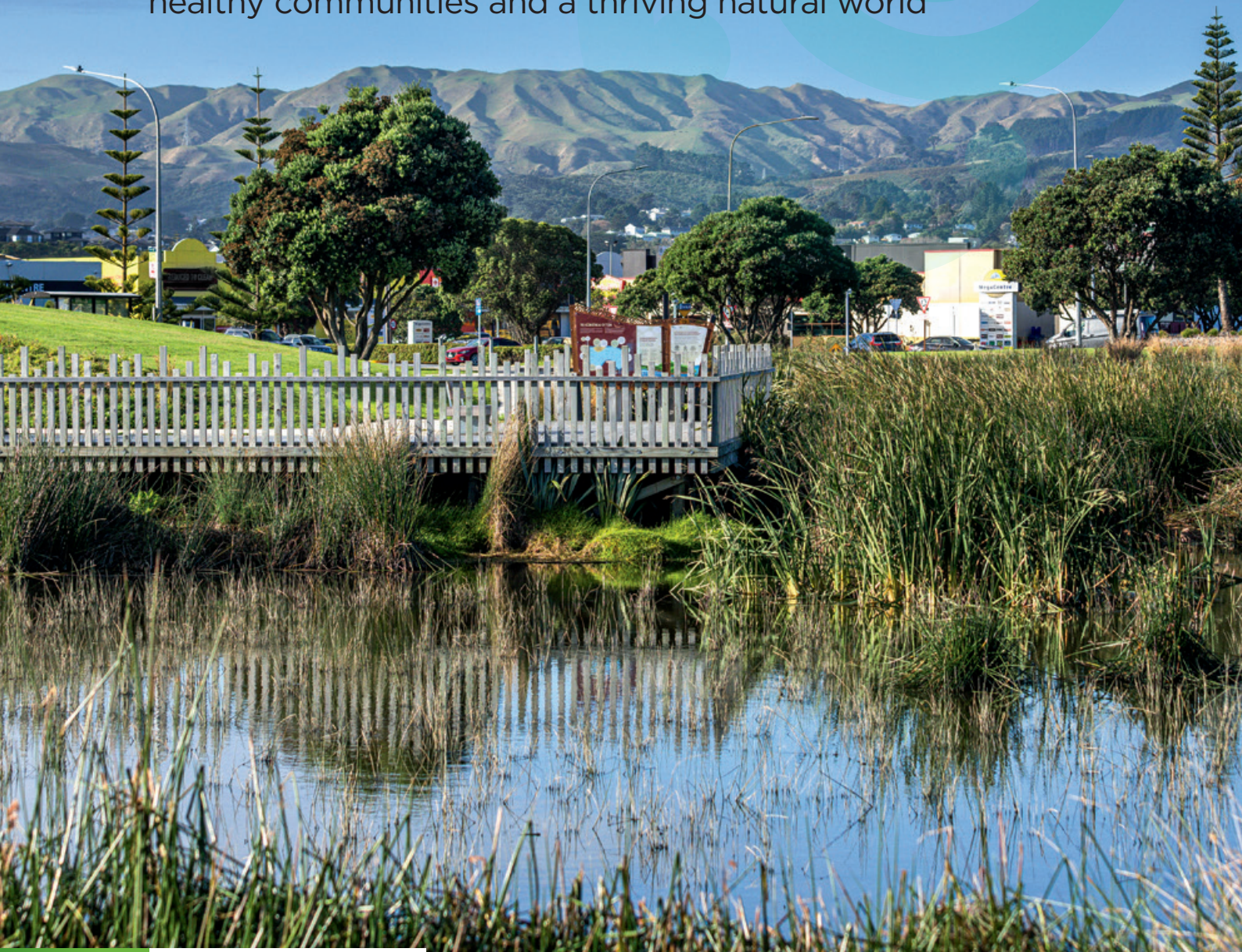
NŌ TE AO TŪROA NGĀ RONGOĀ

CHOOSE NATURE-BASED SOLUTIONS

Investing in smart sustainable ideas for resilient healthy communities and a thriving natural world



Forest & Bird
TE REO O TE TAIAO
Giving Nature a Voice

Choose NATURE BASED SOLUTIONS

- ROOM FOR RIVERS
- NATIVE FORESTS FOR CLIMATE
- EVERY WETLAND COUNTS
- CARING FOR OUR COASTS

INTRODUCTION

The Crown-owned Kaimai Mamaku forest in the Bay of Plenty was set to be clear felled and turned into pine plantation forestry in the 1980s. But the community, including local Forest & Bird branches, protested. The forest was saved and became a conservation park.

If the proposed forestry conversion had been allowed, Te Awanui Tauranga Harbour and its adjacent Tauranga city and Waikato farm and horticultural land would today be facing the same erosion, sedimentation, and slash threats we saw in the East Cape with Cyclone Gabrielle.

The towering Kaimai Mamaku podocarp forest is a lived example of the power of nature-based solutions to protect us from climate impacts, while restoring te taiao nature and protecting the local economy.

An analysis of the economic value of the Kaimai Mamaku's diverse ecosystems, which include salt marshes, wetlands, and lowland rivers, was recently undertaken by the Bay of Plenty Regional Council with Waikato Regional Council and Manaaki Kaimai Mamaku Trust.

The annual value of essential services provided by the 260,000ha Kaimai Mamaku forest restoration area was estimated at $568m (about $2,180 per hectare). These include ecosystem services such as flood regulation, water supply, pollination, and recreation.[1]

The report paints a clear picture of why it's vital to invest in restoring essential natural infrastructure – our native forests, rivers, wetlands, and coastal dunes – throughout the country, including in our towns and cities.

This Forest & Bird resource showcases a selection of nature-based projects addressing real-world challenges, such as flooding, landslides, wildfires, coastal inundation, and biodiversity collapse.

It looks at the problem being solved, what has been achieved, and how the mahi offers multiple co-benefits, including boosting infrastructure resilience and protecting our biodiversity.

WORKING WITH NATURE

Nature-based solutions are defined by the IUCN as actions to protect, sustainably manage, and restore natural or modified ecosystems to address societal challenges, while benefiting human wellbeing and biodiversity.

This relatively new concept has emerged as international organisations search for solutions in nature rather than relying on conventional engineering remedies such as sea walls and stop banks to adapt to and mitigate climate change impacts.

Forest & Bird is calling on councils and the government to prioritise and accelerate the delivery of nature-based solutions throughout the country. Here are five actions that could help.

FOR GOVERNMENT

- Establish sustainable funding of $300m per year for nature-based solutions. This contestable fund, modelled on the successful Jobs for Nature programme, would be available to councils, iwi, community groups, and private landowners.
- Incorporate nature-based solutions in the upcoming National Policy Statement on Natural Hazards.
- Choose nature-based solutions when making decisions on what to do with hazard-prone land under New Zealand's adaptation framework. For example, if a flood plain is deemed inappropriate for housing, it should be restored to its original wetland habitat.

FOR COUNCILS

- Prioritise nature-based solutions in regional policy statements, regional and district plans, and long-term plans, as recommended by the government's National Adaptation Plan.
- Invest more in nature-based solutions for future community resilience. On average, unitary and regional councils allocate just 5.6% of their rates revenue for biodiversity spending.[2] Forest & Bird wants to see this increase.

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COVER: Te Kūkūwai o Toa urban wetland, Porirua. Rob Suisted

Waimea Inlet is being studied for its "blue carbon" potential. Rob Suisted

1. *Kaimai Mamaku ecosystem services valuation*, Bay of Plenty Regional Council, May 2025.
2. *Restoring Nature: Reform of the Conservation Management System*, EDS, August 2024.

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MOUNTAINS AND FORESTS

PROBLEM Intense rainfall causes landslides, soil loss, erosion.

SOLUTION Restore native forests and shrublands with native planting, weeding, and pest control to stabilise soils, slow water run-off, and store carbon.

PROBLEM Forest wildfires lead to loss of life and essential infrastructure.

SOLUTION Replace pine plantations with more fire-resistant native forests. Restore wetlands to create natural wildfire breaks and buffer zones.

RIVERS AND STREAMS

PROBLEM Flooding of residential and farmed areas causes risk to life and loss of assets.

SOLUTION Make room for rivers by restoring natural flood plains. Restore wetlands, and plant native species, to absorb floodwaters and filter run-off.

PROBLEM Drought and over-extraction risks water supply.

SOLUTION Sustainably manage catchments from mountains to sea to restore natural water flow. Restore wetlands and plant native species to slow water evaporation.

FARMLAND

PROBLEM Removal of indigenous vegetation leads to landslides, erosion, water pollution.

SOLUTION Restore waterway margins, fence remnant native bush, plant natives, manage pests, and carry out browsing mammal control to stabilise vulnerable hillsides.

PROBLEM Flooding or drought leads to loss of assets, crop yield reduction, and business disruption.

SOLUTION Rewet and restore drained wetlands, plant native bush, and use restorative farming techniques to improve climate resilience and slow water run-off.

CITIES AND TOWNS

PROBLEM Intense rainfall causes flooding and stormwater run-off.

SOLUTION Make space for water to flood safely, daylight streams, use porous surfaces. Construct urban wetlands, bioswales, and rain gardens to capture and filter stormwater run-off.

PROBLEM Urban heat islands lead to heat stress for people and nature.

SOLUTION Expand green spaces in and around cities with native plantings, create urban forests, suburban canopies, and living roofs.

COASTS AND OCEANS

PROBLEM Rising sea levels, storm surges, and coastal erosion cause loss of land, livelihoods, and assets.

SOLUTION Restore coastal dunes, wetlands, and rocky reefs to buffer coasts and protect communities.

PROBLEM Degraded coastal ecosystems are leaving communities vulnerable to flooding.

SOLUTION Restore mangroves, seagrass meadows, and salt marshes to capture blue carbon, protect infrastructure, and boost biodiversity.

REASONS TO CHOOSE NATURE-BASED SOLUTIONS

1. They protect built infrastructure with multiple co-benefits for communities and nature. No negative consequences.
2. They align with natural ecosystem processes and use nature's innate capacity to restore itself. Don't require intense human intervention.
3. They are adaptable to New Zealand conditions. Can be co-designed with mātauranga Māori. No harm to native habitats.

MAKING SPACE FOR WATER

NAME
Making Space for Water

PROJECT LEAD
Healthy Waters and Flood Resilience team, Auckland Council

LOCATION
Tāmaki Makaurau Auckland

NATURE-BASED SOLUTION
Investing in blue-green infrastructure to reduce flooding risks, improve climate resilience, and boost biodiversity.

The community is backing Making Space for Water. EcoMatters Environment Trust

Homes inundated in 2023, when Te Auaunga, one of Auckland's longest urban waterways flooded. Auckland Council

Pito Place sits within the flood plain of a small creek that flows through Māngere, South Auckland. When record levels of rain fell in early 2023, Te Ararata Creek couldn't cope with the stormwater run-off. The waters rose quickly and inundated local homes and businesses, causing significant damage.

Once the devastating floodwaters had receded, the clean-up began. Most of the flood-damaged homes in Pito Place were condemned and bulldozed. Some families who had lived there for generations had to leave.

Two years later, in April 2025, the first sod was turned on the Te Ararata Creek Flood Resilience Project. It is one of two inaugural blue-green flood resilience projects under Auckland Council's $2bn Making Space for Water programme, co-funded by central government.

The Te Ararata project aims to reduce flooding risks for hundreds of homes in Māngere by replacing and widening a bridge to increase water flow beneath it, building an upstream debris trap, and planting native shrubs and grasses along the creek's edge to help stabilise the banks.

These actions will allow water to flow more freely, helping it reach Manukau Harbour rather than people's backyards following extreme rain events. It will also make the creek easier to maintain and improve the surrounding environment.

"Māngere was one of the hardest hit communities when Tāmaki Makaurau experienced its worst rainfall on record in 2023, and the community has shown incredible resilience during some difficult times," said Mayor Wayne Brown.

"It's fitting that the first blue-green projects delivered under the council's Making Space for Water programme are right here in Māngere."

The Making Space for Water programme encompasses a variety of initiatives designed to allow water to flow safely through urban and rural areas of Tāmaki Makaurau Auckland. It will protect people and property while improving environmental outcomes.

A key element is the development of a blue-green network – a system of waterways (blue) and parks (green) that give stormwater space to flow and help reduce flooding where people live.

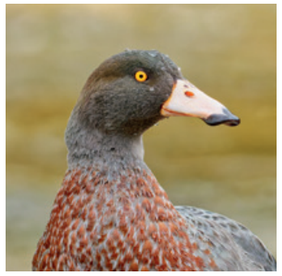
Modelling indicated there were 1903 high flood-risk properties in catchments identified as potential blue-green networks, including Te Ararata. In some areas, purchasing flood-prone properties has been necessary to facilitate the work.

Community engagement is key to the success of the blue-green networks and other Making Space for Water projects. A successful stream restoration pilot project involved 1424 volunteers and 11 organisations who planted more than 2500 natives along local waterways.

"This is about more than just managing the flow of water – these projects are about building healthier and more resilient communities for people to live," said Manukau ward councillor Lotu Fuli.

Te Ararata stream, Māngere, South Auckland. Auckland Council

Sediment in the Rangitīkei River after flooding in 2023. Horizons Regional Council



Whio and other native species will benefit from Room for River projects. Dan Dirks

NAME
Rangitīkei River Climate Resilience Project

PROJECT LEAD
Horizons Regional Council

LOCATION
Lower Rangitīkei River, Pūru Bulls

NATURE-BASED SOLUTION
Protecting riverside communities by allowing the river room to roam, reducing flood risk.

Involving iwi and local residents in the creation of blue-green networks helps foster kaitiakitanga guardianship and awareness of local biodiversity, enhancing the project's effectiveness.

The Te Ararata project brought seven people into full-time employment. "In addition to the flood resilience outcomes, we're also delivering social outcomes for South Auckland," said Toni Helleur, chief executive of I Am Māngere.

The damage caused in 2023 by the Auckland anniversary weekend floods and Cyclone Gabrielle resulted in 118,000 private insurance claims totalling $3.8 billion, according to the Insurance Council of New Zealand.

Making Space for Water will help prevent future costly repair bills for homes, businesses, and infrastructure.

By investing in nature-based solutions, Auckland Council is taking significant steps to protect its residents from the future impacts of climate change, while boosting biodiversity and fostering community wellbeing.

The project will give the Rangitīkei River room to move across its original flood plain. Horizons Regional Council

ROOM FOR THE RIVER

The dynamic waters of the Rangitīkei River rise from springs on Mt Ngapuketurua in the Kaimanawa Ranges and travel 253km towards the ocean, flowing past Taihape, Mangaweka, Hunterville, Marton, and Bulls before entering the South Taranaki Bight at Tangimoana.

The awa has a history of flooding. Traditionally, Māori celebrated this natural process as it spreads mauri life force from the surrounding landscape to nourish and feed the land.

Over the past century, hard-engineering techniques, such as stop banks, were used to reduce flood risks by "controlling" parts of the river.

There was less space for floodwaters to naturally dissipate after heavy rainfall. Instead, waters sped up and spilled over into surrounding land, causing severe flooding, erosion, and spiralling maintenance costs.

Bulls and Marton experienced major flooding in May 2023, which caused evacuations and road closures.

The community demanded action and Horizons Council opted for a "make room for the river" approach. The project includes creating a 60km "mobility" corridor on the Lower Rangitīkei, near Bulls.

This will allow the river to flow more naturally, with excess water moving into original flood plains and safely dispersing. Some pastoral land within the river corridor will be planted in native species.

"Allowing for greater expression of the river's mauri life force and natural character offers a range of benefits," said Jon Roygard, of Horizons Regional Council.

"These include better flood protection, lower maintenance costs, and more resilient river communities."

The Rangitīkei River Climate Resilience Project was allocated $5.2m in government funding.

Nature knows best – rivers need room to move. One river at a time, we are starting to accept and embrace this nature-based solution.

Creating resilient river communities, see **resilientrivers.nz/projects/**.

EVERY WETLAND COUNTS

NAME
Te Kuru

PROJECT LEAD
Christchurch City Council

LOCATION
Ōtautahi Christchurch

NATURE-BASED SOLUTION
An extensive network of native wetlands and stormwater basins that store and clean water.

During torrential rain, Te Kuru's extensive wetlands play a critical role in Ōtautahi Christchurch's flood management system.

They capture, store, and treat sediment-laden stormwater, channelling it away from surrounding neighbourhoods, reducing the risk of flooding.

Construction of the $50m stormwater facility began in 2019 and finished in October 2024. It was called Te Kuru after the name historically used by mana whenua to refer to the area.

This welcoming 109ha green urban space features large areas of native plantings, including 150,000 trees and 650,000 plants. There are also 11km of shared recreational paths, including bridges, for walkers, runners, and cyclists.

The walkways fringe a series of stormwater basins that can hold more than one million cubic metres of floodwater, significantly reducing the risk of downstream flooding in the Ōpāwaho Heathcote River. They also treat stormwater run-off from surrounding residential areas to improve water quality in Cashmere Stream.

It's a smart nature-based solution that proved its worth when a state of emergency was declared in Christchurch seven months after it was completed.

"Despite getting more than 140mm of rain, we managed to avoid some of the worst impacts of flooding that we've seen all too often in the past, before we started to upgrade our system in earnest," said Mayor Phil Mauger.

"There was a notable difference in the scale of flooding in areas like Beckenham and Woolston, where we've historically seen properties and homes flooded.

"Our stormwater network has really been put to the test ... and it's done exactly what it was designed to do."

During normal conditions, gates between the stormwater basins and the Heathcote River remain open.

When heavy rain is expected, the gates are closed to temporarily hold water back from the river, easing pressure and reducing the risk of flooding. Once the rain subsides, the water is gradually released to ensure space is available for any further rain.

Te Kuru won two awards at the 2025 Aotearoa New Zealand Public Works Engineering Excellence Awards. It was named Best Public Works Project Over $5 million and received the award for Excellence in Environment & Sustainability.

"Projects like this are a great example of how we can combine functions and make our city a better place to live – wetlands that protect homes and improve water quality, while also being places where people can walk, relax, and connect with nature," added Mr Mauger.

As well as managing floodwaters, Te Kuru's wetlands provide popular walking and cycling tracks for local residents. Christchurch City Council

The council is also building a series of working wetlands across the city to capture and naturally treat stormwater before it enters rivers and streams. They will provide recreational spaces for the community. Two have already been completed at Sparks Road and Curletts Road.

In New Zealand, wetlands support a greater concentration of wildlife species than any other native habitat. With only 10% of our natural wetlands remaining, they are home to many endangered fish, bird, and plant species. These include īnanga, tuna longfin eel, waikaka mudfish, weiweia dabchicks, matuku hūrepo Australasian bittern, pāteke brown teal, mātātā fernbird, and kōtuku white heron.

Wetlands have huge cultural, economic, historical, and spiritual significance for tangata whenua. They are sources of many things, including mātauranga knowledge, oranga wellbeing, mahinga kai food gathering, and rongoā remedies. They also act as sponges, absorbing heavy rain and releasing the water gradually, reducing the risk of flooding. During dry spells, a wetland stabilises downstream water flows and helps maintain water levels.

This case study shows the value of a forward-thinking council investing in smart, sustainable infrastructure. Choosing nature-based solutions like this will help our towns and cities become more resilient in a climate-changed world.

Te Kuru stormwater basins in action, May 2025. Sara Templeton

BLUE CARBON POTENTIAL

NAME
Global Blue Carbon Program

PROJECT LEAD
The Nature Conservancy Aotearoa New Zealand

NATURE-BASED SOLUTION
Restoring degraded coastal wetland habitats to sequester carbon and improve coastal resilience while boosting biodiversity.

The Nature Conservancy Aotearoa New Zealand is partnering with councils, iwi, and coastal communities to demonstrate the future potential of blue carbon projects.

The organisation is planning a pilot project restoring a coastal wetland in Aotearoa to demonstrate how blue carbon credit trading could work in practice. The location is still being determined.

Its blue carbon project aims to help mana whenua, local councils, and private landowners adapt to the impacts of climate change and support them through the transition of their lands to wetlands.

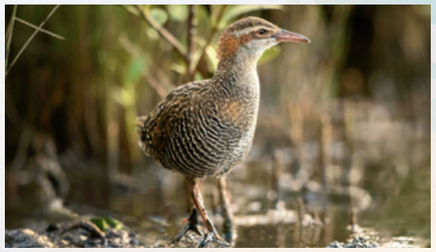
Initial research has collected data from seven sites around the country, including in Northland, Waikato, Bay of Plenty, Nelson, and Tasman. Drained coastal wetlands such as these, currently used for grazing, could be rewetted and restored.

The data analysis, which will be completed in the second half of 2025, will estimate how much blue carbon could be stored. This will allow the team to assess the potential revenue that the project could provide through blue carbon market development. These funds could be used to support new wetland restoration activities across the motu.

"Blue carbon represents a promising opportunity to help re-establish the Earth's carbon balance," said Abbie Reynolds, country director for The Nature Conservancy Aotearoa New Zealand.

"Coastal communities can reap benefits from healthy coastal wetlands through increased resilience, enhanced biodiversity, cleaner water, and opportunities for eco-tourism."

Blue carbon sequestration is the removal and storage of CO_2 by oceanic and coastal ecosystems such as salt marshes, mangroves, and seagrass meadows. By restoring these degraded wetland habitats, it's possible to increase their capacity to remove carbon from the atmosphere and store it in their soil layers. Last September, The Nature Conservancy Aotearoa New Zealand published an independent report, jointly commissioned with the Ministry for the Environment, on the policy, legal, and market conditions needed to enable coastal wetlands projects to result in blue carbon credits.



Koitareke marsh crake. Neil Foster

It is also working with councils, iwi, scientists, community groups, and other interested parties on developing a roadmap to serve as a national vision for catchment-scale restoration.

Restored mangroves, salt marshes, and seagrass beds provide other co-benefits. They provide vital protection against storm surges, better water quality, and habitat for native wetland plants, fish, and insects.

They also support healthy fish nurseries and provide places for mahinga kai and other cultural practices, including fishing, hunting, and collecting plants and other resources.

Investing in blue carbon is a nature-based solution that looks after te taiao nature, while also looking after us.

The Nature Conservancy Aotearoa New Zealand is part of an informal Community of Practice for coastal wetland restoration, which is open to anyone who is interested in the work.

> For more information, and to download the report *Coastal Wetland Blue Carbon Policy Research in Aotearoa*, see **https://bit.ly/3SeVM8i**.

Carbon sequestered and stored in coastal wetlands is called "blue carbon". Pictured: Waimea Inlet, Tasman Bay. Erik van Eyndhoven/TNC

Suzan Craig. Tahi

NAME
Tahi

LOCATION
Pataua North, east of Whāngarei, Northland

PROJECT LEAD
Suzan Craig

NATURE-BASED SOLUTION
A living eco lab sharing scientific data on how to harness the power of biodiversity to restore ecosystems and protect the global economy.

WHY RESTORE TE TAIAO NATURE?

Suzan Craig, founder and chief executive of Tahi, explains the value of biodiversity and why she wants to change the global conversation about carbon.

WHAT IS TAHI?

For us, Tahi is the power of an example, a living eco lab that provides long-term data on the benefits of restoring te taiao nature at pace. Since 2004, our team, comprising scientists, environmentalists, staff, and the local community, have transformed what was once a barren farmland into a thriving rich biodiverse ecosystem. Tahi's science-based leaders include my father Dr John Craig and Dr Neil Mitchell, both of whom co-designed Tiritiri Matangi Open Sanctuary, alongside ecologist Dr Anne Stewart. We also have permanent employees on the ground, who keep our 324ha living eco lab thriving. They work tirelessly to plant thousands of trees each season and keep invasive species at bay, using technology such as Lidar, e-DNA, acoustics, and camera traps.

WHY SHOULD WE CARE ABOUT BIODIVERSITY?

Aotearoa New Zealand is one of just 36 biodiversity hotspots in the world. These locations represent 2.3% of Earth's land surface, but 44% of the world's plants. However, as we know, biodiversity, the interconnectedness of all forms of life on our planet, is in jeopardy. We've had 4.5 billion years of evolution. Now human activity is pushing one million species globally towards extinction. Without biodiversity, there is no other life on Earth, including our own.

WHAT HAS BEEN ACHIEVED?

With more than 20 years of scientific data collected, we are now in an exceptional position globally to show the incredible power of biodiversity to restore ecosystems and protect the global economy. Two decades ago, this farmland was home to just 20 native bird species. Today, we have 71 and counting, including kiwi, matuku hūrepo Australasian bittern, and pāteke brown teal. Birds super-power our strategic planting, acting as natural architects for rebuilding the ecosystem. Our wetlands act as the kidneys of the land, and we are proud to have restored almost all of the original wetlands at Tahi – 20 in total (38ha), as well as 4.5ha of lakes to date. We have planted or regenerated 8.8 million native trees at Tahi. By focusing on having trees, birds, and wetlands working together, we have unlocked the regenerative power of natural ecosystems to heal themselves.

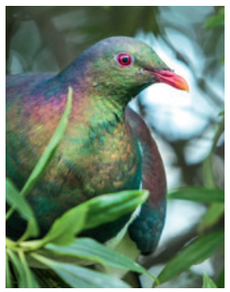
WHAT IS THE BIO VALUE INDEX?

Nature doesn't operate on a singular metric, and not all forests are equal. Proving the value of biodiversity, native species, and scientific research is a huge part of our model. This mahi has won multiple awards, including for our trademarked BVI® (Bio Value Index), which is an assessment of how much a species contributes to a whole ecosystem. For example, the "bio value" of a plant indicates its contribution to restoring ecosystems. It considers everything from a tree's impact on invertebrates, its longevity, intersection with birdlife, and carbon storage abilities. Birds play a pivotal role as seed distributors, a key ecosystem function. They transport seeds around the landscape, so the BVI is especially weighted towards the attractiveness of a plant species to birds. Identifying species through tools like the BVI is one of the keys to the success of a strategic restoration. It is a practical and repeatable methodology that guides decision-making, helping to determine what to plant, where to plant it, and the underlying rationale for these choices. What constitutes "right" will differ from place to place, whether in Aotearoa New Zealand or globally.

BEFORE: Tahi's farmland was a biodiversity desert. Tahi

AFTER: The thriving restored ecosystem, including native forests and wetlands. Tahi

Healthy native forests stabilise soils, slow water run-off, and store carbon. These beehives produce honey for sale, raising revenue for conservation mahi. Tahi



Birds such as kererū play a pivotal role as seed distributors, a vital ecosystem function. Heidi Benson

HOW DOES NATURE SUPPORT THE ECONOMY?

More than half the world's GDP is moderately or highly dependent on nature. Yet the true value of nature remains unaccounted for in the global economy. The success of nature-positive investments will hinge on a crucial, less glamorous foundation – good data. Consensus on science-based metrics is key to unlocking global nature-based solutions. These will enable governments, companies, financial institutions, and local communities to measure, monitor, and finance biodiversity at scale. For example, our latest research on water hydrology showed the impact of biodiversity regeneration in an ecosystem. We found up to a 100% reduction in water run-off volume following a modelled 100-year storm. This makes the land considerably more resilient against heavy rainfall, droughts, and landslides. We believe carbon markets should account for stacked co-benefits such as biodiversity, hydrology, and soil health.

WHY DO WE NEED TO LOOK BEYOND CARBON?

The World Economic Forum has identified biodiversity loss and ecosystem collapse as one of the fastest growing global risks over the next decade. Yet, amid this backdrop, the nature-based carbon market is unfortunately dominated by exotic monoculture plantations, with the single most traded species being pine. While monoculture crops are the cornerstones of our food and wood production systems, they inherently limit the spectrum of ecosystem services provided. Crucial functions like nutrient cycling, water cycle regulation, pollination, and pollinators are just a few vital functions that thrive in diverse ecosystems. At Tahi, we consider the whole landscape – the forest, the soil, the mangroves, and the wetlands. Our carbon capture methodology pairs global best-practice standards with the latest benchmarking, including for the emerging science of wetland and soil carbon capture. As of 2024, we estimate the total carbon storage at Tahi is 241,950t CO_2. The old-growth forest at Tahi absorbs the most carbon – these trees store up to 2.5 times the equivalent storage of a pine plantation. By 2100, our modelling shows that our total carbon storage will be 775,300t CO_2.

By looking beyond carbon alone, we can create a nature-positive economy that incentivises systemic restoration, ensuring that carbon credits truly reflect the full ecological value of restored landscapes.

HOW IS THE MAHI FUNDED?

Tahi is privately funded. Our vision from the outset was to develop a fully circular commerce structure. Two brands inspired from the landscape – Tahi Mānuka Honey and Kaea Skincare – each have 100% of profits reinvested back into our eco lab.

WHAT DOES SUCCESS LOOK LIKE?

Our vision is that our research will pave the way for informed decision-making and drive positive change. We aim to accelerate the global conversation from the overly simplistic focus on carbon to the value of native biodiversity restoration. Domestically, we are connecting local communities and iwi with the broader science and commerce opportunities. Internationally, we are helping put New Zealand on the map as a global best-practice case of biodiversity regeneration in action.

For more information, see **tahi.com**.

NATIVE FORESTS FOR CLIMATE

NAME
Te Raukūmara Pae Maunga

LOCATION
Raukūmara Range, Bay of Plenty

PROJECT LEAD
Te Whānau ā Apanui Ngāti Porou

NATURE-BASED SOLUTION
Regenerating the ngahere through browsing mammal control to achieve ecological and cultural revitalisation.

Seven species of deer are destroying native forest ecosystems throughout Aotearoa. 📷 Neil Foster

Te Whānau ā Apanui is a coastal tribe with whenua that sweeps steeply up to the spine of the rugged Raukūmara Range near East Cape. Large rivers weave from bush-clad mountains to the sea.

Possums and deer first arrived in the 1960s, then their populations exploded. Possums ate their way through the ngahere forest from the canopy down, while other browsing mammals, deer and goats, munched on the trees from ground level upwards.

Knowledge drawn out through a series of wananga revealed multiple large-scale impacts from these introduced animals.

Thousands of ancient tōtara trees were dying. The forest undergrowth had been eaten on a vast scale, including seedlings of future forests. Carbon was bleeding into the atmosphere from the dying trees.

The healthy forests of the past absorbed rainfall and slowly released water back into the landscape. In the degraded forest, rainwater raced off the whenua, rivers rose rapidly, flooded, and quickly dropped.

The forest could no longer hold the soil together, there were increasingly huge slips, and the rate of land erosion kept growing.

The resulting sediment and gravel was flushed by floods into the moana ocean, clouding coastal waters and suffocating reef habitats, home to kōura and other kai moana.

In response to these multiple challenges, Te Raukūmara Pae Maunga was set up, an ambitious $34m project to turn around the forest collapse.

"We have carved a unique project with a widespread engagement programme that takes our people with us," said spokesperson Ora Barlow. "Connecting people to nature is one of the missing steps needed to help New Zealanders recognise that many of our native forests are in serious trouble."

As a priority, deer, goat, and possum numbers needed to be knocked down and kept low to allow the forest to recover.

Raukūmara Pae Maunga trained its own top-quality deer and goat control team to carry out aerial operations using the latest thermal imagery cameras.

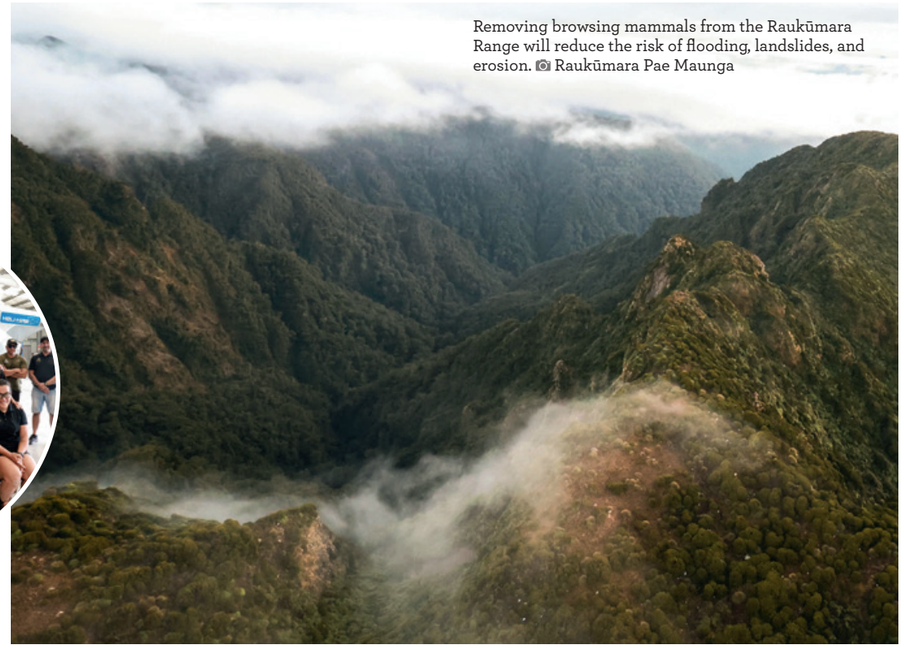
Six skilled indication dogs accompanied a ground-culling crew. From 2021 to 2025, a total of 9908 deer and 2005 goats were removed from more than 73,000ha of forest.

In 2023, when more than 115,000ha of rugged Raukūmara ngahere had its first round of aerial 1080, it was the largest iwi-led 1080 operation in the world.

The results were impressive – cutting possums from 73% down to 0% after the operation. Rats also dropped to 0%.

The kaupapa has brought a lot of great people together and grown their skills. Of course, all this requires ongoing funding and continued intensive work.

This iwi-led nature-based solution won Forest & Bird's prestigious Kōtuku award in 2023. This impressive project is restoring the mauri of the whenua and safeguarding it for future generations.



Removing browsing mammals from the Raukūmara Range will reduce the risk of flooding, landslides, and erosion. 📷 Raukūmara Pae Maunga

The iwi trained its own deer and goat helicopter hunters. 📷 Raukūmara Pae Maunga

CARING FOR COASTS

NAME
Coastcare Waikato

PROJECT LEAD
Waikato Regional Council

LOCATION
20 Coastcare groups and 70 planting sites throughout Waikato

NATURE-BASED SOLUTION
Restoring dunes to act as a natural buffer between the ocean and the land, protecting homes and infrastructure.

Coastal erosion, Port Waikato. 📷 Carl Morgan

More than 30 years of volunteer-led mahi along Waikato's rugged coastline demonstrates the power of community action in delivering successful nature-based solutions.

Coastcare Waikato is a community partnership programme that began in 1993. It is led by Waikato Regional Council in partnership with iwi, district councils, residents, other volunteers, and the Department of Conservation.

Like many other coastal areas in Aotearoa New Zealand, local beaches have been degraded by urban development, pest animals, weeds, litter, and vehicles.

These pressures, combined with natural shoreline movements, left the dunes unable to rebuild themselves after erosion events, raising the risk of coastal inundation.

Luckily, they can be restored by planting species such as spinifex and pīngao, which hold the sand together, a nature-based solution that brings multiple benefits.

Once restored, healthy dunes rebuild naturally after erosion events with minimal human assistance. They act as a natural buffer against rising sea levels, storm surges, and erosion, while improving the beach environment for residents and visitors.

One of the first Coastcare groups was established at Port Waikato, where huge swells have been eroding the dunes in the coastal settlement, with the loss of several homes.

Volunteers have planted thousands of plants. They include students from Te Kura Kaupapa Māori O Te Puaha O Waikato.

"They love coming to help," said Kathleen West, a Coastcare Waikato volunteer. "Every time they come back for another planting, they can see the difference they have made."

Waikato Regional Council's Coastcare programme is funded through general council rates, with an operating budget of about $240,000 per year. Other councils contribute from their own budgets.

Compared to "hard" protection measures, dune restoration through native planting is cost-effective, with much of the labour provided by volunteers.

During 2024, a total of 922 volunteers planted 59,000 plants at 70 Coastcare sites. They contributed 2962 hours of labour.

The opportunity to participate in hands-on restoration work strengthens community connections and enhances the sense of kaitiakitanga.

As well as preserving the beach's beauty, their mahi increases the quality and quantity of local habitat for threatened species, such as tūturiwhatu New Zealand dotterel, moko lizards, katipō spiders, toroheke sand daphne, and pīngao golden sand sedge.

By working together, volunteers, iwi, councils, and DOC are laying the foundations for a healthy resilient future for all "Coasters" – people and wildlife.

> For more information about coastal restoration groups throughout Aotearoa New Zealand, see **coastalrestorationtrust.org.nz**.

Coastcare Waikato volunteers are helping protect coastal communities. 📷 Stacey Hill

GREENING OUR CITIES

Te Kūkūwai o Toa is a constructed urban wetland in Porirua, north of Wellington. It treats stormwater run-off from 40ha of commercial and residential areas, reducing flooding and acting as a natural filtration system protecting Te Awarua-o-Porirua Harbour from pollution. The 1ha wetland project, which was completed in 2022, contains 35,000 carefully selected native plants to support a vibrant and biodiverse ecosystem. Its walking and biking tracks are also popular with residents.

Aerial view of Te Kūkūwai o Toa Wetland, Porirua. 📷 Rob Suisted

CHOOSE NATURE-BASED SOLUTIONS

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Choose Nature-based solutions is available to download and print at: **forestandbird.org.nz/nature-based-solutions**.

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For more information about Forest & Bird's nature-based solutions advocacy, contact Carl Morgan **choosenbs@forestandbird.org.nz**.

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