
17	Bed of part of Lake Rotoroa	Yes	Ngati Pāhauwera	10.12	CA	No survey of the lake bed was undertaken.	Karamū, koromiko, kōwhai.	Fencing to exclude domestic stock.[4] Restoration planting.[3]	**High**. Strategies to reduce runoff and improve the nutrient status of the lake and limit adverse effects on biodiversity i.e.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						Lake margin vegetation within the site includes raupō reedland, raupō and giant spike sedge reedland, and mixed indigenous and exotic species forest and treeland dominated by willow species, hawthorn, koromiko, karamū, and māhoe with occasional kōwhai. Large areas of mown and grazed exotic grassland are present right down to the lake edge.		Landowner liaison. Marginal fencing and restoration.[3] Biodiversity survey and monitoring. Determine continued presence of *Ranunculus macropus* and other indigenous flora and fauna values.[3] Monitoring of lake nutrient levels. Pest plant control (crack willow, grey willow, weeping willow, hawthorn, and blackberry). Pest animal control. Archaeological survey. Recreation. Access, use, and signage.	fencing to exclude domestic stock, restoration planting, education, and monitoring. **Medium**. Biodiversity survey.
19	Tanga Kakariki	Yes[2]	Ngati Pāhauwera	108.64	Scenic Reserve	A large area of indigenous forest, scrub, and shrubland habitat located on steep hillslopes on either side of the Heruheru Stream. Some exotic shrubland is also present. Kānuka and mānuka are the dominant indigenous plant species with karamū, kanono, rangiora, koromiko, whekī, tī kōuka, kahikatea, and rimu also present.	Kānuka, mānuka, karamū, koromiko, kahikatea.	Fencing to exclude domestic stock.[4] Pest plant control (old man's beard).[4] Pest animal control (goats and possums).[4] Biodiversity surveys (flora, avifauna, herpetofauna, freshwater fauna).[3] Rongoa.[3]	
20	Mangawharangi Scenic Reserve	Yes[2]	Ngati Pāhauwera	56.65	Scenic Reserve	A medium-sized area of indigenous secondary vegetation mainly comprised of mature secondary forest, scrub, and shrubland, but with small areas of primary forest on river flats. Some exotic grassland areas are also present. Dominant indigenous plant species include kānuka, makomako, māhoe, tī kōuka, and tawa. Occasional emergent rimu and	Kānuka, mānuka, mamaku, kahikatea, kawakawa, kōwhai.	Fencing to exclude domestic stock.[3] Pest plant control (Japanese honeysuckle, pampas, wilding pines, and tradescantia).[3] Dense weed infestations may limit canopy species regeneration. Boundary weeds are an increasing problem, pasture land very weedy.	**High**. Pest plant control.[3]

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						kahikatea are present within primary forest.		Pest animal control (possum and goats).[3] Management of pa.[5] Shared management with Mohaka Reserve.[5] Manage effects of transfer stations, old rubbish dumps, and farm runoff.[5] Rongoa.[4] Recreation. Access (walkway) and interpretation.[4]	
21	Ononi	Yes[10]	Ngati Pāhauwera	2.32	Freehold	A small flat area that was an historic pā site. Vegetation within the site currently contains a mixture of indigenous and exotic species. Vegetation types present include: planted amenity trees (chestnut, callistemon, avocado) over lightly grazed exotic grassland; gorse shrubland; exotic grassland, and; kānuka and makomako scrub.	Kānuka, tutu.	Fencing. Maintenance. Recreation. Access (walkway) and the amenity values affected by weeds[4]. Interpretation.[5] Pest plant control (gorse and wilding pines).[3] Pest animal control (possum and goats). Pa restoration.[5]	**High**. Pest plant control.[3]
22	Mohaka Scenic Reserve (Paaka Te Ahu)	Yes[1]	Ngati Pāhauwera	15.82	Scenic Reserve	A medium-sized area of logged primary forest and mature secondary forest on the steep riparian margins of the Mohaka River just north of the Mohaka Viaduct. Logged primary forest dominated by tawa with occasional rimu is present immediately beside the river. This grades into secondary forest dominated by whauwhaupaku, māhoe, and kōhūhū further up the hillslope. Secondary forest dominated by kānuka with scattered	Kānuka, kahikatea, karamū, kareao, ponga, tātarāmoa, kōwhai, mataī, mamaku.	Recreational opportunities include spectacular views from the Mohaka River and adjacent farmland. Fire risk management (from railway or adjacent landowners). Pest animal control (goats and possums). Heavy browsing is occurring. Pest plant control (Japanese honeysuckle, wilding pines).[4] Dense gorse on boundary of reserve. (Gorse control not currently recommended.)	**Medium**. Pest plant control. **Low**. Pest animal control.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						whauwhaupaku and tī kōuka is present where the site levels out.		Biodiversity survey including dactylanthus. Investigate connection with Maori land.[5] Investigate amalgamation with adjacent areas. Investigate risks from possible hydroelectric development in Mohaka River, and historic gold mine pollution. Recreation. Consider historic route development.[5] Archaeological survey.[5]	
23	Raupunga Reserve	No	Ngati Pāhauwera	230.56	Scenic Reserve and Crown Forestry Licence			Fencing. Resolve stock and tree pressures. Pest plant control (wilding pines) Pest animal control (possums, deer, goats, mustelids).[5] Kiwi monitoring. [5] Investigate acquiring adjacent natural areas.[5] Rongoa.[5]	
24	Rawhiti Scenic Reserve (Pa o Tauwhareroa)	Yes[11]	Ngati Pāhauwera	9.00	Scenic Reserve	A small remnant of logged primary forest dominated by tawa with a few very large rimu and occasional kahikatea. Porokaiwhiri, rewarewa, and tītoki are regenerating strongly within the understorey. Subcanopy absent, presumably as a result of historic grazing pressure. Understorey and ground cover tiers of the forest contain moderate species diversity dominated by porokaiwhiri, māhoe, kawakawa, and tawa with ground ferns and	Kahikatea, tītoki, kawakawa, kareao, karamū, mamaku, mataī, ponga, patē, piupiu.	Fencing to exclude domestic stock and goats.[4] Pest animal control (possums, rats, mustelids, goats, and cats).[4] Pest plant control (clear blackberry from entrance).[4] Recreation. Access, develop short tracks, and parking improvements.[5] Rongoa.[3]	

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						treefern seedlings scattered throughout.			
25	Te Heru o Tureia Gift Area, and Nakunaku Historic Reserve	Te Heru o Tureia - Yes[#] Nakunaku - No	Department of Conservation and Ngati Pāhauwera	1,766.74	Historic Reserve, Conservation Covenant, and Crown Forestry Licence	A very large area of indigenous forest, scrub, and shrublands on steep hillslopes extending south from the middle reaches of the Mohaka River between *c.*160 m and 809 m a.s.l. Contains a wide range of habitat types including gullies, river flats, cliffs, and plateaus, but mostly comprises steep to very steep hillslopes with numerous small streams which flow into the Mohaka River. Provides habitat for four Threatened, At Risk, or Data Deficient vascular plant species (Thorsen 2003). Active sustained control of goats since 1994. Regular possum control (DOC and AHB) which has led to improvement of under canopy, regeneration of kōwhai, harakeke, coprosma species, miro and tawa.	Mānuka, kānuka, kōwhai, kawakawa, tāwiniwini, kareao, karamū, mamaku, ponga, patē, tutu, piupiu.	Replanting programme for kaka beak. Fencing. Western boundary fence in poor repair. Pest animal control (pigs).[3] Pest plant control (wilding pines).[4] Biodiversity surveys for herpetofauna and threatened and at risk plants.[3] Fire risk management. Particularly from adjacent pine plantations which almost surround the reserve.[5] Management plan. Co-managed by DOC and Ngati Pahauwera but needs a management plan.[5] Rongoa.[4]	
28	Whirinaki Te Pua-a-Tane Conservation Park	No	Crown	1216.44	State Forest Park				
29	Kakariki Scenic Reserve	Yes[9]	Crown	255.25	Scenic Reserve	A long convoluted area of indigenous scrub and shrubland on steep to very steep hillslopes and bluffs along the true left of the	Mānuka, kānuka, kahikatea.	Fencing to exclude domestic stock.[3] Pest animal control (goats and possums).[3]	

[#] Brief inspection of the margins of some habitat types undertaken. Site inspection localities constrained by logging operations.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						Kakariki Stream and parts of the true right of the Mohaka River. Mānuka, kānuka, and tī kōuka dominate the vegetation with kahikatea, rimu, and rewarewa scattered throughout. Blackberry is common around the margins.		Pest plant control (old man's beard).[3] Planting. Lake and river.[5] Archaeological survey; determine position of historic site.[5] grazing license; revegetation of lake edge; investigate recreation possibilities (lake edge picnic area and track).[3] Biodiversity surveys (*Ranunculus macropus*). Rongoa.[3]	
31	Rewarewa CA	No	Department of Conservation	70.06	CA and Crown Forestry Licence			Biological survey. To improve the level of information for this site. Fencing. Investigate options for better animal control. Recreation survey.[5]	
32	Frasers Bush Scenic Reserve	No	Department of Conservation	64.41	Scenic Reserve			Fencing. Maintenance. Pest plant control (old man's beard). Pest animal control. Recreation. Signage. Archaeological survey.[5] Biodiversity survey. Long-tailed bats and podocarp area.[5] Monitoring. Visit the site more often.	**High**. Pest plant control.
33	Willowflat Conservation Area	No	Crown	96.67	CA and Crown Forestry Licence	Site likely to act as a corridor or island between other areas.[2]		Fencing to exclude domestic stock. Pest animal control (deer, goats, possums, cats). Pest plant control. Biodiversity survey.[3] Investigate effects of logging and quarry runoff.[5]	

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
34	Kakariki Conservation Area	Yes[§§]	Crown	41.04	CA	A medium-sized area of indigenous forest located on moderate hillslopes alongside an unnamed tributary of the Kakariki Stream. The site contains logged primary forest dominated by tawa within occasional emergent rimu subject to historic grazing. Small areas of tī kōuka treeland and kahikatea treeland are present outside the fenced reserve.	Ponga, kahikatea, tītoki, mataī, houhere, kawakawa, kareao.	Fencing to exclude domestic stock.[4] Pest animal control (goats).[4] Biodiversity survey.[3] Weed survey.[3] Fencing and restoration planting alongside stream on southern side of reserve (would require purchase of land and/or a management agreement with current landowner).[5] Investigate combining with Kakariki Scenic Reserve.[5] Investigate current status of land on true right of river (*c.*10ha) with the aim of amalgamating.[5]	**High**. Fencing. **Medium-high**. Pest animal control. **Low**: Biodiversity survey.[3]
34	Lake Tamaharau	Yes[***]	Ngati Pahauwera	3.35	Crown Forestry Licence	A small lake with some remnant indigenous vegetation (forest and shrubland on its northern and eastern sides and a narrow band of raupō reedland on its southern margin) and some mixed exotic-indigenous vegetation in other places.	Karamū, tītoki, patē.	Fencing to exclude domestic stock. Run-off from surrounding farmland is affecting the lake.[4] Pest plant control (blackberry on lake margins).[3] Restoration planting on lake margins.[3] Biodiversity survey (may provide habitat for spotless crake).[3] Restoration planting in grassland areas.[3]	**High**. Fencing. **Medium**. Pest plant control. **Low**. Biodiversity survey.[3]
35	Pihanui Conservation Area	Yes[2]	Crown and Ngati Pahauwera	714.50	State Forest Park and Crown	A large area of indigenous forest, scrub, and shrubland habitat located on moderate to steep hillslopes and river flats in the	Kānuka, mānuka, koromiko, karamū, tutu, mamaku. Kareao	Pest plant control (wilding pines).[4] Pest animal control (goats and possums).[4]	

[§§] Brief walk-through site inspection of the southern lobe of this site.
[***] Inspected with binoculars from adjacent farmland. Name from Topomaps.

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
					Forestry Licence	middle reaches of the Mohaka River. Vegetation predominantly comprises mature secondary forest comprising a mosaic of rewarewa and kānuka forest, rewarewa and mamaku treefernland, and rewarewa, kānuka, whauwhaupaku, and māhoe forest.	also likely to be present.	Biodiversity survey for freshwater fauna, herpetofauna, and threatened plants.[3] Kiwi monitoring.[4] Fire risk management from transmission line. Investigate logging runoff and silting, plantation forestry effects.[5] Hunter education regarding kiwi and compliance. Access. More tracks including track for transmission lines.[5]	
36	Anaura Stream Conservation Area	No	Crown	275.62	Crown Forestry Licence				
37	Takauere (Pittar's Conservation Area)	No	Ngati Pahauwera	13.86	Freehold			Fencing. Pest plant control. Archaeological survey. Vegetation enhancement (or revegetation and further survey and monitoring).[5]	**Medium-high**. Pest plant control.
38	Waipapa Stream Fragments	No	Ngati Pahauwera	18.19	Crown Forestry Licence			Pest animal control (goats).[5]	
39	Waipapa Forest	No	Ngati Pahauwera	2.05	Crown Forestry Licence				
40	Waihua Tributary Fragments	No	Ngati Pahauwera	10.47	Crown Forestry Licence				

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
41	Waihua Tributary Fragments 2	No	Ngati Pahauwera	30.30	Crown Forestry Licence	This site contains a narrow strip of vegetation on the southwestern edge of a much larger area of indigenous vegetation that was identified as RAP WAH 28-Mid-Waihua River in Whaley *et al.* (2011). The site is likely to contain secondary indigenous forest, scrub, and shrubland dominated by mānuka and/or kānuka with tītoki, pukatea, kōwhai, porokaiwhiri, ngaio, and kōhūhū also present.		Pest animal control.[4] Red deer, goats (Whaley *et al.* 2011).	
42	Putere Forest Fragments 1	No	Ngati Pahauwera	33.45	Crown Forestry Licence				
43	Waihua River Fragments 1	No	Ngati Pahauwera	14.82	Crown Forestry Licence	This site contains part of a much larger area of indigenous vegetation that was identified as RAP TIN 130-Upper Waihua River in Whaley *et al.* (2011). Based on vegetation descriptions in Whaley *et al.* (2011) and inspection of aerial photographs, the vegetation within this site is likely to comprise a number of vegetation types including kānuka forest, broadleaved species scrub and shrubland, and mānuka-kānuka scrub, with some pockets of tawa forest.		Fencing to exclude domestic stock.[4] Pest animal control: red deer, feral goats.[4]	
44	Waihua River Frements 2	Yes[2]	Ngati Pahauwera	36.42	Crown Forestry Licence	A long narrow strip of indigenous scrub and shrubland on steep hillslopes at the headwaters of the Waihua River. The vegetation comprises scrub and shrubland habitat dominated	Kānuka, mamaku. Karamū also likely to be present.	Fencing of the northern boundary to exclude domestic stock which gain access across the river from neighbouring farmland. Pest plant control (wilding pines).[4]	**High**. Fencing . **Medium**. Pest plant control. **Low**. Pest animal control is a relatively low priority overall due to the site's small size.[4]

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						by kānuka, māhoe, makomako, and mamaku with patches of exotic grassland on river flats in places. Local clusters of wilding pines.		Pest animal control (possums, goats, and pigs likely to be present).[4]	
45	Papa Road Stream Fragments	No	Ngati Pahauwera	61.14	Crown Forestry Licence	This site has been identified as RAP TIN 132-Arikanihi Stream in Whaley *et al.* (2011). The site is significant for its wide range of vegetation types, from young secondary scrub to primary forest, on a diversity of inner valley landforms. It is continuous with the Pihanui Conservation Area that forms part of a semi-continuous chain of indigenous vegetation that extends for 40 km along the Mohaka River. The vegetation within the site is dominated by kānuka forest with rewarewa and kōwhai scattered throughout and kōhūhū, māpou, heketara, makomako, houhere, and māhoe also present. Small patches of black beech forest are present on dry ridges and spurs (Whaley *et al.* 2011).		Pest animal control (pigs, goats).[5] Pest plant control (blackberry).[5]	
46	Kerepehi Road Fragments	No	Ngati Pahauwera	5.90	Crown Forestry Licence	This site contains a small part of the eastern boundary of the area of indigenous vegetation that was identified as RAP TIN 136-Te Ihuororumaioterangi in Whaley *et al.* (2011). Of the vegetation types described in Whaley *et al.* (2011), this site is likely to contain secondary indigenous forest and scrub dominated by kānuka and/or mānuka with emergent rewarewa,		Pest animal control.[4] Feral goats, deer, pigs, possums, domestic stock (Whaley *et al.* 2011).	

Site Group	Site Name	Field Survey (2017)	Tenure	Size (ha)	Status	Key Ecological and Biodiversity Values	Rongoa Species Present	Key Management Opportunities	Priorities
						kōhūhū, whekī, putaputawētā, houhere, kāmahi, tī kōuka, and occasional young black beech.			
47	Putere Forest Fragments 2	No	Ngati Pahauwera	10.06	Crown Forestry Licence			Pest animal control (pigs). Pest plant control (blackberry).[3]	
48	Woodland Road Fragments	No	Ngati Pahauwera	14.59	Crown Forestry Licence				
49	Anaura Forest Fragments 1	No	Ngati Pahauwera	8.46	Crown Forestry Licence				
50	Anaura Stream Trib Fragments 1	No	Ngati Pahauwera	9.45	Crown Forestry Licence			Pest animal control (pigs). Pest plant control (blackberry).[3]	
51	Anaura Stream Trib Fragments 2	No	Ngati Pahauwera	10.92	Crown Forestry Licence				
52	Anaura Forest Fragments 2	No	Ngati Pahauwera	5.12	Crown Forestry Licence				
53	Anaura Forest Fragments 3	No	Ngati Pahauwera	3.37	Crown Forestry Licence			Fencing to exclude domestic stock. Pest animal control (goats and pigs).[3]	
54	Anaura Stream Fragments	No	Ngati Pahauwera	189.54	Crown Forestry Licence			Fencing to exclude domestic stock. Pest animal control (goats and pigs). Possums may also be present (some canopy dieback).[4]	
55	Waikari River Fragments	No	Ngati Pahauwera	58.87	Crown Forestry Licence				

56	Upper Waikari River Fragments	Partial [1†††5]	Ngati Pahauwera	16.62	Crown Forestry Licence	This site comprises a long, convoluted area of secondary indigenous scrub and shrubland on steep hillslopes between plantation forest and farmland and a small wetland and lake located within a depression in plantation forest. The wetland portion of the site comprises a small lake surrounded by raupō reedland with locally common *Carex virgata* and *Eleocharis sphacelata*. A small area of kāmahi and makomako forest is present on a hillslope at the northern end of the lake.		Pest animal control (goats, pigs). Pest animal control within the wider plantation forest will benefit both of these sites, as well as all others within the plantation forest.[4] Pest plant control (wilding pines in scrub and shrubland habitat).[4]	**Medium**. Pest plant control.
57	Waikari River Trib Fragments	No	Ngati Pahauwera	17.91	Crown Forestry Licence				
58	Anaura Forest Fragments 4	No	Ngati Pahauwera	6.70	Crown Forestry Licence				
59	Anaura Forest Fragments 5	No	Ngati Pahauwera	12.62	Crown Forestry Licence				
60	Anaura Forest Fragments 6	No	Ngati Pahauwera	13.10	Crown Forestry Licence				
61	Anaura Forest Fragments 7	No	Ngati Pahauwera	0.46	Crown Forestry Licence				
62	Putere Forest Fragments 3	No	Ngati Pahauwera	0.49	Crown Forestry Licence				

††† The southern margin of the wetland was briefly inspected on foot. Vegetation composition of the scrub and shrubland area was inferred from aerial photographs.

63	Anaura Forest Fragments 8	No	Ngati Pahauwera	8.18	Crown Forestry Licence				
64	Putere Forest Fragments 4	No	Ngati Pahauwera	18.11	Crown Forestry Licence			Pest animal control (pigs, deer, goats). The currently sparse understory does not match the PNAP report description of an intact understory.[5]	
65	Putere Forest Fragments 5	Yes[8]	Ngati Pahauwera	9.18	Crown Forestry Licence	A small area of secondary indigenous vegetation at the head of an unnamed tributary of the Mangawharangi Stream. Kānuka and mamaku are likely to be the dominant indigenous species within this site. Wilding pines appear to be locally common.	Kānuka and mamaku. Karamū, kareao, and ponga also likely to be present.	Fencing to exclude domestic stock (entire site including the downstream, unmapped area). Pest animal control. Pest plant control (wilding pines).[4]	**High**. Fencing. **Medium**. Pest animal control and pest plant control.[4]