



**CENTRE
for SOCIAL
IMPACT**
*A Foundation North
Initiative*

TOWARDS PREDATOR FREE URBAN ISLANDS:

LEARNING FROM TE KOROWAI O WAIHEKE

MAY 2023

Contents

Te Korowai o Waiheke story	3
A world leading effort	4
Te Korowai o Waiheke journey	5
COVID-19 effects	6
Impact to date	6
Environmental impact	7
Economic impact	8
Cultural connections	9
Social impact	10
Strengths	11
Challenges	12
Key learning	13
What next	14

Te Korowai o Waiheke story

Te Korowai o Waiheke Trust was established in 2018 with the goal of making Waiheke Island the world's first predator free urban island. Funding was secured from Predator Free 2050, Auckland Council and Foundation North, to conduct an island-wide stoat eradication and a rat eradication pilot. Work has been underway since 2018 on eradicating stoats and rat pilot trials occurred in three separate areas using different methods between May and November 2022.

Foundation North's Centre for Social Impact was commissioned to complete an 'evaluative case study' of Te Korowai o Waiheke¹ to date, including its context and journey, impact so far, strengths, challenges and key learning about what it takes to eradicate stoats and rats from an urban island. It is based on a review of documentation, discussions with Te Korowai's team and a meeting with its Community Reference Group.



1 See <https://tekorowaiwaiheke.org/>.

A world leading effort

Te Korowai o Waiheke, its partners and the Waiheke community are forging new ground internationally in the quest to restore biodiversity on urban islands. Te Korowai o Waiheke was established by the community to eradicate predators from its 92km² island of around 9,000 permanent residents. The focus is on stoats and rats, as Waiheke is already possum free. The first stage is island-wide eradication of stoats (no ferrets or weasels have been detected on Waiheke), alongside rat pilot fieldwork trials to understand how to remove rats from Waiheke. Other species such as rabbits and mice are managed with Auckland Council, community groups and landowners.

The goal of eradication is ambitious, especially in the case of wily and pervasive rats, and given Waiheke's 900,000 visitors per year from the downtown Auckland ferry service and via the Half Moon Bay passenger and car ferry. As well as residential commuting, Waiheke has up to 40,000 visitors a day in the summer peak².



VOLUNTEER JUDY WOODCOCK - SERVICING A STOAT TRAP



Stoats and rats are highly destructive to native flora and fauna on Waiheke, and particularly to native birds. Around 47,000 native birds are killed by rats each day across New Zealand (Landcare Research). Through predation and competition for food sources, rats and stoats are responsible for the extinction of many native species unique to New Zealand and the reduction of many others, to the point that some can only exist on predator-free islands such as Motuihe and Te Hauturu-o-toi (Little Barrier Island).

As well as decimating native birds, reptiles and insects, rats can make people sick by spreading disease, infest houses, eat home gardens and food crops and cause property and economic damage. A major part of stoats' diet is native birds and they are incredibly fast breeding – males mate with the mother of a litter soon after she has given birth, then impregnate the female baby stoats in the litter. Stoats are also huge eaters – males must eat a quarter of their body weight daily and lactating females half their body weight. Stoats have large home ranges, are excellent tree climbers and have been known to swim up to five kilometres.

Te Korowai o Waiheke is aiming for total eradication of stoats and rats, rather than control. Eradication is the removal of an entire species and ensuring that they can't come back. Control is the ongoing systematic suppression of a species from a site, or when an infestation occurs. While control operations reduce risk to native species, eradication removes that risk and truly allows biodiversity to flourish.

² Waiheke Local Economic Overview 2019, see <https://static1.squarespace.com/static/5b1dd83a372b9624b25936a3/t/5f3f59d18d35142184b36b6f/1597987379126/waiheke-local-economic-overview-2019.pdf>.

Te Korowai o Waiheke journey

Te Korowai o Waiheke evolved from long term, sustained community efforts to reduce predators and support the biodiversity of Waiheke. Since the 1920s, island property owners and community groups have increasingly sought to combat predators. From 1959-1961, together with Waiheke school children and the support of Waiheke Forest and Bird, Alastair McDonald successfully completed New Zealand’s first predator eradication on Ruapuke/Maria Island (Noises Group), just off the north-western headlands of Waiheke.

Native bird releases such as korimako (bellbirds) prompted increased predator control on Waiheke, and in 2009 the Department of Conservation and Auckland Council put controls in place at the Waiheke Transfer Station and wharves to protect neighbouring predator free non-residential islands.

In 2011 local community groups moved to quarterly pulsing with bait and in 2014 Waiheke Ratbusters

officially formed, supported by Auckland Council. In 2016-2017 the Hauraki Gulf Conservation Trust undertook a stoat eradication pilot programme and a Waiheke Predator Free scoping study. In late 2017 the Waiheke Collective was initiated – a collaboration between community conservation groups, individuals, local iwi Ngāti Paoa, Auckland Council and the Department of Conservation. In early 2018 the Waiheke Collective was selected to complete a request for proposal to Predator Free 2050 Limited.

In 2018 Auckland Council introduced a Natural Environment Targeted Rate as part of its rates system. In September 2018, Te Korowai o Waiheke Charitable Trust was established by the Waiheke Collective, with funding for stoat eradication and a rat eradication pilot from Predator Free 2050 Ltd, Auckland Council and Foundation North.

Te Korowai o Waiheke milestones since then have been:

February - April 2019	First staff appointments
April 2019-February 2020	<ul style="list-style-type: none"> • Technical Advisory Group established • Completion of stoat eradication plan • Eradication trapping partners and delivery team secured • Landowner access granted • Stoat traps opened in February 2020 (closed March to May 2020 due to COVID-19)
2020 to present	Stoat eradication trapping continues
March 2020 - 2021	<ul style="list-style-type: none"> • Rat pilot planning initiated with community meetings • Rat pilot planning and engagement continues throughout 2020 and 2021, with landowner permission and tool implementation underway in 2021
May 2022-Nov 2022	Rat pilot operational trials conducted in Ostend, Kennedy Point and Rocky Bay
April 2022 - present	Stoat eradication adaptive management phase including ‘detect and respond’ initiated from early summer 22/23
Jan-April 2023	Oneroa rat trial permissions and tool implementation complete for trial operations from May to August 2023

The stoat eradication programme began in early 2020 and has been underway island wide for around three years, with 250 landowners involved. Stoats are now down to very low numbers and the focus is on finding the remaining few. The rat pilot eradication programme was

interrupted due to COVID-19 but has been conducted in several areas of the island, alongside social research in 2022 exploring community attitudes towards rat eradication. The rat pilot programme aims to identify what it takes to achieve rat eradication.



BIRD EXPERT TIM LOVEGROVE TRAINING THE TEAM FOR 5-MINUTE BIRD COUNTS

COVID-19 effects

The COVID-19 pandemic has caused delays and ripple effects on many levels, including staff training delays, key staff and a stoat dog being stuck off island, community engagement and volunteer events and opportunities interrupted and decreased ability to do fieldwork. In 2021, working with other eradication projects and national partners, including the Department of Conservation, Predator Free 2050, the Ministry of Business Innovation and Employment and Biosecurity NZ, Te Korowai o Waiheke successfully advocated for eradication operations to be deemed essential under Level 4 restrictions. Being able to continue stoat eradication mahi provided positive connection for members of the public and staff alike.

Te Korowai's staff team were affected by sickness throughout the pandemic. While lockdowns were underway, some Waiheke residents removed their permission for Te Korowai to enter their land due to Auckland Council's requirement for the team to be vaccinated, or to reduce their exposure to COVID. COVID-19 meant a year of no in-person events and when these resumed there were many comments that engagement is so much better and stronger in-person.

Impact to date

In less than five years, Te Korowai o Waiheke has made major strides towards removing stoats from the island, using a community reporting system and increasingly targeted ongoing trapping to find the remaining ones. In March 2022 the multi-disciplinary Technical Advisory Group (TAG) analysed the stoat eradication data to date. The group acknowledged the intensive trapping network, rigour of delivery and methodical approach. The data now points to low numbers of stoats remaining on the island.

The rat pilots have been successful and informative as to what it might take to eradicate rats. In the first week of operations in May 2022, the rat trapping team at Kennedy Point collected 280 rats. The largest was a 400g, 53cm long Norway rat and a story on this was in national media (Radio New Zealand). A map of all rat control on Waiheke using combined Trap.nz data with Auckland Council and Te Korowai data is now available at <https://tekorowaiwaiheke.org/backyard-trapping>.

A summary picture of impact so far is given below across the interconnected domains of environment, economic, cultural and social effects.



MARKUS GRONWALD, CATH HANDLEY AND MAIKARA ROPATA SERVICE THE FIRST BAIT STATION OF THE 2023 ONEROA RAT TRIAL

Environmental impact

Reduction in stoats and rats	<ul style="list-style-type: none"> • Almost 10,000 predators removed • Low numbers of stoats remaining • Rat trials promising
Increased biodiversity	<ul style="list-style-type: none"> • Annual five-minute bird counts were put in place in 2020 to track long term trends in bird abundance. It is not an exact science due to weather changes etc, however data in the last three years show: <ul style="list-style-type: none"> • a 22% increase in native bird abundance from 2020 to 2022 • 3 of the 5 different bird habitats where counts are recorded showed increases in overall bird abundance. • Korimako have been spotted at Awaawaroa • Weka have now populated most parts of Waiheke Island • Other native birds such as ōi and pāteke have been successfully breeding • The number of kākā is significantly higher (330%). “Hoons” of kākā have been seen of up to 11 kākā. Stoat ecologists link this directly to the significantly reduced stoat population • 2021 saw the first recent evidence of kākāriki on Waiheke Island, also directly related to stoat removal • Community video on birdlife growth: <ul style="list-style-type: none"> • https://www.facebook.com/tekorowaiwaiheke/videos/464023955409591
Use of technology to reduce predators	<ul style="list-style-type: none"> • The stoat eradication team trialled artificial intelligence (AI) technology to analyse images from 210 trail cameras, training the AI to recognise stoats. eVorta AI technology now saves the team countless hours of processing and is used by other stoat initiatives • Two different comprehensive Geographic Information System (GIS) data collection programmes were created, for the stoat and the rat pilot operational trials. These data systems can record bait take, trap catch and monitoring records and are at the leading edge of environmental data management • Apps are in development for community engagement – such as The Great Waiheke Kākā Count • Field team technician Phil Salisbury designed Waiheke specific tools for the rat pilot, from light-weight traps for trees to floating bait station for the mangroves, transforming recycled materials from the Waiheke Community Resource Recovery Park
Highly capable and effective team	<ul style="list-style-type: none"> • All of the above is being achieved by a highly skilled, experienced Te Korowai team attracting people with national and international³ experience of predator free efforts • A number 8 wire mentality is required, to do what it takes



TE KOROWAI O WAIHEKE TEAM - 2022

Economic impact

Economic impact to date is mainly via Te Korowai o Waiheke investment in the economy. Te Korowai is in the process of commissioning a cost benefit analysis for rat and stoat eradication. Key funding partners are Auckland Council through its targeted environment rate (three-year funding from July 2023), Predator Free (Jobs

for Nature funding to June 2024) and Foundation North (next funding application due May 2023). Major in-kind support is provided to Te Korowai via technical expertise, volunteers, community groups and delivery partners. Giltrap Group provided two complimentary vehicles.

<p>Increased local employment</p>	<ul style="list-style-type: none"> • 36 jobs provided to locals to date via Te Korowai o Waiheke • 25 staff as at March 2023, 11 full time and 14 part time (paid staff fluctuate by season) • All people employed live locally except for three, and some moved to Waiheke to join the team • Te Korowai ad for locals to join the team: https://www.facebook.com/tekorowaiwaiheke/videos/488704726184804
<p>Increased funds and investment in local Waiheke economy</p>	<ul style="list-style-type: none"> • More than \$3.1 million of external funds invested directly into the local Waiheke economy • 21 local businesses supported with regular work

Cultural connections

Local iwi Ngāti Paoa is mid-Treaty settlement and has capacity challenges, with low numbers of iwi living on Waiheke. Te Korowai wishes to partner well with Ngāti Paoa and to work at the pace that capacity allows.

Te Korowai will keep building relationships and working with Ngāti Paoa to gain their permission to eradicate stoats and rats on Ngāti Paoa land (the iwi is a significant landowner on the island).

Te Korowai is committed to working in a Te Tiriti o Waitangi based way and integrating matauranga Māori into the work of Te Korowai, for example in terms of maramataka (the Māori lunar calendar) and animal behaviour. Cultural connections include:

- Two Ngāti Paoa Trustee positions on Te Korowai's Board (one currently filled) and one Ngāti Paoa staff member
- All staff and five of the seven Trustees have done Te Tiriti o Waitangi training
- Successful training in 2022 of a Ngāti Paoa trapper, with ongoing work and volunteer opportunities offered to Ngāti Paoa Trust Board and the Ngāti Paoa Iwi Trust
- All staff are undergoing Te Reo training and working towards consistent use of Te Reo

The overall goal is to work in partnership with Ngāti Paoa and other iwi with interests on Waiheke to meet their aspirations, support iwi reconnection to whenua and pursue shared interests.



TE KOROWAI O WAIHEKE TEAM FOLLOWING A PŌWHIRI AT PIRITAHU MARAE - MARKING THE START OF THE 2023 ONEROA RAT TRIAL

Social impact

Annual surveys gather community feedback on predator eradication and control and in 2022 social research explored the potential social impacts arising from rat eradication on Waiheke Island, and issues relating to social licence to eradicate rats.

Te Korowai understands that community cooperation, collective effort and collaboration is the only way that eradication of predators will occur. It works with over 25 community projects on becoming predator free,

including responsible pet ownership campaigns, trap box production, volunteer projects, composting workshops and bird counts.

A vital part of stoat eradication success is the community stoat sightings and reports. Once a sighting is reported, trappers tailor an intense response to that area. Since summer 2021, more than half of the stoat sighting locations have caught a stoat in the same vicinity in a short period of time.

Landowner and community engagement	<ul style="list-style-type: none"> • 60% of households involved in controlling rats island wide, through Te Korowai and other community efforts • 95% permission to join rat pilot trial by landowners
Volunteers	<ul style="list-style-type: none"> • 2179 volunteer hours in 2022 • Waiheke Retirement Village made over 700 rat trap boxes. Women from the village made hundreds of wax blocks and refined the design process along the way • Te Korowai o Waiheke has a voluntary Trust and Patron, Community Reference Group, field workers, pro bono legal support, trap builders and technical knowledge
Community perceptions	<ul style="list-style-type: none"> • 98% support rat eradication • 80% are ok for Te Korowai to come on their property to set tools and monitor
Awareness raising	<ul style="list-style-type: none"> • Ongoing communications via multiple channels from local to national • 2900 visitors to Te Korowai website in January 2023 • Strong social media statistics

Te Korowai o Waiheke’s Community Reference Group has noticed more community bonding occurring through predator free efforts, with heightened awareness and acceptance of stoat and rat removal. It notes however that pockets of ‘blissful ignorance’ remain, along with sceptics and varied views about methods.

Te Korowai o Waiheke is integrating a customer relationship management (CRM) system with its GIS system, to be able to track and support the many relationships it has across the island, including with the same person (who may for example be a volunteer, landowner and part of a community group). The CRM will help to maintain those relationships in a meaningful way. It was discovered in a rat pilot in 2022 that Te Korowai had to communicate with different people about different things, be dynamic with communications and keep a record of its communications with people.

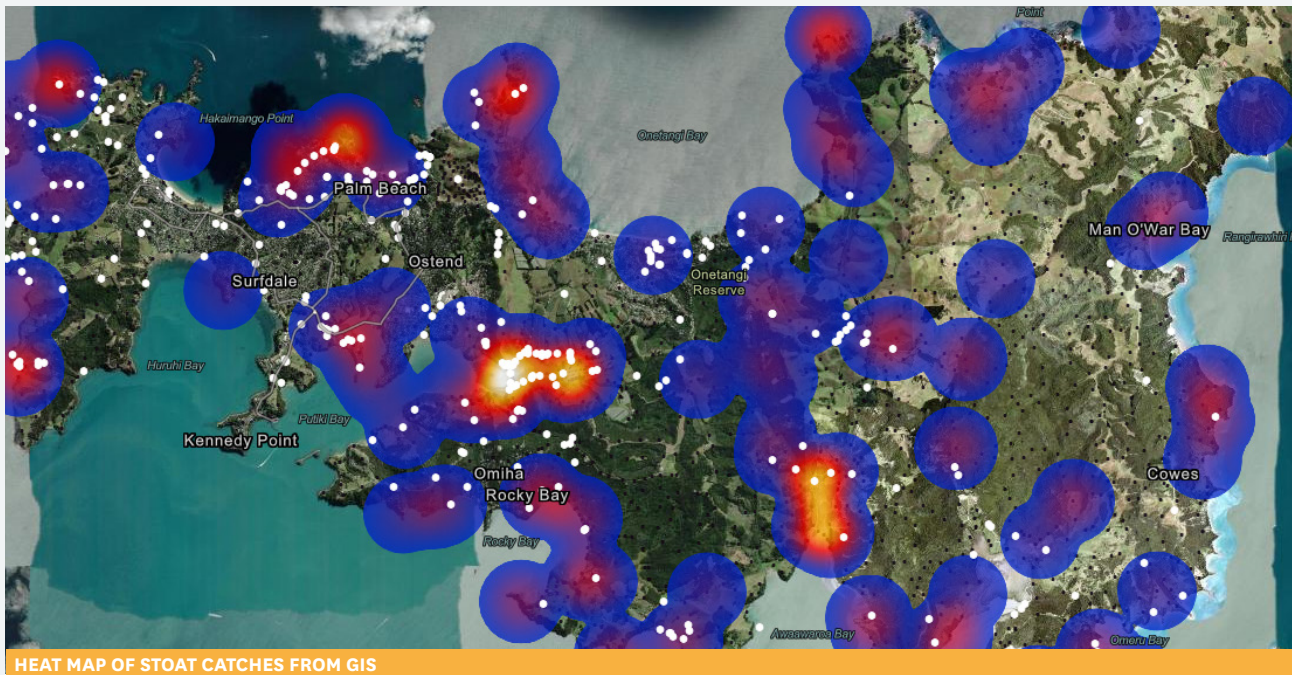


LIBRARY DISPLAY FOR COMMUNITY SURVEYS

Strengths

Te Korowai o Waiheke has made significant strides towards becoming predator free in a relatively short space of time. Key strengths of Te Korowai include the following.

Its **ability to demonstrate tangible progress** in terms of predators caught and positive impacts on native birds as a result. Rat pilot progress is tracked and publicly available in real time on Te Korowai's website <https://tekorowaiwaiheke.org/rat-pilot-progress>.



Attracting the passion, skills, qualifications and experience required to design and undertake the eradication work is a major strength. The science and experience based, leading-edge work of the team is a huge attractor for skilled people and volunteers alike. The Technical Advisory Group meets two monthly and provides robust technical support and guidance to the work. Landcare Research is doing DNA and genome work for Te Korowai on stoats, which is providing confidence that stoat numbers are getting to the level of only a few remaining families.

As noted, the **detect and respond stoat programme** is working well - many stoat catches are following a community stoat sighting. **Use of technology** such as artificial intelligence to detect stoats has been groundbreaking.

High positive community engagement is a strong feature of Te Korowai's work. Almost all interactions with residents and the public are positive. Excellent community engagement and support from residents in rat trial areas has occurred, with a successful 'end of trial'

engagement campaign and stakeholders highly engaged through trials.

The success of Te Korowai to date is a result of **long-term community and collaborative effort** to protect and restore Waiheke. Success is driven by strong relationships, positive word of mouth and skilful handling of inevitable tensions.



RAT OPERATIONS MANAGER, MARKUS GRONWALD LEADING AN EDUCATIONAL WALK AT THE WAIHEKE WALKING FESTIVAL

Challenges

As well as the sheer scale of the task to remove rats in particular from an urban context, key challenges include the following.

Gaining **landowner permission** to set tools and monitor – even one large landowner refusing permission can jeopardise eradication efforts.

Limitations on stoat programme tools, including limited stoat dog availability. The rat trial is showing that **use of devices on some difficult terrain such as cliffs is difficult to scale** – it's expensive, slow and getting skilled workers is challenging.

Potential for backlash or anger that Te Korowai won't maintain zero rats in the trial areas at the end of the trials. A communications campaign has been planned for all target audiences to help mitigate this.

Community annoyance at changes to the rat programme and being blamed for rat numbers (rat abundance was much higher than usual in 2022, most likely due to an uncharacteristically warm autumn).

Unease in the community about secondary poisoning of cats and dogs – 'Keeping Pets Safe' information was developed with the local vets, and Te Korowai works closely with the Waiheke Island Society for the Care of Animals on issues such as information on live traps.

Challenges with **affordable housing** for staff on the island and keeping staff on the island. Some staff have had to move off island due to high housing costs locally. Workaround options such as billeting are being investigated.

There are **ongoing funding challenges**, given the substantial cost of eradicating on an urban island of this size.

Social licence to use various tools (such as aerial bait drops) and **disagreement in the community** as to which tools to use – the **methodology is contested**. Alongside this sits **misinformation and inaccurate assumptions** in the community, for example that Te Korowai 'takes funding away' from other community efforts or that the community is more polarised around key issues than is actually the case.

When Te Korowai was launched it was reported that it had a \$10.9M cash budget. In fact, this was \$5.9M over five years, however the **perception that Te Korowai is flush with money** still permeates in some quarters.

There are different views and understandings about **what eradication takes versus control** and the relationship between eradication and control. Control is needed before eradication, but eradication requires a different approach to control (control was the focus before Te Korowai got underway).

An **assumption that people won't need to make any changes** to become predator free. The uncertainty and complexity is around what those changes might be, the extent to which they are voluntary or required and how they are implemented and monitored.



SIR GRAHAM HENRY AND PROJECT DIRECTOR MARY FRANKHAM LEADING AN EDUCATIONAL WALK AT THE WAIHEKE WALKING FESTIVAL

Key learning

Becoming predator free is possible and necessary to avoid further extinctions and start to restore biodiversity in New Zealand. The effects of ongoing native bird and other species extinctions are poorly understood by the wider New Zealand community. We simply don't know any more what biodiversity should look and feel like in this country in various localities, so we don't know what we are missing. Visiting the predator free islands surrounding Waiheke provides glimpses into what Waiheke could become, and the strong growth in native birds already on Waiheke due to stoat removal shows how quickly nature can restore, if given the chance.

Te Korowai o Waiheke's learning has been steep. Key learning about what it takes to move effectively towards eradication and becoming predator free include the following.

Reputation and relationships

Especially in a small community, relationships and reputation drive everything. Te Korowai o Waiheke needs to be known and trusted and everyone in the team needs to be able to build and maintain relationships in every interaction. The team knows that the work stands or falls on the quality of the relationships and standing it has in the community.

Quality information, data and communication drives success

Te Korowai is seeing the vital nature of how well it communicates, to grow awareness of the work, inform and educate, increase community engagement, attract volunteers and community support, win the trust of landowners and combat detractors. A silver lining of COVID-19 was a stronger focus on social media and online communication. Social licence to eradicate rats will hinge on communications and skilful navigation of diverse views. A small minority of people will be unsupportive regardless.

Good data systems and monitoring are also vital, to be able to know where to focus, see patterns and direct effort. Eradication requires commitment and persistence, until the work becomes monitoring for signs of return.

Ability to learn and innovate

It takes many perspectives, skill sets, indigenous and non-indigenous knowledge systems and an ability to innovate, to succeed in predator free efforts. This requires open mindedness and willingness to try new things. For example, Te Korowai's team regularly brings in specialists to build their own and partner knowledge and capacity (such as native bird experts).



THE FLOATING BAIT STATION - INVENTED BY FIELD TEAM TECHNICIAN PHIL SALISBURY

Collaborative and community-wide effort

Te Korowai o Waiheke is clear that there is no one driver in predator free efforts. Everyone is needed – iwi, funders, government agencies, technical experts, volunteers, community groups and residents. Everyone has a part to play in becoming predator free and everyone needs each other to play their part. The key is communicating that and making it as easy as possible.

The opportunity of becoming predator free is the potential to share an ambition, to build community cohesion and pride through the power of a uniting goal. Te Korowai's team is reporting that more and more community members are approaching them with interest and excitement about the work. Community members who may not interact or agree on some things can connect positively through this initiative. Te Korowai intends to track the many ripple effects of the work such as community connection, cohesion and pride, for example through its Community Reference Group, which brings together business owners, high school students, iwi, landowners and community group members.



RESIDENTS OF WAIHEKE'S RETIREMENT VILLAGE MAKING RAT TRAP BOXES

What next

The focus for 2023 is to continue with stoat eradication, ramp up the community rat trapping, keep joining up environmental action on Waiheke and continue exploring options and social licence for rat eradication. Through building on success, being cautious and having the conversations needed, Te Korowai will continue to work with others to take the whole community on a journey towards being predator free.

Through the efforts of many in the community over many years, Waiheke has become a bellwether for predator free efforts in New Zealand and beyond. Waiheke is learning for the whole country and Te Korowai o Waiheke will continue to share its experience and learning.



ACTING PROJECT DIRECTOR JENNY HOLMES - EDUCATIONAL TALK AT A LOCAL WAIHEKE SCHOOL



MIRIAM RITCHIE BRINGS STOAT DETECTION DOGS TO THE SATURDAY MARKET ON WAIHEKE

Telephone: (09) 360 0291
Freephone: 0800 272 87
centreforsocialimpact.org.nz



Allendale House
50 Ponsonby Road
Auckland
P.O. Box 68-048
Newton
Auckland 1145
New Zealand