

HAMILTON CITY COUNCIL'S

Nature in the City Strategy

2020 - 2050

Te Wao nui o Kirikiriroa 2020-2050



Hamilton
City Council
Te kaunihera o Kirikiriroa

He Maimai Aroha

The Maimai Aroha of King Taawhiao provided a description of the state of the environment during his reign. He described it as being full of life and rich in beauty that provided for the wellbeing of the people. Through the Maimai Aroha, the Tainui people have committed to the vision of restoring the health of the natural environment to a state that reflects King Taawhiao's description. The Nature in the City Strategy supports the guiding philosophy that underpins the Maimai Aroha and vision of Tainui to restore and be nurtured by nature.

Ka maatakitaki iho au ki te riu o Waikato
Aanoo nei hei kapo kau ake maaku ki te kapu o taku ringa,
Ka whakamiri noa i toona aratau. E tia nei he tupu pua hou.

Kia hiwa ake au i te tihi o Pirongia,
Inaa, hei toronga whakaruruhau moona ki tooku
tauawhirotanga

Anaa! Te ngoto o toona ngawhaa i ngoona uma kiihai
i aarika a Maungatautari, a Maungakawa,
ooku puke maunga, ngaa taonga tuku iho.
Hoki ake nei au ki tooku awa koiora me ngoona pikonga He
kura tangihia o te maataamuri.

E whakawhiti atu ai i te koopuu maania o Kirikiriroa,
Me ngoona maara kai, te ngawhaa whakatupu ake o te
whenua moomona,
Hei kawē ki Ngaaruawaahia, te huinga o te tangata.

Araa, te pae haumako, hei okiokinga moo taku Upoko,
Hei tirohanga atu maa raro i ngaa huuhaa o Taupiri.

Kei reira raa, kei te oroko hanganga o te tangata,
Waahia te tuungaroa o te whare, te whakaputanga moo
te Kiingi.

I look down on the valley of Waikato, as though to hold it
in the hollow of my hand and caress its beauty, like some
tender verdant thing.

I reach out from the top of Pirongia, as
though to cover and protect its substance
with my own.

See how it bursts through the full bosoms of
Maungatautari and Maungakawa,
hills of my inheritance:
The river of life, each curve more beautiful
than the last.

Across the smooth belly of Kirikiriroa, its
gardens bursting with the fullness of good
things, towards the meeting place at
Ngaaruawaahia.

There on the fertile mound I would rest my
head and look through the thighs of Taupiri.

There at the place of all creation...
let the King come forth.



Contents

02	1. EXECUTIVE SUMMARY	04	2. INTRODUCTION	05	What is nature?
07	Why does nature matter?	11	Why have we developed this strategy?	16	How have we developed this strategy?
17	What is the scope of the strategy?	20	Strategic context	21	3. KIRIKIROA/ HAMILTON'S STATE OF NATURE
22	Introduction	25	4. VISION, GOAL AND OUTCOME AREAS FOR NATURE IN THE CITY	26	Nature in the City Strategy
27	Introduction	28	Vision	30	Goal
32	Outcome areas	38	5. NEXT STEPS	40	References



Executive summary

He Whakaraapopotanga

Executive summary

This strategy is about growing a love affair with nature. As we connect and care for nature, we are nourished through our relationship to the land and each other.

Nature is all living things - including people - on Planet Earth. Within Kirikiriroa/Hamilton, nature is all the plants and trees, animals, birds, freshwater fish, insects and people which exist together.

The vision 'Nature thrives in Kirikiriroa/Hamilton and nurtures us wherever we are' represents the potential future state for us to create. A state where nature is a korowai (cloak) which connects us to each other and the whenua (land). A vision where ecosystems are connected, and where our sense of place in Kirikiriroa/Hamilton is deepened and enhanced through connecting with and restoring nature.

While the definition of nature includes plants and trees, birds, fish and insects, the focus for the strategy is on restoring native vegetation. Native vegetation cover across the city provides many benefits; it provides food and shelter for birds and insects. In our gullies, native forest shades our streams, which makes for cool, stable water temperatures for aquatic species. This focus is captured in the goal 'We achieve 10% native vegetation cover in Kirikiriroa/Hamilton by 2050'.

Four outcome areas provide a high-level focus for working towards achieving the vision:

- We invest in the continued growth of nature in our city
- We are courageous in staying the course
- We uplift the power of kaitiakitanga
- Thriving nature is all around us.

The current state of nature in Kirikiriroa/Hamilton is the result of historical actions and decisions. With only 2% native vegetation cover remaining in Kirikiriroa/Hamilton, courageous action is required to invest in nature now. While this is a daunting prospect, our investment - of money, time and effort - in restoring nature will provide a wealth of return across social, environmental, cultural and economic domains. We know with our focus on a shared vision, we can take action.

While the focus for the strategy is on restoring nature within Kirikiriroa/Hamilton, we understand the importance of the interconnections across ecological and cultural landscapes. Our focus is on playing our part to join up the nature-based stepping stones within Kirikiriroa/Hamilton. In doing so, this mahi (work) will contribute to creating ecological pathways from the mountains to the sea.

We all prosper when we restore nature. We grow stronger as a community when we restore nature together and care for it as it grows. We all flourish when we create opportunities for children to benefit from restoring nature and for our whanau, neighbours and friends to be connected to nature and be healthy and well.



2

Introduction

Koorero Whakataki

What is nature?

Nature is all living things – including people – on Planet Earth and the ecological processes which sustain all living things.

Within Kirikiriroa/Hamilton, nature is all the plants and trees, animals, birds, freshwater fish, insects and people which exist together. It's also the climate (air, soil and water) and the natural systems and processes which work to maintain life.

Any healthy system relies on diversity; a healthy community thrives on a diversity of people. Within nature, the more variety there is of all living things within an area, the higher the biodiversity value; this includes diversity **within species, between species** and the **diversity of ecosystems**¹. In Aotearoa/New Zealand, nature includes native species as well as those which are exotic (introduced from other places).

Within Te Ao Maaori (the Maaori world), all things are interconnected. In Te Ao Maaori, people are **a part of** the natural

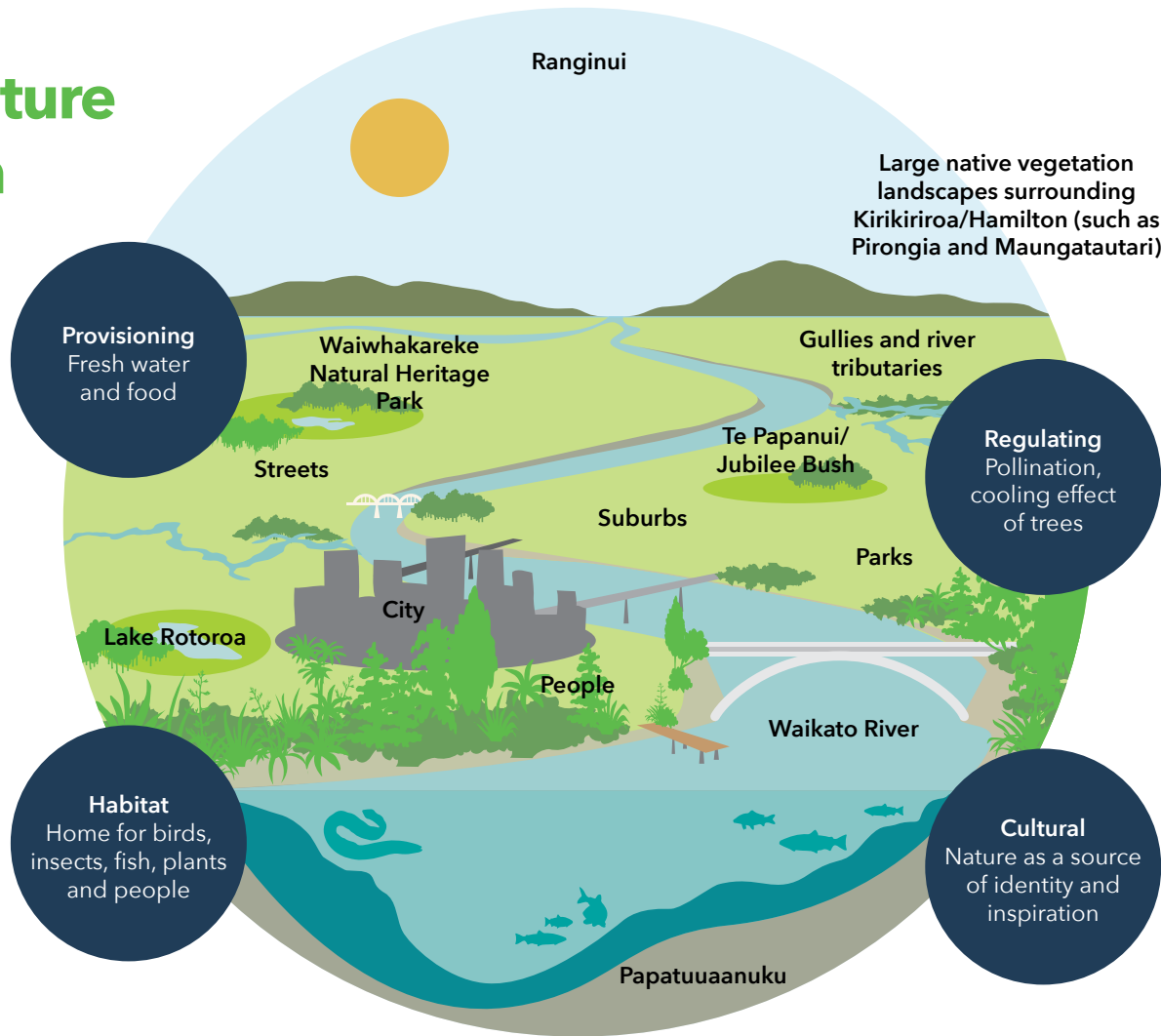
world, rather than **apart from**: “Maaori have an intricate, holistic and interconnected relationship with the natural world and its resources, with a rich knowledge base – maatauranga Maaori – developed over thousands of years”². Given this worldview, the health of nature and the health of the people cannot be separated.

Nature does a lot to sustain living things – these are called **ecosystem services**. People's health and wellbeing is directly impacted on by the ecosystem services nature provides. This includes **provisioning services** (such as fresh water and food), **regulating services** (pollination and the cooling effect of trees), **habitat or supporting services** (suitable places for plants, animals, insects, birds and fish to live) and **cultural services** (spiritual experience and inspiration for culture, art and design)³.

Nature also provides **habitat** (a home) for all living things. Habitat is the right conditions, food and ecological processes for living beings to flourish – a “combination of environmental factors that provide the food, water, cover and space that a living thing needs to survive and reproduce”⁴.

Elements of nature and ecosystem services in Kirikiriroa/Hamilton

This diagram shows the interconnectedness of some of the key aspects of nature in the Kirikiriroa/Hamilton context, including examples of some of the ecosystem services which nature needs to function. The ideas illustrated are conceptual only and do not reflect all aspects of knowledge and value which people may have of nature and ecological processes.



Why does nature matter?

Nature plays an essential role in economic, environmental, cultural and social wellbeing, and the more vibrant and healthy nature is, the more these benefits are multiplied. The presence of thriving nature within an urban environment provides a number of tangible and intangible benefits.

Benefits of nature for individuals

The benefits nature provides to people are well established. As the world becomes more urbanised, disciplines such as psychology, urban and environmental studies and health sciences have deepened the understanding of the importance of nature in urban areas and its role in improving people's health.

Research indicates that we are hard-wired to connect with nature as we know it makes us feel better⁵. For many people, nature is a source of creative inspiration and spiritual replenishment. Connecting with nature has been shown to improve concentration and emotional and immune system function as well as protecting against the negative impacts of stress⁶. For people who work in office spaces, being able to see and connect with nature improves work performance and reduces sick leave, while a view of nature

through a window while recovering from surgery can result in a shorter hospital stay⁷.

Societal benefits of nature

Thriving nature within a city makes for a calmer, more connected community. Restoring nature on long-term projects (such as the restoration planting at Waiwhakareke Natural Heritage Park) creates a shared sense of purpose and nurtures a connection to the environment. For some new migrants to Kirikiriroa/Hamilton, restoring nature helps them feel as if they are earning their place within their new community.

For Maaori, caring for and connecting with nature is an integral part of kaitiakitanga (the way in which Maaori manage the natural environment based on Maaori worldviews)⁸. The practice of kaitiakitanga also nourishes whaanau (family), hapuu (sub-tribe) and iwi (tribe) across all aspects of wellbeing.

Connecting with nature also has a significant impact on social cohesion and crime reduction. A study of 98 vegetated spaces in Chicago in the United States found they "cut crime rates by half by inspiring pride for the area and mitigating precursors [to criminal activity] like stress and anxiety"⁹. Urban forests, streams and rivers are also special places for people to gather for recreation and relaxation and can foster a greater sense of belonging within a community¹⁰.

Economic benefits of nature

Nature provides a wealth of economic advantages across a number of domains; the value of nature “has conclusively and repeatedly proven to have huge economic benefits”¹¹.

In Aotearoa/New Zealand, many of the ecosystem services which nature provides underpin our economy. For example, experiencing nature is central to the tourism sector’s value proposition and is promoted both domestically and internationally, while our primary production sector (such as agriculture and horticulture) relies on ecosystem services (such as the water cycle and pollination) to farm and grow crops.

Not only is thriving nature vital in creating a healthy urban environment, “it can also provide a boon to the economics and resources of the city, providing tourist attractions or sources of revenue as well as making the environment of the city feel more alive and fulfilling for citizens”¹². Thriving nature has been shown to increase house prices and acts as an attractor for new businesses to establish.

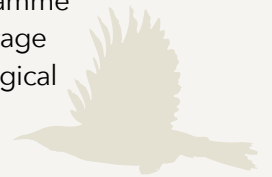
Additionally, economic benefits can be derived from research funding into urban restoration in cities. For example, the People, Cities and Nature Research Programme has six research

teams focused on restoring indigenous biodiversity in urban environments. Research is being conducted in five of the six research areas in Kirikiriroa/Hamilton¹³. This research programme showcases Aotearoa/New Zealand on the world research stage and contributes to international knowledge on urban ecological restoration.

Cultural benefits of nature

The uniqueness of nature in Aotearoa/New Zealand is central to our sense of place in the world and is woven into our cultural fabric. A significant proportion of our native flora (plants) and fauna is endemic - only found in Aotearoa/New Zealand. Eighty-four percent of vascular plants native to Aotearoa/New Zealand *are found nowhere else on Earth*^{14,15}.

As a result of a long history of occupation in Aotearoa/New Zealand, Maaori have an extensive knowledge of the natural world and the sustenance it provides. Many native trees and plants have healing and medicinal properties, while the place-specific traditional food sources – kaimoana (seafood) in coastal areas or tuna and iinanga (eel and whitebait) in areas with fresh water – were a source of mana (pride) when hosting manuwhiri (visitors).



Environmental benefits of nature

As the world's population becomes more urbanised, there is increased recognition of thriving nature in cities as a regulator of heat, rainfall, wind speed and air quality. The presence of significant urban forests, vegetated gully systems and connected networks of street trees throughout the city is vital for reducing the urban heat island effect (where cities heat up due to materials commonly used for roads and buildings). Some research indicates that urban areas with significant tree canopy are 5 - 8 degrees Celsius cooler than those without such cover¹⁶.

Tree cover in cities also slows down the speed of water in rain events, which reduces the peaks of stormwater flows. Urban trees and forests are starting to be recognised as an important and cost-effective way of reducing flood risks and the impact of rainstorms; one study has estimated that "for every 5% increase in tree cover area, run-off is reduced by 2%"¹⁷.

"By healing
the whenua we
heal ourselves"

Community
feedback

"Restoring
nature is our golden
opportunity to embrace
what makes us different
and to celebrate our
uniqueness"

Community
feedback



“Nature
improves
life in the
city!”

Community
feedback

“I’d love to see
big urban forests in
Hamilton that kids can
have adventures in and
connect with nature”

Community
feedback

Why have we developed this strategy?

Council has a number of legal imperatives to protect and enhance nature and provide for people's wellbeing.

Resource Management Act 1991 (RMA)

Under the RMA, Council has responsibilities for maintaining and improving biodiversity. The RMA requires that Council "promote the sustainable management of natural and physical resources ... while ... safeguarding the life supporting capacity of air, water, soil, and ecosystems ..."¹⁸.

Council is also required to recognise and provide for the "protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna" and "the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu [sacred sites], and other taonga [treasures] ..."¹⁹.

Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (Waikato River Settlement Act)

Council has responsibilities under the Waikato River Settlement Act to play its part in restoring and protecting the health and wellbeing of the Waikato River²⁰.

The Waikato-Tainui iwi (tribe) has a deep relationship with the Waikato River, which is described by the late Sir Robert Te Kotahi Mahuta:

Nō tātou te awa. Nō te awa tātou. E kore e taea te wehe te iwi o Waikato me te awa. He taonga tuku iho nā ngā tūpuna. E whakapono ana mātou ko tā mātou, he tiaki i taua tāonga mō ngā uri whakatupu.

We belong to the river and the river belongs to us. Waikato people and the river cannot be separated. It is a treasure that has been passed down by the ancestors. We believe that it is our responsibility to look after [the river] for future generations²¹.

While many of the Waikato River Settlement Act responsibilities are focused on resource management issues, it provides a number of exciting opportunities for Council to support the community to restore the health and wellbeing of the Waikato River. In doing so, people will be nourished through developing a stronger relationship with nature. Given that Council manages significant tracts of land within the river and gully system, it can make a considerable contribution to improving the health and wellbeing of the Waikato River.


Local Government Act 2002 (LGA)

The LGA "... provides for local authorities to play a broad role in promoting the social, economic, environmental, and cultural wellbeing of their communities ..."²². Within Kirikiriroa/Hamilton, the 'green infrastructure' Council maintains (including natural areas and remnant bush, parks and gullies) is an important resource which can be used to improve social, environmental, economic and cultural wellbeing in other domains which Council is responsible for. Additionally, Council has a role to play - through education, information, incentives and coordination - to support and enable the community to restore and care for nature.

A liveable city provides more than the basics of job opportunities, housing and transport; healthy nature provides benefits across a number of wellbeing dimensions and is a vital component of a liveable city. There is a growing awareness among communities and governments, backed up by global research, that healthy ecosystems are a city's foundation; as well as the intrinsic value of biodiversity for

its own sake, there is an increasing body of evidence to suggest that it plays a critical role in the health and liveability of cities"²³.

Whether it be the cool shade of a tree-lined street on a hot summer's day, the birdsong of tuuii in the flowering koowhai which line the Waikato River in the spring or the streams which are home to aquatic creatures, thriving nature is vital to making Kirikiriroa/Hamilton a liveable city.



"Nature is everything:
It's our social,
cultural and economic
wellbeing – when we
look after nature we
look after ourselves"

Community
feedback

In addition to Council's legal imperatives, there are other drivers for protecting and restoring nature.

The community wants a healthy environment and a liveable city


Over the years, Council has received a strong message from the community about the importance of a healthy, thriving environment. Community groups currently involved in gully restoration have advocated for greater support from Council for planting, maintenance and pest control to improve ecosystems across the city and improve biodiversity. Environmental advocacy groups such as Forest and Bird have called for councils to do more to protect biodiversity, particularly on private land²⁴.

There is also a groundswell of recognition in our community²⁵ of the connection between climate change, biodiversity loss and issues of human health and social cohesion; people see the protection and restoration of nature as part of the solution to these complex problems. Engagement undertaken as part of this strategy development process indicates the community would do more to restore nature in Kirikiriroa/Hamilton if there were more opportunities to do so²⁶.

Furthermore, mana whenua have provided clear direction on their expectation of an environment which sustains life and ensures



people are also sustained and nurtured by nature²⁷. Incorporating the concept of kaitiakitanga into urban ecological restoration enables Maaori to be able to connect to and care for nature at a deeper level; "... kaitiakitanga must incorporate adequate understandings of place narratives, kinship relationships, spiritual connections, practices and intergenerational knowledge systems"²⁸.



"I wish that every aspect of nature was thriving in Kirikiriroa"

Community feedback

Increased expectation from central government to improve biodiversity

In addition to the important role restoring nature plays in climate change action, there is an increased expectation from central government for local authorities to protect and restore biodiversity. The recently released Aotearoa New Zealand Biodiversity Strategy 2020²⁹ outlines significant research on the concerning state of New Zealand's biodiversity and the need for action to be taken to protect and restore ecosystems. Council is in a favourable position to help restore nature and deliver on national social, economic and cultural wellbeing imperatives.

Restoring nature is a practical and tangible climate change action

Protecting and restoring nature is a vital action to mitigate the effects of – and adapt to – climate change. As climate change is likely to result in higher summer temperatures, higher wind speeds and more extreme rainfall events, restoring and connecting ecosystems across Kirikiriroa/Hamilton enables long-term climate resilience. Weaving nature in to the city can “provide vital carbon sinks and effective mitigation against risks such as flooding, heatwaves and drought”³⁰.

In rainfall events, the street tree network slows down water velocity, which reduces the likelihood of surface flooding events and pressure on streams and stormwater infrastructure. Having a city with significant forest cover has a cooling effect on temperatures and reduces the urban heat island effect.

Having well-vegetated gully systems in Kirikiriroa/Hamilton slows down water velocity and protects against soil erosion from higher volume rainfall events. A dense forest canopy in gullies also ensures water temperatures in gully streams stay stable and cool, thus creating ideal living conditions for native aquatic species.


In terms of climate mitigation, thriving and connected ecosystems play a vital role in absorbing carbon dioxide. Protecting and restoring native vegetation is particularly important. Research indicates that native trees are more effective at sequestering (storing) carbon than exotic trees.

When people connect with and care for nature and have meaningful experiences (such as undertaking ecological restoration), it can reduce stress levels and improve mental wellbeing.

Restoring ecosystems through native tree planting and maintenance may also assist in easing eco-anxiety (stress induced by the state of the environment) as it is a practical, tangible action to take.

“I would like to see community groups looking after the streams in the city”

Community feedback



“I wish that we
could transition to the
greenest, nicest city in
New Zealand, where
people thrive alongside
nature”

Community
feedback

How have we developed this strategy?

To ensure we've developed a strategy which focuses on the right things for nature in Kirikiriroa/Hamilton, we've drawn on a number of sources of information and tested ideas with a range of people and organisations within the community.

We received some fantastic feedback and had some great conversations with a wide range of people. We've used community feedback to inform the vision, goal and outcome areas, and we've made sure the voice of the community is at the centre of what we do. We've also balanced what the community has told us with what research and evidence tells us.



What is the scope of the strategy?

The geographic scope for the strategy is the land within the Hamilton City Council boundaries. However, we recognise that nature - and people's connections to it - are not limited to the city of Kirikiriroa/Hamilton.

We know that birds, insects, plants and freshwater species move through the environment where there are strong ecological networks, regardless of local government boundaries. Maaori knowledge of, and connection with, te taiao (the environment) is also not dictated by local government boundaries, but rather is based on whakapapa (descent or lineage), relationships with people (both past and present), maatauranga Maaori (Maaori knowledge) and kaitiakitanga (the way in which Maaori manage the natural environment based on Maaori worldviews)³¹.

While the strategy talks broadly about restoring nature, the key focus is on restoring native vegetation. Native vegetation cover provides many benefits; it plays a vital role in improving ecological

function and creating habitat. For example, native plants and trees provide food and shelter for birds and insects. They also shade streams, which makes for cool, stable water temperatures for aquatic species.

While the focus for this strategy is on restoring nature within Kirikiriroa/Hamilton, we understand the importance of the interconnections across ecological and cultural landscapes. We recognise that restoring nature within Kirikiriroa/Hamilton will enhance the health and wellbeing of nature beyond the city boundaries. Our focus is on playing our part to join up the nature-based stepping stones within Kirikiriroa/Hamilton. In doing so, this mahi (work) will contribute to creating ecological pathways from the mountains to the sea.

“A place where
it feels like you're
in both the city
and nature at the
same time”

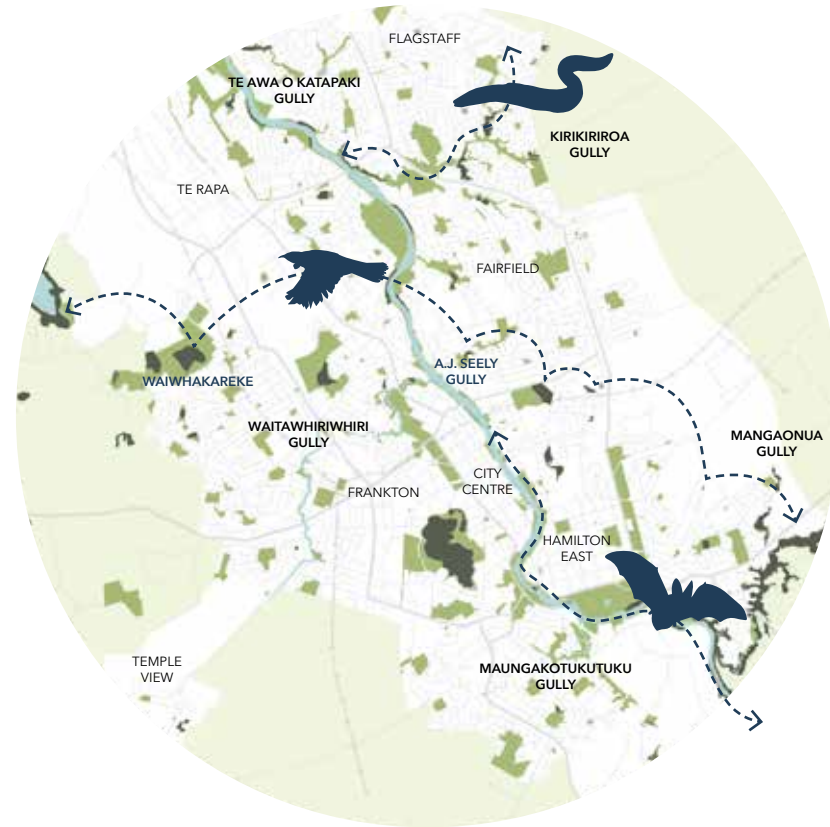
Community
feedback

Nature in Kirikiriroa/Hamilton in context



Regional context

Nature extends beyond the boundaries of Kirikiriroa/Hamilton and helps to keep the natural areas across the Waikato and beyond healthy and connected, from mountain to sea.



City context

The scope of this strategy focuses on restoring native vegetation within Kirikiriroa/Hamilton.



“We need to get to thinking on ecosystems and nature, rather than boundaries and ownership”

Community feedback

Strategic context

This strategy considers, takes into account and aligns to a range of global, national, regional and local strategies, policies, plans and guidance. These documents have been used to develop the vision, goal and outcome areas for growing more nature in Kirikiriroa/Hamilton.

International:

- Convention on Biological Diversity
- United Nations Sustainable Development Goals (11 – Sustainable Cities and Communities, 13 – Climate Action, 15 – Life on Land)

NATIONAL	<ul style="list-style-type: none"> • Reserves Act 1977 • Resource Management Act 1991 • Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 • Local Government Act 2002 • Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020
REGIONAL	<ul style="list-style-type: none"> • Waikato Regional Policy Statement • Tai Tumu, Tai Pari, Tai Ao – Waikato-Tainui Environmental Management Plan • Vision and Strategy for the Waikato River
LOCAL	<ul style="list-style-type: none"> • Hamilton City Open Space Plan • Local Indigenous Biodiversity Strategy Hamilton Pilot Project • Ngaati Hauaa Wetland Mauri Framework • Ngaati Hauaa Environmental Management Plan • Ngaa Tapuwae o Hotumaea (Maaori Landmarks on Riverside Reserves Management Plan) • Gully Reserves Management Plan • Hamilton City District Plan • Hamilton Play Strategy • Reserve Management Plans • Hamilton Stormwater Master Plan



3

**Kirikiroa/Hamilton's
state of nature**

Te Wao nui o Kirikiriroa inaaiane

Introduction

Historical state of nature

Before 1840, much of the Waikato region (approximately 75%) was covered in native temperate rainforest³². Maaori occupied the land in small villages and maintained an interconnected relationship with the natural world and its resources³³. The region was “renowned for the abundance of natural resources that lay within the rivers, lakes, wetlands and their catchments, and the ngahere [native forest]”³⁴.

In 1863, the Waikato region was invaded by European soldiers and approximately 1.2 million acres was confiscated from Maaori³⁵. The raupatuu (confiscation) of land in the Waikato region heralded a significant step change in land management which has had long-lasting impacts on nature: “post-1840, three quarters of the indigenous vegetation of the Waikato has been removed to make way primarily for agricultural use”³⁶. Hamilton was established as a military settlement and the “newly-won lands [were] balloted to military settlers to make them stay”³⁷. Soldiers were allotted sections (a town acre and a farm section³⁸) from the confiscated lands.

A range of subsidies were provided to farm owners in the following decades, which saw rural landowners clear large tracts of native forest to convert to pasture. While agriculture provided (and continues to provide) significant economic benefits to both the regional and national economy, it has had a major impact on

biodiversity in the Waikato region. This has been most apparent in the lowland swamp and wetland areas where Kirikiriroa/Hamilton is situated.

The Hamilton and Frankton Boroughs were established in 1877 and 1907 respectively. In 1877, the Borough of Hamilton had a population of 1245 and a land area of 752 hectares. The amalgamation of these two boroughs in 1917 saw the Hamilton Borough expand by 422 hectares and the pattern of urbanisation continue. While most of the land was cleared for roading and housing, much of the Waikato River and gully system was initially left intact. City status came in 1945 with a population of over 27,000 and an area of 1520 hectares. The city's population now exceeds 160,000 and covers over 11,000 hectares.



“That we treasure our gullies and provide for their ongoing restoration”

Community feedback

As a result of raupatuu and historical land use and land management decisions, the state of nature has been significantly impacted within the Hamilton ecological district (which Hamilton/Kirikiroa sits within) to the point where over 98% of its indigenous vegetation cover was destroyed – only 1.5% of native vegetation remains. Much of the remaining native vegetation cover within Kirikiriroa/Hamilton is within the Waikato River network (including the streams and gullies which feed in to the main river stem).

For Maaori the degraded state of biodiversity within the Waikato region (and Kirikiriroa/Hamilton) and the associated loss of maatauranga (knowledge) and ability to manaaki (care for people) and fulfil the role of kaitiaki (guardians of the natural environment) has impacted on “the foundations of the relationship of Waikato-Tainui with the whenua [land]”³⁹. Waikato-Tainui want to see nature restored to a state where both nature and people flourish, and this is a view also held by many non-Maaori.

Nature in Kirikiriroa/Hamilton continues to be impacted by continued urban expansion, severance of ecological connections (such as the undergrounding of streams and waterways) and the removal of native and exotic vegetation.

Current state of nature in Kirikiriroa/Hamilton - a snapshot

Of the 11,000 hectares in Kirikiriroa/Hamilton, approximately 168 hectares is covered by native vegetation⁴⁰. Most of this vegetation exists within significant natural areas (SNAs), which have been assessed as being important sites for flora and fauna and habitat. The health and condition of these areas are generally poor and are threatened by invasive weeds, animal pest species and impacts from the surrounding land use.

However, there are also a number of plant, fish, bird and bat species which are endemic – **found nowhere else in the world** – which live in Kirikiriroa/Hamilton. Swamp maire, giant kookopu, black mudfish and long-tailed bats are some of the endemic species. Some of these species act as indicator species – if they are present, it means the area is well on its way to being a healthy ecosystem.

Swamp maire, a wetland-loving native tree, is an important indicator species which once dominated the gully floors of Kirikiriroa/Hamilton. Swamp maire is now a nationally endangered species.

Swamp maire is being planted back into Kirikiriroa/Hamilton's gully systems and, due to restoration efforts, has now been found naturally regenerating in some gully areas. While swamp maire is present at nine SNAs across the city, it is only found naturally occurring in Hammond Bush. The increasing populations of swamp maire in gullies is a sign of the success of restoration projects throughout the city.

Giant kookopu is an endemic fish species found within Kirikiriroa/Hamilton and is an indicator species for the health of the city's streams. Giant kokopuu is nationally a declining species. Giant kookopu have been recorded within five gully systems at 14 sites in the city. Kukutaaruhe Gully (in Fairfield) is a particularly important gully system, with giant kookopu seen spawning annually since 2014⁴¹.

Black mudfish is another endemic fish species found in Kirikiriroa/Hamilton. Black mudfish are a nationally critical species⁴². Black mudfish have been found in the north-west of Kirikiriroa/Hamilton near Lake Waiwhakareke but could be present within other parts of the city. The biggest threat to black mudfish is the loss of wetland habitat due to land use change, invading pest fish species (such as koi carp) and reduced water quality.

Long-tailed and the lesser short-tailed bat are Aotearoa/New Zealand's only two remaining species of land mammal. Kirikiriroa/Hamilton is one of the only known cities in New Zealand to still support the long-tailed bats within its urban boundaries. Long-tailed bats are a nationally critical species, so increased knowledge on this population is an important aspect of the city's urban ecosystem.

Project Echo monitors the presence of long-tailed bats at various locations across the city. Since monitoring began in 2016, southern Kirikiriroa/Hamilton and its associated gully systems have been shown to have the highest concentrations of bat activity across the city. In 2019, the bats' presence had been detected at a total of 17 out of 26 survey sites monitored. Gullies and mature vegetation are important habitats for long-tailed bats and their presence is reduced in areas where housing and lighting are increased.

The recent abundance of tuuii in the city is an indicator of good progress in bringing native bird species back into Kirikiriroa/Hamilton. The Hamilton Halo Project (established in 2007) focuses on animal pest control at tuuii breeding sites surrounding the city⁴³. Tuuii in Kirikiriroa/Hamilton have significantly increased since the project began. A bellbird was also recorded for first time in 2016.

While there is cause for concern for the current state of nature in Kirikiriroa/Hamilton, there is a wealth of community action taking place. Ecological restoration activity (such as the replanting of Kirikiriroa/Hamilton's gully systems and Waiwhakareke Natural Heritage Park) and pest and plant control is being undertaken by mana whenua, maataa waka, school students, environmental restoration groups and other individuals and research institutions.

Additionally, research indicates that there is a strong desire by people in Kirikiriroa/Hamilton to do more to restore nature. There is the opportunity to enable more people to grow nature and enhance their wellbeing, their communities and te taiao (the environment).



4

Vision, goal and outcome areas for nature in the city

He moemoeaa me ngoona hua moo te Wao nui ki Kirikiriroa

Nature in the City Strategy

VISION

Nature thrives in Kirikiriroa/Hamilton and nurtures us wherever we are
Ahuahungia te Wao nui I te oranga taangata

GOAL

We achieve 10% native vegetation cover in Kirikiriroa/Hamilton by 2050

OUTCOME AREA ONE

We invest in the
continued growth
of nature in
Kirikiriroa/Hamilton

OUTCOME AREA TWO

We are
courageous in
staying the course

OUTCOME AREA THREE

We uplift the
power of
kaitiakitanga

OUTCOME AREA FOUR

Thriving nature
is all around us

Introduction

This section outlines the vision for nature in Kirikiriroa/Hamilton, the goal we need to reach in order to work towards the vision, and the outcome areas we'll be making progress in to effect positive change.

The vision, goal and each outcome area have two aspects:

- **A description of what our future looks like** - this is an aspirational statement of what we want nature in the city to look like in 2050. This will ensure that everyone has the same understanding of this future.

- **Some key messages from two important sources of information** we used in developing the vision, goal and outcome areas:
 - What the community told us about nature⁴⁴
 - What research and evidence tells us⁴⁵.

All outcomes are interconnected and should not be read in isolation.

“I want us to consider how to protect and grow nature in all city projects”
Community feedback

“Let’s connect people to nature so they get a true appreciation of our great city”
Community feedback

Vision

Nature thrives in Kirikiriroa/Hamilton and nurtures us wherever we are

Ahuahungia te Wao nui I te oranga taangata

What our future looks like once we've achieved the vision

Spending time caring for – and connecting with – nature is a part of our identity as a community and a way of life for many in Kirikiriroa/Hamilton. Nature is a korowai (cloak) which keeps us safe, connects us (to each other and the whenua) and nourishes us. Hamiltonians seek out nature in times of joy and stress and are restored physically, spiritually and socially by this connection. The kai (food) and rongoaa (traditional medicine) we harvest from throughout the city support us to be well.

Mana whenua exercise kaitiakitanga in their rohe, and non-Maori recognise the similarities of caring for nature in their own culture. This understanding enriches and deepens our sense of connection to the land and our unique place in Kirikiriroa/Hamilton. Whether it be through enrichment planting in established gully systems, neighbours taking turns to reset pest control traps or seed collecting and propagating workshops run in schools and on marae, people are engaged and purposeful in their care for nature.

Nature is a central pillar in the value proposition of Kirikiriroa/Hamilton as a place for economic investment. Our research institutions attract funding for urban ecological restoration research which is valued locally, nationally and internationally for its contribution to biodiversity knowledge. Kirikiriroa/Hamilton has

What the community told us

"Let nature in"

"I wish we were connected to the land and to each other, and that this connection guides how we grow"

"I wish we had traditional rongoa everywhere within our city"

a successful nature-based tourism sector which capitalises on the uniqueness of Aotearoa/New Zealand's biodiversity within an urban context.

The established forest areas in the city - connected through the Waikato River and gully system and across park and street networks - provide food and shelter for birds, bats and insects. The dawn chorus is rich with the sounds of tuuui, bellbird and piiwakawaka (fantail). Kereruu have found their home in Kirikiriroa/Hamilton while the dusk sees bats hunting down dinner.

As a result of significant revegetation of the gully systems throughout the city, the streams which run through the gullies are clean and clear and are home to native fish and other aquatic species. Aquatic, plant and animal pests have been significantly reduced as a result of sustained community effort in pest management and ecosystem restoration. All our main gully systems have achieved weed-free status due to community action.

We see thriving ecosystems in Kirikiriroa/Hamilton and they provide us with a sense of place - we know we are in the special place of Aotearoa/New Zealand. Our sense of place in Kirikiriroa/Hamilton is deepened and enhanced through connecting with and restoring nature.

What research and evidence told us

Investing in nature in urban environments is a solution to a range of issues, including crime reduction, climate change adaptation and creating a more liveable city. There are also benefits for economic growth through the creation of attractive environments for investment and innovation⁴⁶.

Goal

We achieve 10% native vegetation cover in Kirikiriroa/Hamilton by 2050



What our future looks like once we've achieved the goal

The Waikato River system (including gullies and wetlands) which flows through Kirikiriroa/Hamilton is a connected, thriving ecosystem. A forest canopy is well established in the gullies, which includes towering rimu, kahikatea and majestic tootara. The forest is the source of food and habitat for the abundant native bird life in the city. Birds are able to fly further and undertake their role in the forest as seed distributors.

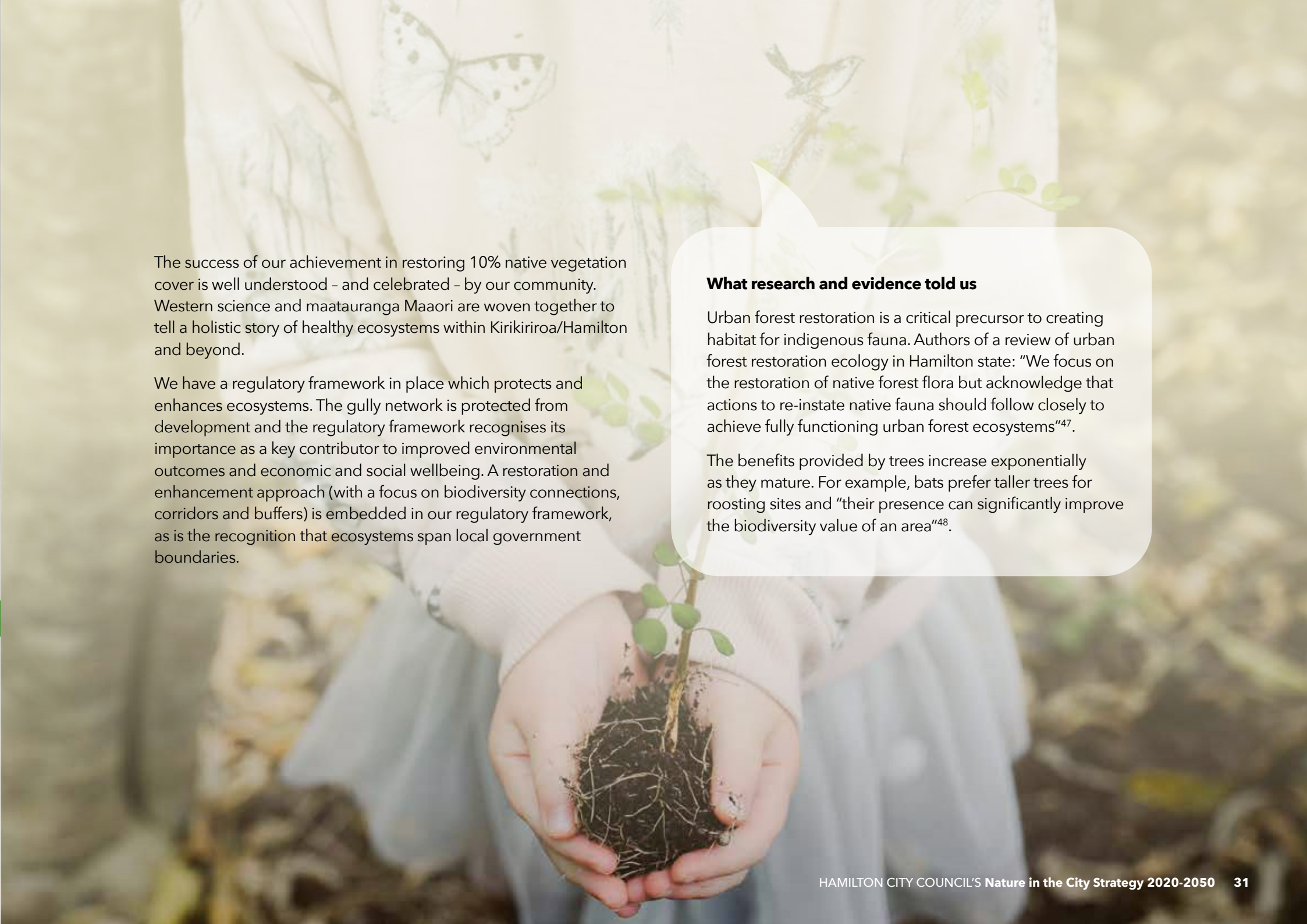
As a result of the healthy forest canopy, gully habitat is flourishing. The forest cover provides shading for cool, clear water to flow through gully streams into the Waikato River. In these streams, native aquatic species are abundant and move freely, unimpeded by hard infrastructure.

What the community told us

"I want my children to be able to look in their backyard and see tuuui, kereruu and piwakawaka - for Hamilton to be a haven for native birds and bats with a surplus of the native trees they need to live and feast all year round"

"That we treasure our gullies and provide for their ongoing restoration"

"I wish we had plenty of plants and trees in the CBD - walls of vertical gardens to bring nature back into our city"



The success of our achievement in restoring 10% native vegetation cover is well understood – and celebrated – by our community. Western science and maatauranga Maaori are woven together to tell a holistic story of healthy ecosystems within Kirikiriroa/Hamilton and beyond.

We have a regulatory framework in place which protects and enhances ecosystems. The gully network is protected from development and the regulatory framework recognises its importance as a key contributor to improved environmental outcomes and economic and social wellbeing. A restoration and enhancement approach (with a focus on biodiversity connections, corridors and buffers) is embedded in our regulatory framework, as is the recognition that ecosystems span local government boundaries.

What research and evidence told us

Urban forest restoration is a critical precursor to creating habitat for indigenous fauna. Authors of a review of urban forest restoration ecology in Hamilton state: “We focus on the restoration of native forest flora but acknowledge that actions to re-instate native fauna should follow closely to achieve fully functioning urban forest ecosystems”⁴⁷.

The benefits provided by trees increase exponentially as they mature. For example, bats prefer taller trees for roosting sites and “their presence can significantly improve the biodiversity value of an area”⁴⁸.

Outcome Area One

We invest in the continued growth of nature in Kirikiriroa/Hamilton

What our future looks like once we've achieved Outcome Area One

We have a clear understanding that investing in nature provides our community, economy and environment with a positive return on investment. We have transitioned to full cost accounting in development and recognise the many benefits investing in nature brings us.

We have a well-established culture of investing in green infrastructure such as living walls, rooftop gardens and low-impact stormwater design. As a result of this culture shift, our green infrastructure investment is well funded and equal to that of other infrastructure (such as water supply and transportation). We understand that investing in connected, integrated ecosystems and making space for nature in our city is the most effective climate change mitigation and adaptation action we can take.

What the community told us

"I wish we would put trees and green space back into the CBD"

"Connective corridors are needed to help wildlife move through the city between food sources"

"I wish we could move away from grey infrastructure towards green"



Our development community has embraced the 'nature is the best return on investment' philosophy and their expertise is sought by those wanting to undertake best practice development in other cities in Aotearoa/New Zealand. Maatauranga Maaori is an integral part of growth and development, and the development community works to enhance te mauri oo te taiao (the health and wellbeing of the environment).

We have established our reputation as a city where native habitat flourishes and have reaped the benefits of this reputation across a number of sectors. We recognise that nature is critical to our economy - whether it be through eco-tourism, nature-based tourism or the provisioning and regulating services nature provides other sectors. Increasingly, we leverage off our reputation as a city which cares for nature, and this attracts investment, tourism and research. The community is united in undertaking ecological restoration, and the increased social and cultural connection and cohesion is evidence of this unity.

What research and evidence told us

Biophilic cities, those which have thriving biodiversity and wild urban spaces, are recognised for their contribution to those who live there. Daily contact with nature is vital for human health and wellbeing⁴⁹.

Embedding nature in development is increasingly seen as a way to deliver across a number of wellbeing dimensions: "The role of green infrastructure in addressing the challenges of the 21st Century cannot be underestimated. It is a natural, service-providing infrastructure that is often more cost-effective, more resilient and more capable of meeting social, environmental and economic objectives than 'grey' infrastructure. It has never been more necessary to invest in green infrastructure"⁵⁰.

Outcome Area Two

We are courageous in staying the course

What our future looks like once we've achieved Outcome Area Two

We celebrate our courage in taking a long-term approach towards restoring nature in Kirikiriroa/Hamilton. We see the fruits of this courage as we move through the city, which is evident in healthy forests, deafening birdsong and streams teeming with life. We see canopy trees standing tall, which are home to our flourishing bat population. We see kereruu in flight, which have made their home in the city. The presence of kereruu is an indication that our long-term investment has been successful.

We see people around us reaping the benefits of connecting with and caring for nature. We know our children - and the children yet to be born - will be nourished by nature because of our

What the community told us

"I wish that we were connected to the land and to each other and that this connection guides how we grow"

"Taiao development needs to be a partnership moving forward between iwi and ngaa tangata tiriti that supports Maaori to realise their role as kaitiaki"

"I wish for a council that puts nature first"

What research and evidence told us

Ecosystems take time to recover and grow. Forest canopy closure in newly planted urban forests is the first - and most critical - threshold in forest development. Research indicates that canopy closure happens about 20 years after initial planting⁵⁸. Following canopy closure, humidity and soil temperatures stabilise, and the "forest will then develop naturally through other successional stages"⁵⁹.

brave decisions. We reflect on the courage we took in providing better protection for nature through the development of a strong regulatory framework.

Council has strong, effective relationships with mana whenua, neighbouring district councils and organisations and communities involved in ecological restoration. The strength of these relationships is based on a shared vision of restoring nature and the many benefits it brings to our wider community.

We know that restoring nature takes time - the same sort of time it takes to raise a child into an adult. We are patient, secure in the knowledge that we are taking the right action to ensure that nature thrives in Kirikiriroa/Hamilton.

Outcome Area Three

We uplift the power of kaitiakitanga

What our future looks like once we've achieved Outcome Area Three

We embrace our kaitiaki role and restoring nature is an integral part of the way we live. People are connected to each other through the shared goal of restoring nature in their backyard, the gullies near them and the forests in their neighbourhood. New residents play their part in restoring nature, and this helps them establish roots in Kirikiriroa/Hamilton.

The Maaori worldview is embedded in restoring nature in Kirikiriroa/Hamilton. As a result, people have a strong sense of understanding of nature, their connection to it and their role in caring for it. This deepens our sense of connection to Aotearoa/New Zealand as the unique place we call home.

We tell stories about nature which build mana, and we share these stories with each other. This growing knowledge helps us to grow our ability to care for te taiao. Maatauranga Maaori and Western science sit alongside each other as valid ways of seeing the world and mana whenua are respected in their role as kaitiaki and supported by the community in this role.

What the community told us

"I use a wheelchair so could help with growing seedlings in raised beds"

"My greatest wish is for Council to work with gully landowners, their communities, neighbouring councils, ngaa tangata tiriti and government to establish a region-wide Waikato integrated series of biodiversity reserves. This will halt the current rapid loss of biodiversity in the city and the Waikato region"

"I'd like to see really good advice and support for residents who want to restore native biodiversity on their own properties"

"I wish we had clear, simple information to educate or motivate residents to grow nature"

What research and evidence told us

Incorporating kaitiakitanga, the “way in which Maaori manage the natural environment based on Maaori worldviews”⁵¹, into urban ecological restoration could provide for more opportunities to restore nature. Additionally, “urban restoration that includes kaitiakitanga can potentially improve the outcomes for urban ecology, as well as provide ways in which we might foster our sense of connection to, and the rich stories that exist in the environment”⁵².

Connection with nature fosters care for nature and is a strong predictor of increased conservation behaviour⁵³. Furthermore, **experience in caring for nature is more effective than education**; “environmental knowledge may explain only 2% of what is linked to ecological behaviour, while connectedness with nature explains 69%”⁵⁴.





Outcome Area Four

Thriving nature is all around us

What our future looks like once we've achieved Outcome Area Four

We see, hear, feel and taste nature throughout the city and we are nourished in body, mind and spirit through our enriched relationship with nature. As we move through the city, we see that the Waikato River and gully systems, park and street networks are a thriving and connected ecosystem.

As a result of our sustained investment in nature throughout Kirikiriroa/Hamilton, our connection with nature is part of our everyday life. The presence of nature enriches our daily life; our journey to work and school is made more peaceful because of

What the community told us

- "I wish the central city was vibrant with nature"
- "I wish native birds are increasingly as frequent as residents"
- "I wish that all our gullies were planted out in native trees and plants - I wish for a city which has clean streams and kereruu flying everywhere"
- "I wish there were forests around here"
- "We should be able to touch, smell, eat and hear our nature, not just see it"

birdsong and tree-lined streets. Learning about natural systems and processes are part of our education, and we use our recreation time to connect with nature and restore our energy.

We see our neighbours, friends, whanau and broader community appreciating and caring for nature. We are in tune with the rhythm of the seasons, and we care for - and celebrate - nature according to these rhythms. Maatauranga Maaori is an integral part of ecological restoration practices.

Thriving nature just makes Kirikiriroa/Hamilton a beautiful, inspiring place to be.

What research and evidence told us

There is increasing recognition that thriving biodiversity within an urban environment is the new frontier of creating sustainable cities⁵⁵. Not only does urban ecological restoration lead to improved biodiversity, it creates opportunities for "people to interact with nature in their daily lives"⁵⁶ and meet a deep human need to connect with nature. Additionally, numerous studies have demonstrated "the importance of nature play for children ... [and that] the more biodiverse the space the greater the benefits"⁵⁷.



5

Next steps

Mahi anga whakamua

Next steps

The Nature in the City Strategy offers a vision for us all to move towards. It is hoped that everyone sees a role for themselves in restoring nature in Kirikiriroa/Hamilton and sees the opportunity for their lives to be enriched in doing so.

The strategy is not intended to provide an exhaustive list of actions. Rather, it provides an inspiring vision, a tangible goal for restoring nature in Kirikiriroa/Hamilton and some broad areas for action. Some of the priority areas will broadly address:

- restoring our gully system by creating access paths and undertaking pest control and native revegetation and maintenance
- establishing a citywide monitoring and reporting programme which incorporates Western science and maatauranga Maaori, which will assist in celebrating our success and identifying opportunities for improvement
- taking a more integrated approach to ecological restoration in Council work programmes in order to capitalize on opportunities to reconnect ecosystems across the city

- working with neighbouring councils to restore landscape scale ecological networks
- supporting and enabling our community to care for nature.

Working towards achieving the goal of 10% native vegetation cover in Kirikiriroa/Hamilton will require significant resourcing in the form of time, effort and funding. For Council, this will be provided for primarily through the Long-Term Plan process. For the community, it is hoped that the strategy provides a focus point for efforts in pest control and ecological restoration.

A strategic implementation plan will be developed to provide a more detailed focus for Council to take action on restoring nature in Kirikiriroa/Hamilton. The strategic implementation plan has a three-year time horizon - aligned with the Long-Term Plan process - which enables Council to remain agile to respond to new issues and capitalize on new opportunities. The strategic implementation plan will be reported on six-monthly to chart progress and celebrate successes.

A review of the strategy will take place after five years. This review provides the opportunity to adjust the focus if required, or to stay the course.

Mauri ora.

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Hamilton City Council
Garden Place, Private Bag 3010, Hamilton

 /HamiltonCityCouncil

 @hamiltoncitycouncil

 07 838 6699

hamilton.govt.nz