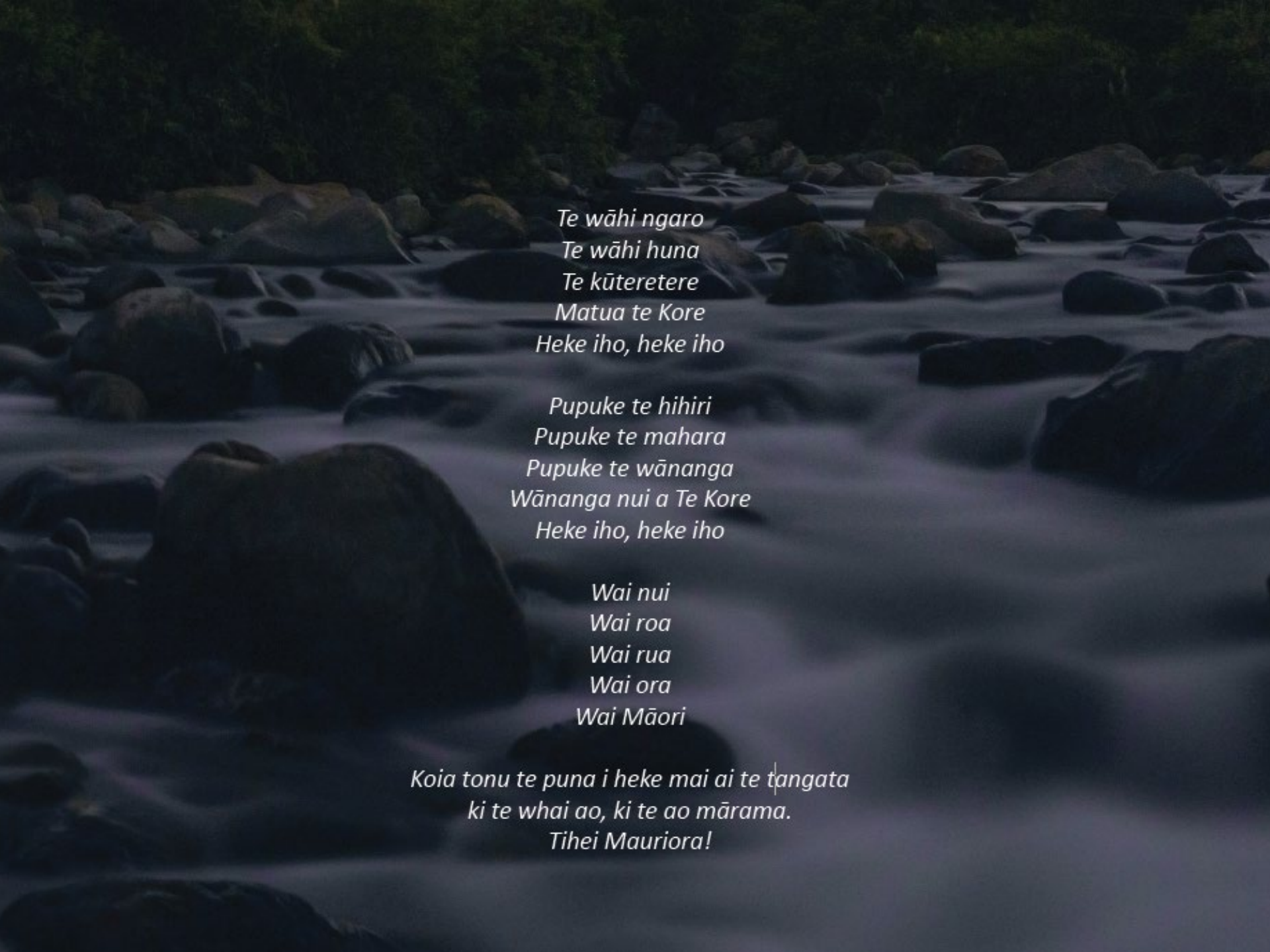

WAIWHAKAIHO
WILDLINK VISION



Te wāhi ngaro
Te wāhi huna
Te kūteretere
Matua te Kore
Heke iho, heke iho

Pupuke te hihiri
Pupuke te mahara
Pupuke te wānanga
Wānanga nui a Te Kore
Heke iho, heke iho

Wai nui
Wai roa
Wai rua
Wai ora
Wai Māori

Koia tonu te puna i heke mai ai te tangata
ki te whai ao, ki te ao mārama.
Tihei Mauriora!

Background

Pōpokotea, Whitehead

- The ‘Taranaki Traverse’ was a concept identified through the New Plymouth District Blueprint.
- Waiwhakaiho section of the Taranaki Traverse was funded through the LTP 2021-2031 to work towards the vision and to progress land acquisition.
- Concurrently to the land acquisition identified in the LTP, a working group was established to explore a 'fresh' approach for setting the scene for a vision that would be a basis for conversations with the community.

Wildlink Working Group

Titipounamu, Rifleman

Ngā hapū

Six Ko ngā hapū from two waka (Tokomaru and Kurahaupo) have worked collaboratively on the draft vision for the Wildlink. This included 9 wānanga.

Ngāti Te Whiti, Ngāti Tawhirikura, Puketapu, Ngāti Tuparikino, Ngā Mahanga and Ngāti Tāiri trace their whakapapa back to the Waiwhakaiho.

Bruce Clarkson

Professor Bruce Clarkson from the University of Waikato leads the research in *People, Cities and Nature: restoring indigenous nature in urban environments* and has provided ecological input into the project.

Taranaki Regional Council

To ensure we align with TRCs new freshwater plan we have had early engagement from TRC.

Wildlink vision document

Kākā,
Bush Parrot

Why develop a vision for the Waiwhakaiho Awa?

We want:

- bird song along its banks;
- our community to be able to swim and enjoy its clean water;
- our native fish species to be able to migrate up along the awa without barriers; and
- Our community is able to access, enjoy and appreciate the beauty of the Waiwhakaiho Awa.

Most importantly we want:

- future generations to have better water quality than what we have presently.

This cannot be achieved without a collaborative and intergenerational approach. To start us on our 100 - 200 year journey of awa restoration we need a vision to steer us. We may not be here personally to see it's full fruition, but this is signalling the start of that journey for next generations - haere ake nei.

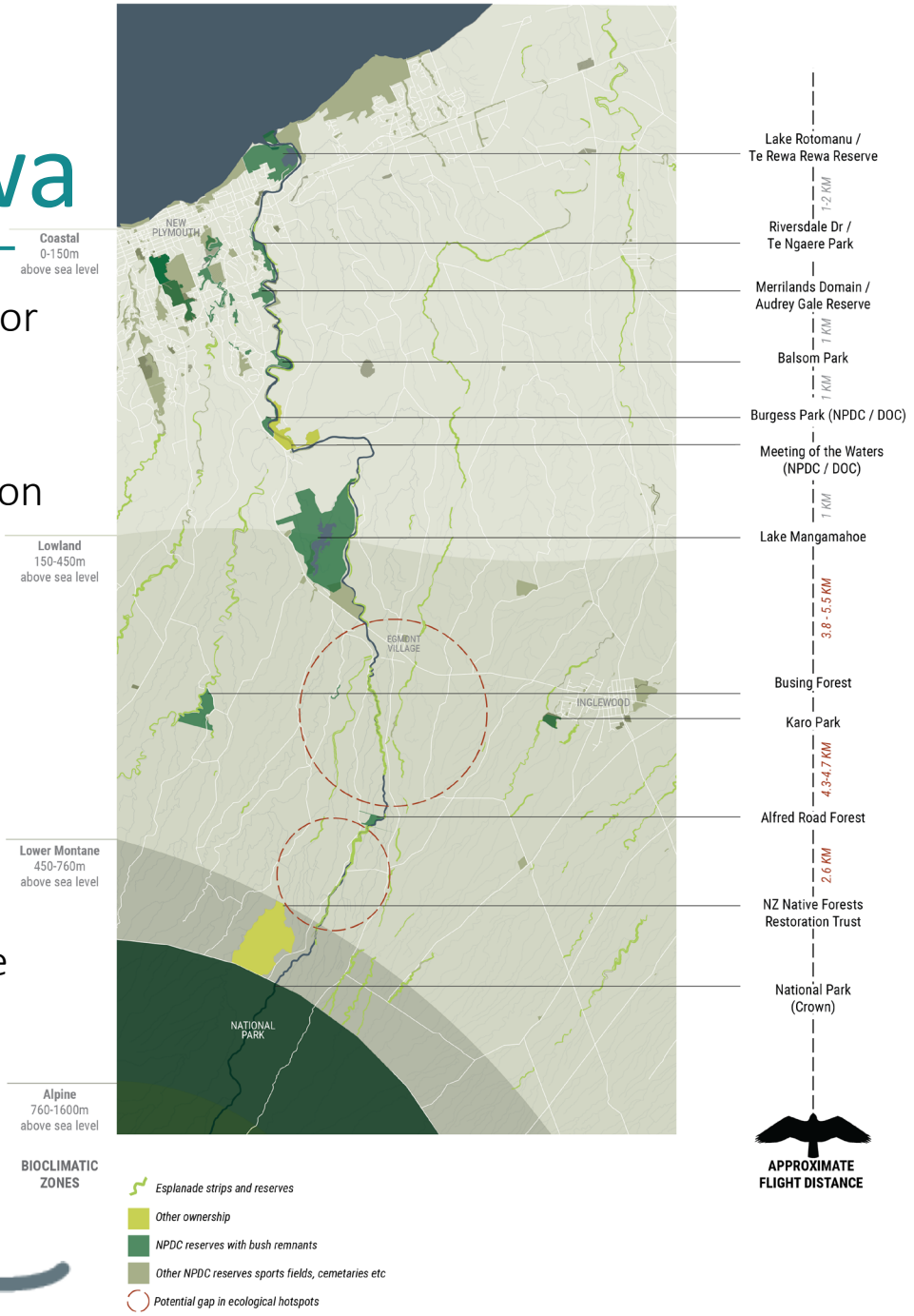
Waiwhakaiho Awa

Long-Fin Tuna,
Long-Fin Eel

- One of the largest rivers in the District with several tributaries, 30km in length.
- A dense forest corridor once cloaked the riverbanks of the Waiwhakaiho.
- Its water once sustaining the land and livelihood of many hapū.
- Relatively high portion of public reserves and private land on the river already cloaked in remnant indigenous vegetation.

Waiwhakaiho Awa

- Good base of NPDC reserves and TRC or DOC owned land along the awa.
- Several islands of native bush/habitat along the corridor, though majority is on the lower corridor between coast and Lake Mangamahoe.
- Lake Mangamahoe is a recreation destination (mountain biking, bridal and walking trails).
- Existing esplanade reserves and strips taken by Council, though gaps exist.
- Some sections along urban reach have existing walkways along awa.



Vision objectives

Korimako,
NZ Bellbird

1. Restoration

He torohanga nā Tāne,
mai i uta ki te tai

To restore the ecological resilience of the Waiwhakaiho through the phased reconstruction of its indigenous forest corridor from Taranaki Maunga to the sea.

2. Cultural Identity

Ko te pā harakeke,
hei poipoi i te kākano

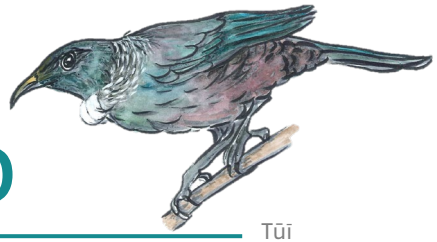
To reaffirm our whakapapa and cultural identity through narrative and provide a place of sanctuary, calm and respite for our current and future generations.

3. Connection

Ko te whakapapa me te whanaungatanga

To reconnect our community to these areas through deep, reciprocal, respectful and enduring relationships and behaviours to each other and to place.

Bioregional Approach to restoring the Waiwhakaiho



Tūī

- Peoples, Cities and Nature have had a long held vision to reconstruct biodiversity corridors from Taranaki Maunga to the sea as a bio-regional approach for Taranaki.
- The corridors identified were Waiwhakaiho, Hangaātaahua, Pātea and Waingongoro Rivers.
- Corridors are critical for the maintenance of ecological processes including allowing for the movement of animals and the continuation of viable populations
- The wider the corridor the better as it provides for greater diversity

Key rākau species

Tawa
Beilschmiedia tawa

- Elevation changes along the awa create distinctive bioclimatic zones that have different types of naturally occurring tree species for restoration.

- Key fruiting and nectar producing species needed for native birds.

Pages 16 to 17 of the Vision Document:

Bioregional Approach to Restoring the Waiwhakaiho

Native Rākau

From these native bird species, we have further examined their foraging behaviours and identified the following complement of native rākau, which are key sources of food for these bird species. Importantly, these native rākau are also used by Māori for cultural uses, food and medicinal purposes. They include:

Kōwhai
Sophora microphylla

Kōwhai (not threatened but has undergone considerable logging and forest clearance)
Birds: frequented by tūī and kūkupa which all feast on nectar and fruit.
Flowering times: August – November.
Nectar and fruiting times: September – November.
Rongoā uses: an infusion of the bark was drunk for internal pains, applied externally for bathing bruises, and for removing internal blood clots.

Tawa
Beilschmiedia tawa

Tawa (not classified as a threatened species)
Birds: relies solely on the kūkupa and (where present) the North Island kōkako for dispersal of its seed.
Flowering times: September – December.
Fruiting times: October – February.
Cultural/rongoā uses: the bark was used for medicinal purposes, carving and buildings.

Pūriri
Vitex lucens

Pūriri (not threatened but vulnerable to habitat loss and browsing from introduced pests)
Birds: frequented by tūī, korimako, kākā and kūkupa who feast on leaves and flowers. Tītipounamu and toutouwai are also frequent visitors in search of insects and spiders.
Flowering times: almost year-round flowering, but more so in the winter.
Nectar and fruiting: 8+ month fruiting cycle that will fruit heaviest over the summer.
Cultural uses: the tree produces a red dye that Māori use for tattooing and dyeing.
Rongoā uses: the tree also has cultural significance and is associated with healing and protection.

Karaka
Corynocarpus laevigatus

Karaka (not classified as a threatened species)
Birds: kūkupa are the only birds left (all others are now extinct) big enough to swallow the large fruits of the karaka tree and disperse it. Tūī also feed on the ripe flesh of the karaka berry.
Flowering and fruiting times: flowers appear from late winter through to spring with the fruit ripening from green to that eye-catching orange in mid-summer to autumn.
Traditional food: the kernels could be boiled/steamed and seep in running stream water, stored for several months and re-cooking to soften for eating. The raw flesh of the bright orange fruit is also edible, and has a strong apricot flavour.

Kōtukutuku
Tree fuchsia
Fuchsia excorticata

Kōtukutuku (not threatened but vulnerable to habitat loss and browsing from introduced pests)
Birds: frequented by tūī and korimako, and sometime kūkupa, who feast on the nectar-rich flowers and berries.
Flower and fruiting times: flowers appear in spring/autumn and are closely followed by red/purple berries or konini, which are filled with masses of tiny seeds.
Cultural uses: the inner bark was used for weaving and making clothing and baskets.
Traditional food: the tree provided a food source, as the berries were eaten when ripe.

Tītoki
Alectryon excelsus

Tītoki (not threatened but vulnerable to habitat loss and browsing from introduced pests)
Birds: frequented by tūī and korimako for its red fruit.
Nectar/fruiting and seeding times: flowers in summer, followed by bright red fruit in autumn.
Cultural uses: wood is used to make traditional carvings and weaving tools.
Rongoā uses: leaves and bark are also used for medicinal purposes.

Bioregional Approach to Restoring the Waiwhakaiho

Māhoe
Melicytus ramiflorus

Māhoe, whitey wood (not classified as a threatened species)
Birds: mahoe provides a habitat for native birds including tūī, korimako and kūkupa.
Flowering times: November – February.
Fruiting times: November – March.
Cultural uses: the bark makes a yellow dye. Its wood was used for making tools, weapons and utensils.

(Parītutu) Korokio
Corokia cotoneaster

(Parītutu) Korokio (not classified as a threatened species)
Birds: attracts tauhou (wax-eyes) and other native birds.
Flowering times: September – April.
Fruiting times: February – September.
Cultural/rongoā uses: used for ulcers and considered good for the kidneys and bladder, as well as for diarrhoea.

Pukatea
Laurelia novae-zelandiae

Pukatea (not classified as a threatened species)
Flowering times: September – December.
Fruiting times: October – January.
Cultural uses: the timber was used by Māori to create figureheads.
Rongoā uses: an extract from the bark containing the alkaloid pukateine is used in traditional Māori herbal medicine as an analgesic.

Rimu
Red Pine
Dacrydium cupressinum

Rimu, red pine (not classified as a threatened species)
Birds: tūī, korimako, mohua and kūkupa feed on rimu berries.
Flowering times: December – March.
Fruiting times: fruit take a year or more to mature and co-occur with young female cones. They are most frequently seen between February and May.
Cultural uses: the wood was traditionally used for tools, carvings. The bark was used for fires, and the grubs found near the roots of trees associated with rimu were used as pigment for moko.
Rongoā uses: the wood is used for medicine.

Porokaiwhiri
Pigeonwood
Hedycarya arborea

Porokaiwhiri, pigeonwood (not classified as a threatened species)
Birds: its bright orange fruit found on the female trees provided food for pigeons and possibly moa.
Flowering times: December – February.
Fruiting times: March – June.

Northern Rātā
Metrosideros robusta

Northern rātā (threatened – nationally vulnerable)
Birds: tūī, korimako and kākā.
Flowering times: October – February.
Fruiting times: December – March.
Cultural uses: Māori would use the timber for craft.
Rongoā uses: its bark was used by early Māori to treat a number of skin conditions.

Kahikatea
White Pine
Dacrycarpus dacrydioides

Kahikatea, white pine (not classified as a threatened species)
Birds: it is dispersed by birds that eat the fruit, digest the fleshy berry and excrete the seed. Common dispersers are tūī, kūkupa and korimako.
Flowering times: October – January.
Fruiting times: February – April.
Cultural/rongoā uses: used the tree's bark for weaving, and wood for carving and building waka.

Kohekohe
New Zealand mahogany
Didymocheton spectabilis

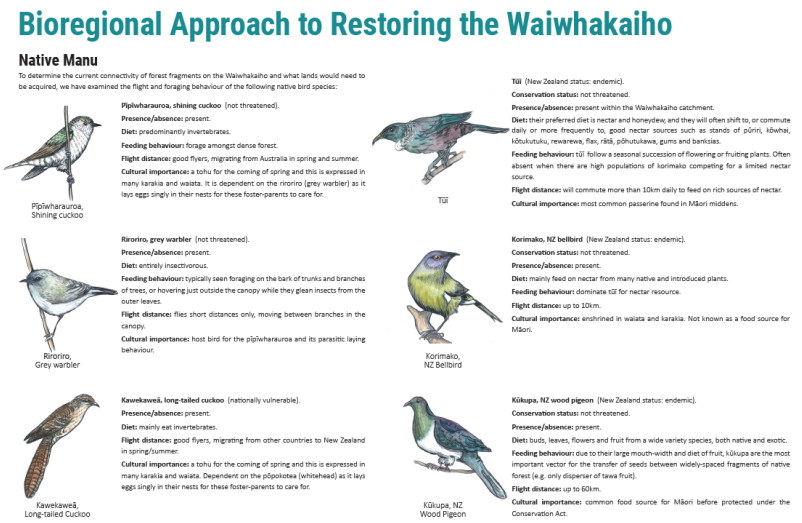
Kohekohe (not classified as a threatened species)
Birds: nectar-feeders like tūī, korimako, hihi and tauhou visit the flowers.
Flowering times: March – June.
Fruiting times: April – August.
Cultural uses: timber to carve waka for river navigation.
Rongoā uses: kohekohe leaves in medicines to treat a range of ailments.

Key manu species

Toutouwai,
NI Brown Robin

- Islands of Biodiversity and Bird Flight Distances:
  - some are long-distance fliers, however, small distance flyers or non-flying species cannot do it without a corridor, hence the name *wildlink*.
- Building habitat to sustain bird populations:
  - Some are present, some are aspirational to see return.

Pages 18 to 19 of the Vision Document:



Bioregional Approach to Restoring the Waiwhakaiho

Native Manu

To determine the current connectivity of forest fragments on the Waiwhakaiho and what lands would need to be acquired, we have examined the flight and foraging behaviour of the following native bird species:

Pīpīwharauroa, Shining cuckoo

Pīpīwharauroa, shining cuckoo (not threatened).
Presence/absence: present.
Diet: predominantly invertebrates.
Feeding behaviour: forage amongst dense forest.
Flight distance: good flyers, migrating from Australia in spring and summer.
Cultural importance: a tohu for the coming of spring and this is expressed in many karakia and waiata. It is dependent on the riroriro (grey warbler) as it lays eggs singly in their nests for these foster-parents to care for.

Riroriro, Grey warbler

Riroriro, grey warbler (not threatened).
Presence/absence: present.
Diet: entirely insectivorous.
Feeding behaviour: typically seen foraging on the bark of trunks and branches of trees, or hovering just outside the canopy while they glean insects from the outer leaves.
Flight distance: flies short distances only, moving between branches in the canopy.
Cultural importance: host bird for the pīpīwharauroa and its parasitic laying behaviour.

Kawekaweā, Long-tailed Cuckoo

Kawekaweā, long-tailed cuckoo (nationally vulnerable).
Presence/absence: present.
Diet: mainly eat invertebrates.
Flight distance: good flyers, migrating from other countries to New Zealand in spring/summer.
Cultural importance: a tohu for the coming of spring and this is expressed in many karakia and waiata. Dependent on the pōpokotea (whitehead) as it lays eggs singly in their nests for these foster-parents to care for.

Tūī

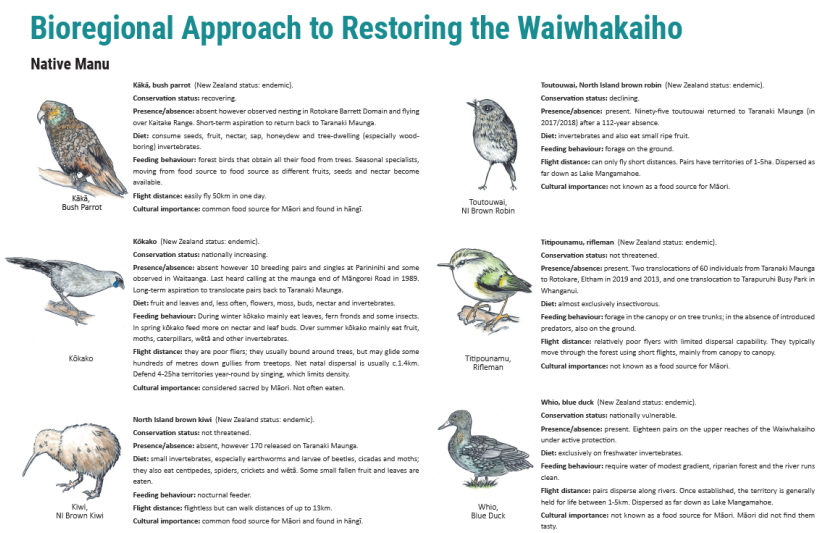
Tūī (New Zealand status: endemic).
Conservation status: not threatened.
Presence/absence: present within the Waiwhakaiho catchment.
Diet: their preferred diet is nectar and honeydew, and they will often shift to, or commute daily or more frequently to, good nectar sources such as stands of pūriri, kōwhai, kōtukutuku, rewarewa, flax, rātā, pōhutukawa, gums and banksias.
Feeding behaviour: tūī follow a seasonal succession of flowering or fruiting plants. Often absent when there are high populations of korimako competing for a limited nectar source.
Flight distance: will commute more than 10km daily to feed on rich sources of nectar.
Cultural importance: most common passerine found in Māori middens.

Korimako, NZ Bellbird

Korimako, NZ bellbird (New Zealand status: endemic).
Conservation status: not threatened.
Presence/absence: present.
Diet: mainly feed on nectar from many native and introduced plants.
Feeding behaviour: dominate tūī for nectar resource.
Flight distance: up to 10km.
Cultural importance: enshrined in waiata and karakia. Not known as a food source for Māori.

Kūkupa, NZ Wood Pigeon

Kūkupa, NZ wood pigeon (New Zealand status: endemic).
Conservation status: not threatened.
Presence/absence: present.
Diet: buds, leaves, flowers and fruit from a wide variety species, both native and exotic.
Feeding behaviour: due to their large mouth-width and diet of fruit, kūkupa are the most important vector for the transfer of seeds between widely-spaced fragments of native forest (e.g. only disperser of tawa fruit).
Flight distance: up to 60km.
Cultural importance: common food source for Māori before protected under the Conservation Act.



Bioregional Approach to Restoring the Waiwhakaiho

Native Manu

Kākā, Bush Parrot

Kākā, bush parrot (New Zealand status: endemic).
Conservation status: recovering.
Presence/absence: absent however observed nesting in Rotokare Barrett Domain and flying over Kaitake Range. Short-term aspiration to return back to Taranaki Maunga.
Diet: consume seeds, fruit, nectar, sap, honeydew and tree-dwelling (especially wood-boring) invertebrates.
Feeding behaviour: forest birds that obtain all their food from trees. Seasonal specialists, moving from food source to food source as different fruits, seeds and nectar become available.
Flight distance: easily fly 50km in one day.
Cultural importance: common food source for Māori and found in hāngi.

Kōkako

Kōkako (New Zealand status: endemic).
Conservation status: nationally increasing.
Presence/absence: absent however 10 breeding pairs and singles at Parininihi and some observed in Waitaanga. Last heard calling at the maunga end of Māngorei Road in 1989. Long-term aspiration to translocate pairs back to Taranaki Maunga.
Diet: fruit and leaves and, less often, flowers, moss, buds, nectar and invertebrates.
Feeding behaviour: During winter kōkako mainly eat leaves, fern fronds and some insects. In spring kōkako feed more on nectar and leaf buds. Over summer kōkako mainly eat fruit, moths, caterpillars, weta and other invertebrates.
Flight distance: they are poor fliers; they usually bound around trees, but may glide some hundreds of metres down gullies from treetops. Net natal dispersal is usually ≤.1.4km. Defend 4–25ha territories year-round by singing, which limits density.
Cultural importance: considered sacred by Māori. Not often eaten.

Kiwi, NI Brown Kiwi

North Island brown kiwi (New Zealand status: endemic).
Conservation status: not threatened.
Presence/absence: absent, however 170 released on Taranaki Maunga.
Diet: small invertebrates, especially earthworms and larvae of beetles, cicadas and moths; they also eat centipedes, spiders, crickets and wētā. Some small fallen fruit and leaves are eaten.
Feeding behaviour: nocturnal feeder.
Flight distance: flightless but can walk distances of up to 13km.
Cultural importance: common food source for Māori and found in hāngi.

Toutouwai, NI Brown Robin

Toutouwai, North Island brown robin (New Zealand status: endemic).
Conservation status: declining.
Presence/absence: present. Ninety-five toutouwai returned to Taranaki Maunga (in 2017/2018) after a 112-year absence.
Diet: invertebrates and also eat small ripe fruit.
Feeding behaviour: forage on the ground.
Flight distance: can only fly short distances. Pairs have territories of 1-5ha. Dispersed as far down as Lake Mangamahoe.
Cultural importance: not known as a food source for Māori.

Tītipounamu, Rifleman

Tītipounamu, rifleman (New Zealand status: endemic).
Conservation status: not threatened.
Presence/absence: present. Two translocations of 60 individuals from Taranaki Maunga to Rotokare, Eltham in 2019 and 2013, and one translocation to Tarapuruhi Busy Park in Whanganui.
Diet: almost exclusively insectivorous.
Feeding behaviour: forage in the canopy or on tree trunks; in the absence of introduced predators, also on the ground.
Flight distance: relatively poor flyers with limited dispersal capability. They typically move through the forest using short flights, mainly from canopy to canopy.
Cultural importance: not known as a food source for Māori.

Whio, Blue Duck

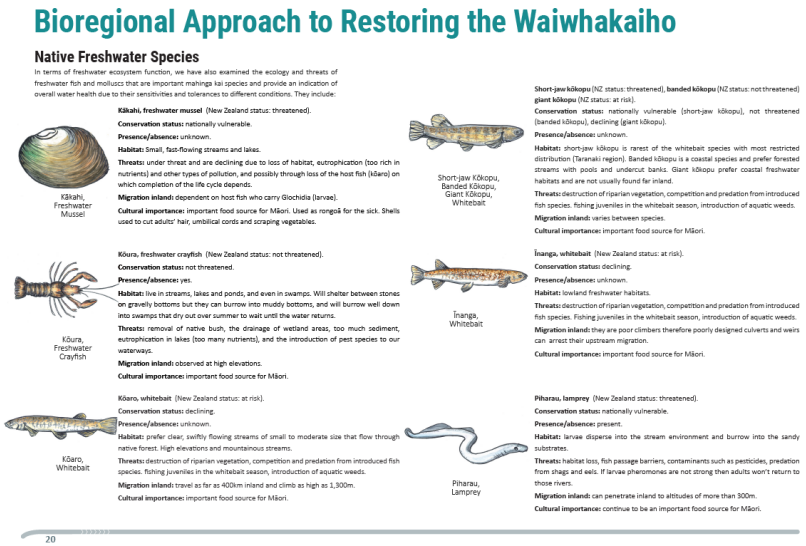
Whio, blue duck (New Zealand status: endemic).
Conservation status: nationally vulnerable.
Presence/absence: present. Eighteen pairs on the upper reaches of the Waiwhakaiho under active protection.
Diet: exclusively on freshwater invertebrates.
Feeding behaviour: require water of modest gradient, riparian forest and the river runs clean.
Flight distance: pairs disperse along rivers. Once established, the territory is generally held for life between 1-5km. Dispersed as far down as Lake Mangamahoe.
Cultural importance: not known as a food source for Māori. Māori did not find them tasty.

Key freshwater species

Kākahi,
Freshwater Mussel

- Interconnections and Interdependencies

Pages 20 to 21 of the Vision Document:



Bioregional Approach to Restoring the Waiwhakaiho

Native Freshwater Species

In terms of freshwater ecosystem function, we have also examined the ecology and threats of freshwater fish and molluscs that are important mahinga kai species and provide an indication of overall water health due to their sensitivities and tolerances to different conditions. They include:

Kākahi, freshwater mussel (New Zealand status: threatened).
Conservation status: nationally vulnerable.
Presence/absence: unknown.
Habitat: Small, fast-flowing streams and lakes.
Threats: under threat and are declining due to loss of habitat, eutrophication (too rich in nutrients) and other types of pollution, and possibly through loss of the host fish (kōaro) on which completion of the life cycle depends.
Migration inland: dependent on host fish who carry Glochidia (larvae).
Cultural importance: important food source for Māori. Used as rongoā for the sick. Shells used to cut adults' hair, umbilical cords and scraping vegetables.

Kākahi, Freshwater Mussel

Short-jaw kōkopu (NZ status: threatened), **banded kōkopu** (NZ status: not threatened) **giant kōkopu** (NZ status: at risk).
Conservation status: nationally vulnerable (short-jaw kōkopu), not threatened (banded kōkopu), declining (giant kōkopu).
Presence/absence: unknown.
Habitat: short-jaw kōkopu is rarest of the whitebait species with most restricted distribution (Taranaki region). Banded kōkopu is a coastal species and prefer forested streams with pools and undercut banks. Giant kōkopu prefer coastal freshwater habitats and are not usually found far inland.
Threats: destruction of riparian vegetation, competition and predation from introduced fish species. fishing juveniles in the whitebait season, introduction of aquatic weeds.
Migration inland: varies between species.
Cultural importance: important food source for Māori.

Short-jaw Kōkopu, Banded Kōkopu, Giant Kōkopu, Whitebait

Kōura, freshwater crayfish (New Zealand status: not threatened).
Conservation status: not threatened.
Presence/absence: yes.
Habitat: live in streams, lakes and ponds, and even in swamps. Will shelter between stones on gravelly bottoms but they can burrow into muddy bottoms, and will burrow well down into swamps that dry out over summer to wait until the water returns.
Threats: removal of native bush, the drainage of wetland areas, too much sediment, eutrophication in lakes (too many nutrients), and the introduction of pest species to our waterways.
Migration inland: observed at high elevations.
Cultural importance: important food source for Māori.

Kōura, Freshwater Crayfish

Īnanga, whitebait (New Zealand status: at risk).
Conservation status: declining.
Presence/absence: unknown.
Habitat: lowland freshwater habitats.
Threats: destruction of riparian vegetation, competition and predation from introduced fish species. Fishing juveniles in the whitebait season, introduction of aquatic weeds.
Migration inland: they are poor climbers therefore poorly designed culverts and weirs can arrest their upstream migration.
Cultural importance: important food source for Māori.

Īnanga, Whitebait

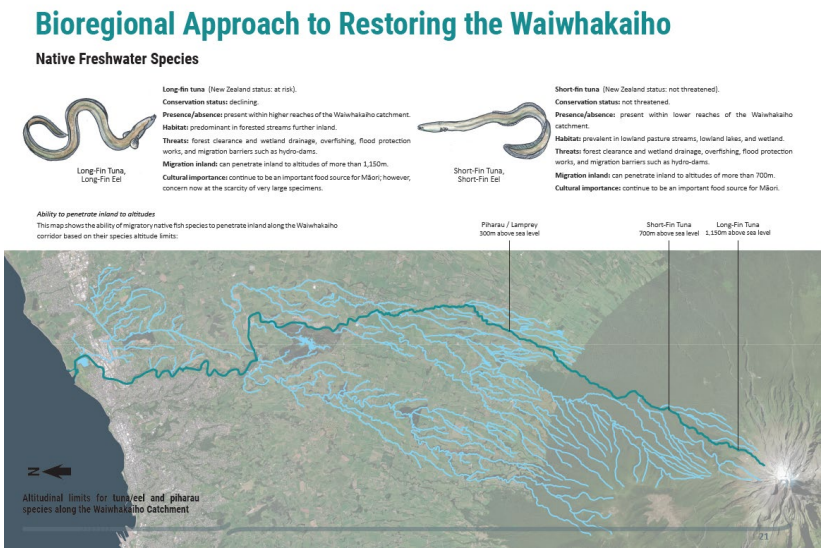
Kōaro, whitebait (New Zealand status: at risk).
Conservation status: declining.
Presence/absence: unknown.
Habitat: prefer clear, swiftly flowing streams of small to moderate size that flow through native forest. High elevations and mountainous streams.
Threats: destruction of riparian vegetation, competition and predation from introduced fish species. fishing juveniles in the whitebait season, introduction of aquatic weeds.
Migration inland: travel as far as 400km inland and climb as high as 1,300m.
Cultural importance: important food source for Māori.

Kōaro, Whitebait

Piharau, lamprey (New Zealand status: threatened).
Conservation status: nationally vulnerable.
Presence/absence: present.
Habitat: larvae disperse into the stream environment and burrow into the sandy substrates.
Threats: habitat loss, fish passage barriers, contaminants such as pesticides, predation from shags and eels. If larvae pheromones are not strong then adults won't return to those rivers.
Migration inland: can penetrate inland to altitudes of more than 300m.
Cultural importance: continue to be an important food source for Māori.

Piharau, Lamprey

20



Bioregional Approach to Restoring the Waiwhakaiho

Native Freshwater Species

Long-fin tuna (New Zealand status: at risk).
Conservation status: declining.
Presence/absence: present within higher reaches of the Waiwhakaiho catchment.
Habitat: predominant in forested streams further inland.
Threats: forest clearance and wetland drainage, overfishing, flood protection works, and migration barriers such as hydro-dams.
Migration inland: can penetrate inland to altitudes of more than 1,150m.
Cultural importance: continue to be an important food source for Māori; however, concern now at the scarcity of very large specimens.

Long-Fin Tuna, Long-Fin Eel

Short-fin tuna (New Zealand status: not threatened).
Conservation status: not threatened.
Presence/absence: present within lower reaches of the Waiwhakaiho catchment.
Habitat: prevalent in lowland pasture streams, lowland lakes, and wetland.
Threats: forest clearance and wetland drainage, overfishing, flood protection works, and migration barriers such as hydro-dams.
Migration inland: can penetrate inland to altitudes of more than 700m.
Cultural importance: continue to be an important food source for Māori.

Short-Fin Tuna, Short-Fin Eel

Ability to penetrate inland to altitudes

This map shows the ability of migratory native fish species to penetrate inland along the Waiwhakaiho corridor based on their species altitude limits:

Piharau / Lamprey 300m above sea level
Short-Fin Tuna 700m above sea level
Long-Fin Tuna 1,150m above sea level

N

Altitudinal limits for tuna/eel and piharau species along the Waiwhakaiho Catchment

21

Threats

Pests


Possum


Rats and Mice


Stoat


Ferret

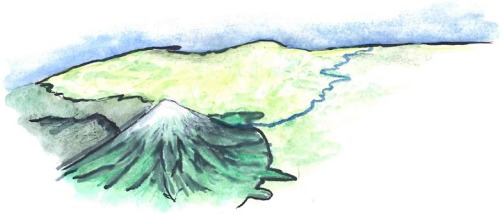

Weasel


Cat

Weeds

Large-scale deforestation across the ringplain in mid-1800s has resulted in the extent of weeds which we see today. Because of this, initial weed control and replanting efforts may be difficult.

Water Pollution



Next steps

Korimako,
NZ Bellbird

Engaging with landowners and the wider community

- Around 300 landowners adjacent to Waiwhakaiho (between Te Papakura o Taranaki and where it reaches the coast at Te Rewa Rewa Reserve).
- The draft vision document is about engaging hearts and minds to establish values for the awa, not about rules and regulations.
- The vision does not impose restrictions on private property rights.
- Land will remain in private ownership but can be an integrated part of the overall vision.

Next steps

Korimako,
NZ Bellbird

What could first steps look like?

Initial steps might include:

- sharing this vision and the story of the awa with the community.
- working with local champions and volunteers who want to partner in achieving the vision.
- creating planting guides for landowners who are interested in enhancing their own land to contribute to the vision.
- connect with community groups, reserve users and lessees who want to work alongside the vision.

Next steps

Korimako,
NZ Bellbird

Refine the vision

Refine based on community engagement and feedback.

The vision map highlights the importance of the remnant bush areas as islands of biodiversity along the corridor. This is a great place to start.

Develop Corridor Protection Plan / Implementation Plan

Detailed business case as part of securing future funding opportunities.
Investigate feasibility of pathway connections.

DESIGN PROCESS:

Generate. *Refine* **Engage.** *Review* **Evaluate.** **Communicate.**