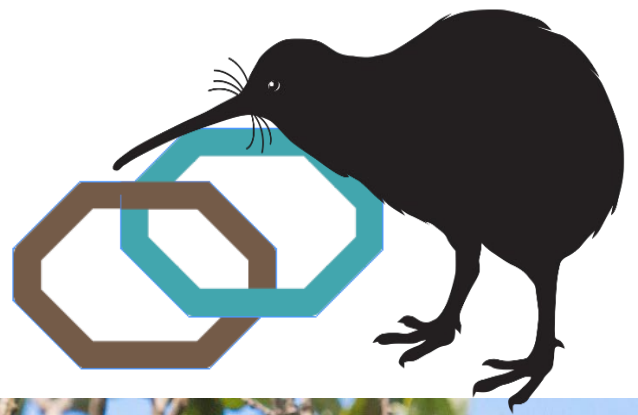


# Kiwi Link

HVA Annual Report

July 2022



## Table of Contents

Background	1	Appendix 1: Financial Contributions
Activities	1	Appendix 2: Kiwi Listening Device Results
Kiwi Link Groups and Projects	2	Appendix 3: Annual Kiwi Call Count Survey Results – Human Listening
Financial Summary	4	Appendix 4: Backyard Kiwi Monitoring of Radio Transmitted Kiwi that have moved into the Kiwi Link Area.
Objectives	6	
Communication & Engagement	9	
Innovation & Research	10	
Monitoring	11	
Summary	16	
Appendices	17	

## Background

The vision of Kiwi Link is “Flourishing flora and fauna, with abundant kiwi roaming safely between Taraunui and Ngunguru Ford by 2036”.

Community-led conservation groups involved in Kiwi Link have worked together since 2017 to protect and restore native biodiversity between Taraunui and Ngunguru Ford in eastern Whangarei. This project is named the ‘Kiwi Link’, as the primary goal was to rebuild kiwi populations and connect the kiwi strongholds of the Whangarei Heads peninsula and the Tutukaka Coast.

From 2017- 2021 Kiwi Link operated as a Community Pest Control Area (CPCA) with Northland Regional Council (NRC). Upon its completion, Kiwi Link formed a new five-year agreement with NRC, upgrading to a High Value Area (HVA).

The Kiwi Link project area has now increased to 15,000 hectares and brings in another community-led project – Glenbervie Landcare.

This report summarises the results and achievements of the Kiwi Link HVA from July 1 2021– June 30 2022.



## Activities

Over the past 12 months Kiwi Link has:

- Worked together as communities and land managers to restore native flora and fauna between Taraunui and Ngunguru Ford.
- Deployed new predator traps and bait stations to expand and fill gaps in the ever-growing predator control network.
- Coordinated animal and plant pest operations with willing landowners for maximum efficiency and effectiveness.
- Protected and grown the small remnant kiwi populations.
- Implemented robust outcome monitoring measures to track progress towards goals.
- Supplied landowners with resources to help them operate at their full potential.
- Ensured all community-led conservation projects involved could sustain professional predator control.
- Motivated and empowered further landowners to actively participate in environmental stewardship/ kaitiakitanga by holding joint community events and skill building workshops.
- Increased collaboration with tāngata whenua, Kiwi Coast, NRC, DOC, QEII National Trust and neighbouring projects to progress the creation of NZ's first kiwi corridor.

Animal and plant pest species controlled through the Kiwi Link project area included:

**Animal pests:**

- Possums
- Rodents
- Mustelids
- Feral cats
- Feral pigs
- Myna
- Magpies
- Hedgehogs
- Wasps

**Plant pests:**

- Asparagus sp.
- Banana Passionfruit
- Elaeagnus
- Glyceria maxima
- Jasmine
- Moth plant
- Pampas
- Small and Large-leaved privet
- Taiwan Cherry
- Tradescantia
- Wild ginger
- Wilding pine
- Woolly nightshade

## Kiwi Link Groups and Projects

Initially, in 2017, Kiwi Link involved eight projects working together over 13,624ha.

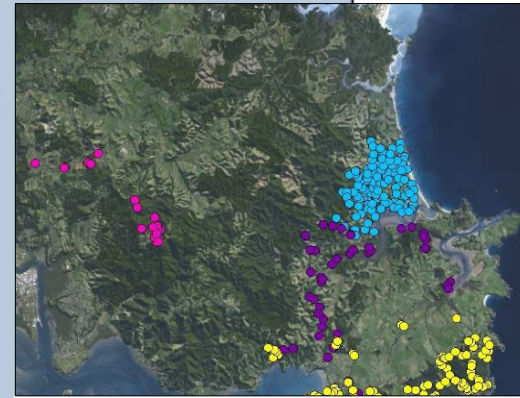
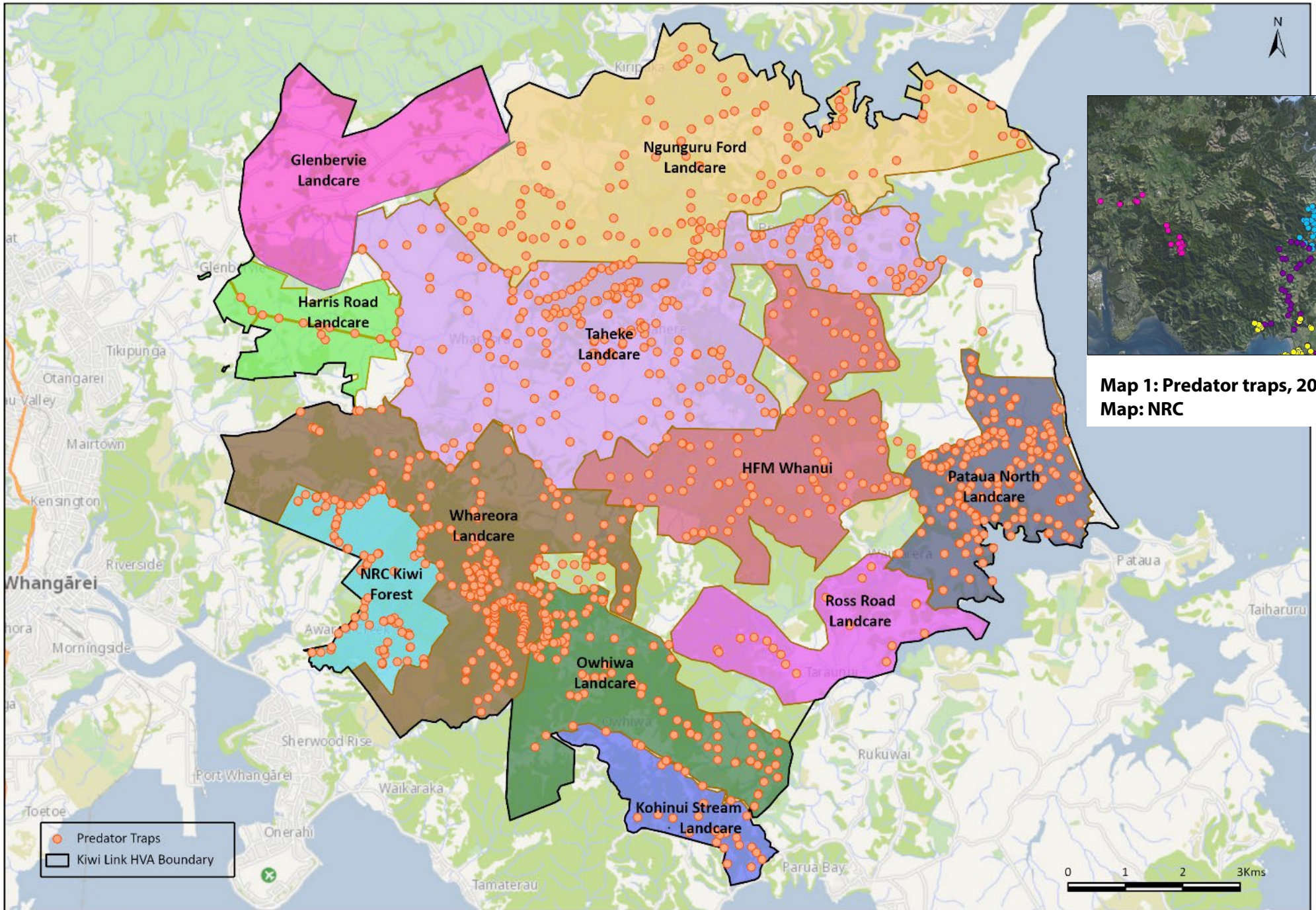
As at June 30, 2022, the combined project area has increased to approximately 15,000 hectares.

This area is collectively managed by 11 groups and projects:

- Glenbervie Landcare
- Harris Rd Area Landcare
- Kohinui Stream Landcare
- Manulife Whanui Project
- Ngunguru Ford Landcare
- NRC Mt Tiger Forestry Block
- Owhiwa Landcare
- Pataua North Landcare
- Ross Road/Taraunui Landcare
- Taheke Landcare
- Whareora Landcare

Map 2 shows the location of the project areas

As Kiwi Link grows, it seeks to further strengthen relationships with hapū and iwi and work in partnership to support and enable kaitiakitanga throughout the area.



Map 1: Predator traps, 2013.  
Map: NRC

Map 2: Kiwi Link HVA Groups & Predator traps as at June 30, 2022. Map: Biospatial

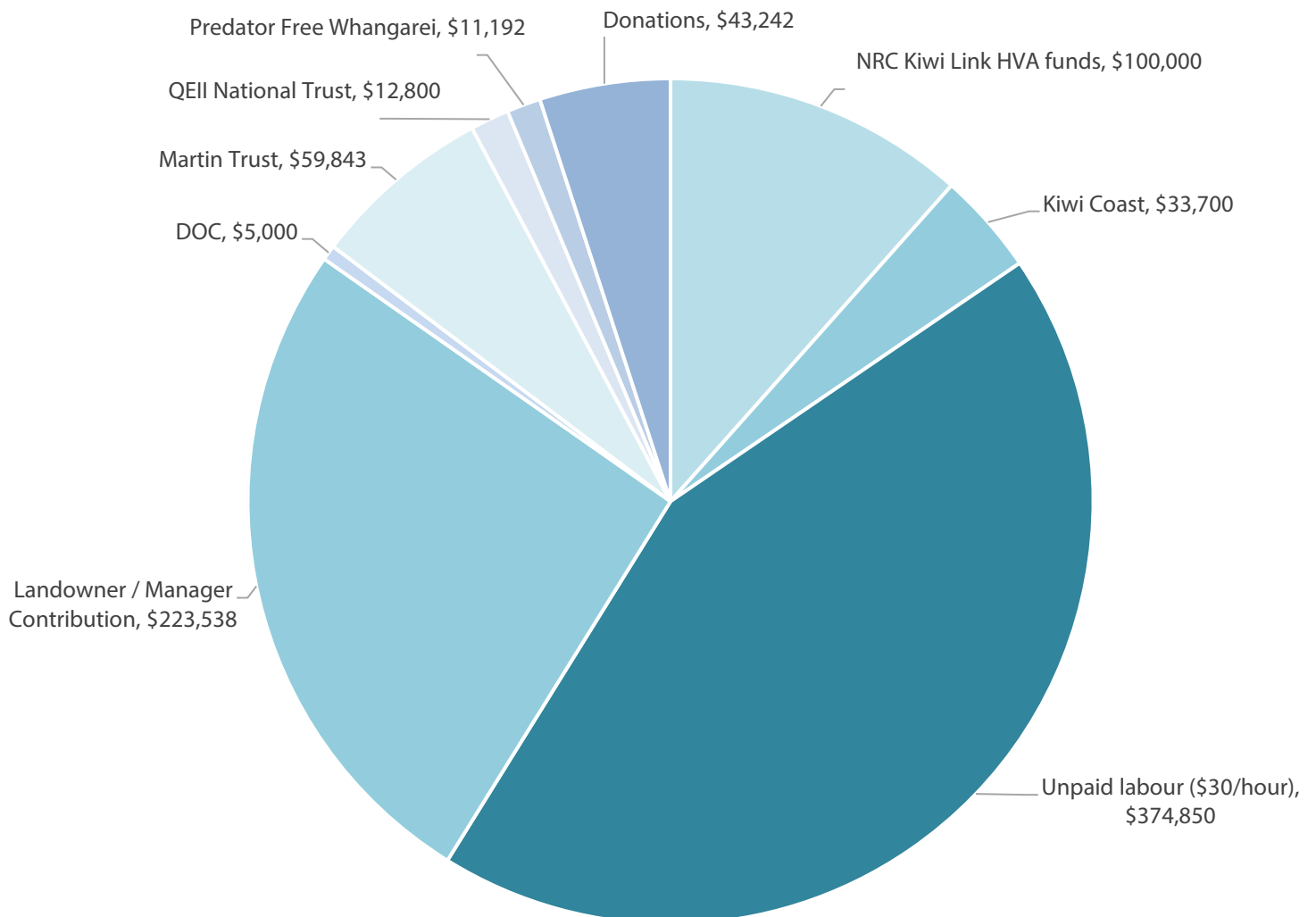
## Financial Summary

NRC's investment of \$100,000 in the Kiwi Link HVA was increased eightfold, with a total of \$864,165 resourcing the year's activities (see Table 1).

Unpaid labour by the landowners involved was the single largest contributor, totalling 374,850 or 43% of the total project value. The Kiwi Coast Trust also supplied resources and support worth \$33,700.

Other contributions were made by the QEII National Trust, DOC, Manulife Forestry, Martin Trust, Airzone, Boffa Miskell, Tahi estate and generous local sponsors keen to help and be involved (See Figure 1).

**Figure 1: Kiwi Link Financial Summary & Contributions 2021-2022**



**Table 1: Kiwi Link HVA Financial Summary & Contributions 1 July 2021- 30 June 2022**

Group or Project	NRC Kiwi Link HVA Funds	Kiwi Coast	Unpaid labour (\$30/hour)	Landowner/Manager Contribution	DOC	Martin Trust	QII National Trust	Predator Free Whangarei	Donations	Totals
Administration/Project Management	\$10,000	\$8,750	\$10,170	\$3,120	\$500	\$1,440	\$300	\$0	\$3,300	<b>\$37,580</b>
Animal Pest Control - labour	\$51,638	\$3,700	\$216,810	\$78,000	\$2,000	\$28,047	\$3,500	\$4,281	\$0	<b>\$387,976</b>
Plant Pest Control - labour	\$2,580	\$0	\$74,790	\$38,957	\$0	\$20,010	\$0	\$0	\$0	<b>\$136,337</b>
Pest Control Products - toxins, traps, herbicides	\$18,257	\$5,500	\$480	\$16,653	\$1,500	\$4,197	\$0	\$6,912	\$3,855	<b>\$57,354</b>
Planting	\$0	\$0	\$16,500	\$80,269	\$0	\$6,149	\$0	\$0		<b>\$102,918</b>
Engagement, Education and Communications	\$6,760	\$5,750	\$2,760	\$261	\$1,000	\$0	\$0	\$0	\$0	<b>\$16,531</b>
Monitoring	\$7,115	\$8,500	\$51,390	\$1,100		\$0	\$9,000	\$0	\$6,087	<b>\$83,192</b>
Other	\$3,650	\$1,500	\$1,950	\$5,178					\$30,000	<b>\$42,278</b>
<b>Totals</b>	<b>\$100,000</b>	<b>\$33,700</b>	<b>\$374,850</b>	<b>\$223,538</b>	<b>\$5,000</b>	<b>\$59,843</b>	<b>\$12,800</b>	<b>\$11,192</b>	<b>\$43,242</b>	<b>\$864,165</b>

See Appendix 1 for further details.

## Objectives

Kiwi Link HVA has progressed all five key objectives:

### [Objective 1: Enable groups to carry out efficient and effective integrated animal and plant pest control](#)

Kiwi Link budget priority was given to ensuring professional predator trappers under contract to Kiwi Coast were resourced to complete all trapping rounds for each project to complement the unpaid work of the many landowners involved.

Resources provided to groups included traps, lures, toxins, bait stations, herbicides, monitoring and safety equipment as requested. The Kiwi Link Coordinator provided technical and health and safety advice to all landowners and group leads as products were received or distributed.

For the first time in five years, thanks to increased funding from NRC, all landowner requests for animal and plant pest control products were met.

Helping to build skills and increase capacity of landowners was also seen as priority. A Trapping Workshop was hosted by Ross Road/Taraunui Landcare in June 2022. Kiwi Coast trapper Todd Hamilton shared his professional skills, expertise and knowledge to upskill landowners on a range of traps, toxins and kiwi-safe pest control practices.

### [Objective 2: Complete a continuous predator control network](#)

The Kiwi Link predator trap network targeting feral cats and mustelids (weasels, stoats and ferrets) has been continually expanded, linked and infilled since the project began.

Comparing predator traps in the area in 2013 (Map 1) to those in place at June, 2022 (Map 2) shows the impressive progress made to date.

There is now an extensive collaborative predator trap network covering the 15,000ha project area. Predator traplines of neighbouring projects are back-to-back in many places, ensuring predators have optimal opportunity to encounter devices across the landscape.

Kiwi Link HVA forms the core of the Predator Free Whangarei (PFW) 60,000ha predator control network. PFW contributed \$72,000 towards boosting the wider network, with \$11,192 of resources and paid labour coming into the Kiwi Link area.

The primary use of the PFW funds by Kiwi Link groups was the replacement of old DOC 200 stoat traps and the purchase and installation of mini-Philproof bait stations.

The installation of these bait stations will better enable controlled pulses of secondary poisons (sodium fluoroacetate and brodifacoum) for the crucial control of trap shy stoats. Trap shy stoats will have built up in areas that have predominantly been using trapping as a control method and need to be reduced for Kiwi Link to achieve its biodiversity goals.



Objective 3: Coordinate animal and plant pest control operations to maximise efficiencies and biodiversity gains

Toxins continued to be pulsed and cycled to avoid a build-up of bait shy animals. Each winter special emphasis is put on a coordinated possum and rat knockdown with willing landowners across the Kiwi Link as far as practically possible, and as resourcing allows.

In 2021 the knockdown targeted possums with Double Tap. A number of landowners continued pest control after the knockdown with controlled pulses of diphacinone, pindone, brodifacoum, or sodium fluoroacetate.

Objective 4: Rebuild Robust & Resilient Kiwi Populations

Kiwi Link utilised a multi-pronged approach to rebuild kiwi numbers and ensure populations are genetically robust.

Firstly, the breeding success and survival of existing kiwi were protected and enhanced with intensive professional predator control.

Kiwi Link also worked with Backyard Kiwi, Kiwi Coast, Department of Conservation and Northland Regional Council to support kiwi monitoring and plan for kiwi releases into Owhiwa and Taheke.

Unfortunately, these planned kiwi releases were unable to be implemented due to Covid as well as unforeseen issues arising on the Motuora Island kiwi crèche. It is hoped that kiwi releases can resume in the upcoming year.



Ross Road Pest Control Workshop, June 2022. Photo: Kiwi Link

### Objective 5: Improve Coordination and Effectiveness of Plant Pest Control

A potential negative effect of animal pest control is an increase in plant pests. Groups involved in Kiwi Link continued their plant pest control, targeting the most pervasive weeds as a priority.

In the past 12 months alone, landowners and managers contributed \$113,747 of plant pest control labour. This demonstrates the huge amount of effort going into the Kiwi Link area to keep invasive plant pests at bay.

For the first time, Kiwi Link plant pest control was also supported by a dedicated Weed Action Coordinator, Wendy Ambury. Monthly 'Focus on Weeds' newsletters featuring targeted "weeds of the month", accompanied by information on key identification features and a range of control methods were distributed.

Over summer, three community weedy working bees were held. These were held at the request of various Kiwi Link community groups to bring people to work together to control large weed infestations on private property where landowners needed help.



Ngunguru Ford Landcare Weedy Working Bee March 2022. Photo Wendy Ambury

## Communication & Engagement

Communication and engagement have increased over the last 12 months.

The new Strategic Plan completed for the Kiwi Link HVA has assisted with refining and communicating the goals of the project.

A new dedicated Kiwi Link website in development is due for completion in late 2022. The website will help promote the work and achievements of the Kiwi Link HVA and enable landowners within the project area to find information about how to get involved or access resources.

In addition to the traditional trapper workshops held each year, a Kiwi Coast "Know Your Dog Workshop" was run by Kiwi Conservation Dog Handler and retired vet Lesley Baigent in December 2021.

The workshop was well attended, bringing together keen dog owners from throughout the Kiwi Link area, including a number of new landowners.

The new seasonal "weedy working bees" hosted by varying Kiwi Link groups have also proven a popular way for landowners from different groups to meet and tackle problem areas together.



## Innovation & Research

Boffa Miskell worked with Whareora Landcare and Kiwi Coast and to carry out a three-month field trial of “Ezylure” automatic lure dispensers at Mt Tiger over the 2021-22 summer.

Critter Solutions’ EzyLure automatic mayonnaise dispensing lure units were retrofitted to 20 DOC250 and 25 Trapinator traps. Trap catch rates were then compared with the same trap types baited with Erazz for the DOC traps and peanut butter for Trapinators. The trial ran over a 3-month period between the August and October of 2021. Traps were supplied by Boffa Miskell and checked five times with help from Kiwi Coast trappers from Untamed NZ.

A total of 28 rats were caught in DOC250 traps, of which 22 (79%) were in traps retrofitted with an EzyLure unit and only 6 with a standard Erazz lure. Catch rates of rats were significantly higher using an EzyLure unit compared to a standard lure in 4 of the 5 trap checks. A total of 41 possums were caught in Trapinators, of which 21 (51%) were caught with an EzyLure system and 20 were caught with a standard peanut butter lure (which was refreshed as required). Catch rates of possums were higher using an EzyLure unit compared to a standard lure in the first 3 trap checks, however, it is suspected that the resident possum population was significantly reduced by the 4th and 5th trap checks, limiting the catch rates for EzyLure traps after that.

Overall, the EzyLure units proved highly reliable in the field and required no servicing. Following the Mt Tiger trial they were moved to a new field trial site where they have continued to function for well for over 9 months without servicing. The lure continues to be highly attractive and catches all target species (including rats, stoats, possums and feral cats). The EzyLure systems are planned for commercial availability late this year.

It should be noted that the main stoat lure used by Kiwi Link trappers is salted rabbit. Salted rabbit has proven to be far more effective than Erazz lure. It would be interesting to further trial the EzyLure mayonnaise dispensers on DOC 200 stoat traps against salted rabbit lures and compare results.



Sarah Hockings from Boffa Miskell checks an EzyLure dispenser on a DOC250, Mt Tiger. Photo: Whareora Landcare

## Monitoring

All scheduled monitoring has been completed.

### Animal Pests

All Kiwi Link projects recorded their trap catches and submitted their results to Kiwi Coast as part of the annual collation of Northland data.

During 2021, Kiwi Link groups and projects trapped 9,509 animal pests. Collating the trap catch data gathered since Kiwi Link began shows that a total of 36,958 pests have been trapped since 2017 (Table 2).

However, the steadily decreasing number of stoats being caught despite the increasing number of mustelid traps in the network may indicate a build up of trap-shy or 'untrappable' stoats. This needs to be urgently addressed via a pulse of secondary toxin at appropriate locations. Kiwi Link calls upon NRC and DOC to assist with coordinating this, leading the way with their management blocks.



**Table 2: Kiwi Link Total Collective Pest Control Results, 2017 – 2021**

Year	Possums	Rats	Ferrets	Stoats	Weasels	Feral Cats	Wild Rabbits & Hares	Feral Pigs	Magpie	Myna	Hedgehog	Mice	Other catches	Total
2017	3,692	2,379	1	164	127	48	111	71	11	115	210	291	17	7,237
2018	2,535	2,607	0	178	134	46	69	99	26	76	183	208	83	6,244
2019	2,641	2,761	0	125	103	58	186	224	30	74	210	162	22	6,596
2020	3,843	2,313	0	106	95	67	395	144	7	66	230	102	4	7,372
2021	4,795	3,584	0	86	66	98	259	135	31	23	293	118	21	9,509
<b>Grand Totals</b>	<b>17,506</b>	<b>13,644</b>	<b>1</b>	<b>659</b>	<b>525</b>	<b>317</b>	<b>1,020</b>	<b>673</b>	<b>105</b>	<b>354</b>	<b>1,126</b>	<b>881</b>	<b>147</b>	<b>36,958</b>

NB: Trap catch results only - actual tally will be higher as does not include pests controlled with toxins

## Kiwi

All Kiwi Link projects participated in the Annual Kiwi Call Count Survey, either with human listeners or with Kiwi Listening Devices (KLDs). This monitoring showed that kiwi are increasing within the Kiwi Link HVA, with a record number of kiwi calls recorded at the Manulife Whanui site. Kiwi are also now present at new sites where previously they were unable to be detected. For example, the first kiwi call in decades was recorded by Glenbervie Landcare in 2022. Results are presented in Appendices 2 and 3.

Monitoring also suggests that the translocations of kiwi into Taheke and Pataua North has had the desired result of increasing the number of breeding pairs at both the translocation sites and surrounding areas. Duetting kiwi pairs have been recorded for the first time in 2022 at new sites within the Ngunguru Ford, Whanui, and Taheke project areas. While retaining radio transmitters on kiwi released by Taheke Landcare would have helped confirm subsequent breeding success, DOC permits required transmitter removal after 6 weeks and applications to extend the monitoring period were declined.

## Monitoring of Radio Transmitted Kiwis

Fortunately, a number of kiwi fitted with transmitters that have either been previously released or have naturally dispersed into the Kiwi Link area continue to be monitored by Carl Dowd at Pataua North and Backyard Kiwi Project Manager Todd Hamilton (See Appendix 4). This monitoring confirmed the successful nesting of Owhiwa kiwi “Chookie”, who produced two healthy chicks during the last season.

Together the various kiwi monitoring methods being utilised across the Kiwi Link HVA shows that the kiwi population is both increasing and dispersing successfully.

However, uncontrolled dogs remain the biggest threat to adult Northland kiwi and can quickly undo years of hard work. In an area such as Kiwi Link, where every breeding adult is critical to the success of the small and scattered kiwi population, the commitment of communities to exemplary dog control is crucial. A stark reminder of this was the kiwi released by Taheke Landcare found dead in the Ngunguru Forest Block. A subsequent autopsy by Massey University suggested a dog was responsible.



“Chookie” the monitored kiwi and his two kiwi chicks, December 2021. Photo: Todd Hamilton

## Pāteke

Pāteke are the rarest mainland duck in New Zealand. Congregations of pāteke at Northland flock sites have been counted annually in February since 1988 to monitor population trends.

Kiwi Coast has worked each year with community groups, specialist staff at DOC, the Pāteke Recovery Group and NorthTec to assist with the flock counts and investigate new sites in the Kiwi Link area.

Analysis of the 2022 Pāteke Flock Count data confirmed that the ducks have continued to flourish on Northland's east coast where intense predator control has been sustained. However, numbers have dipped with 595 counted in 2022, down from 661 in 2021, and 704 in 2020 (See Figure 2).

Mike Camm from the Pāteke Recovery Group suggested droughts were responsible for the dip:

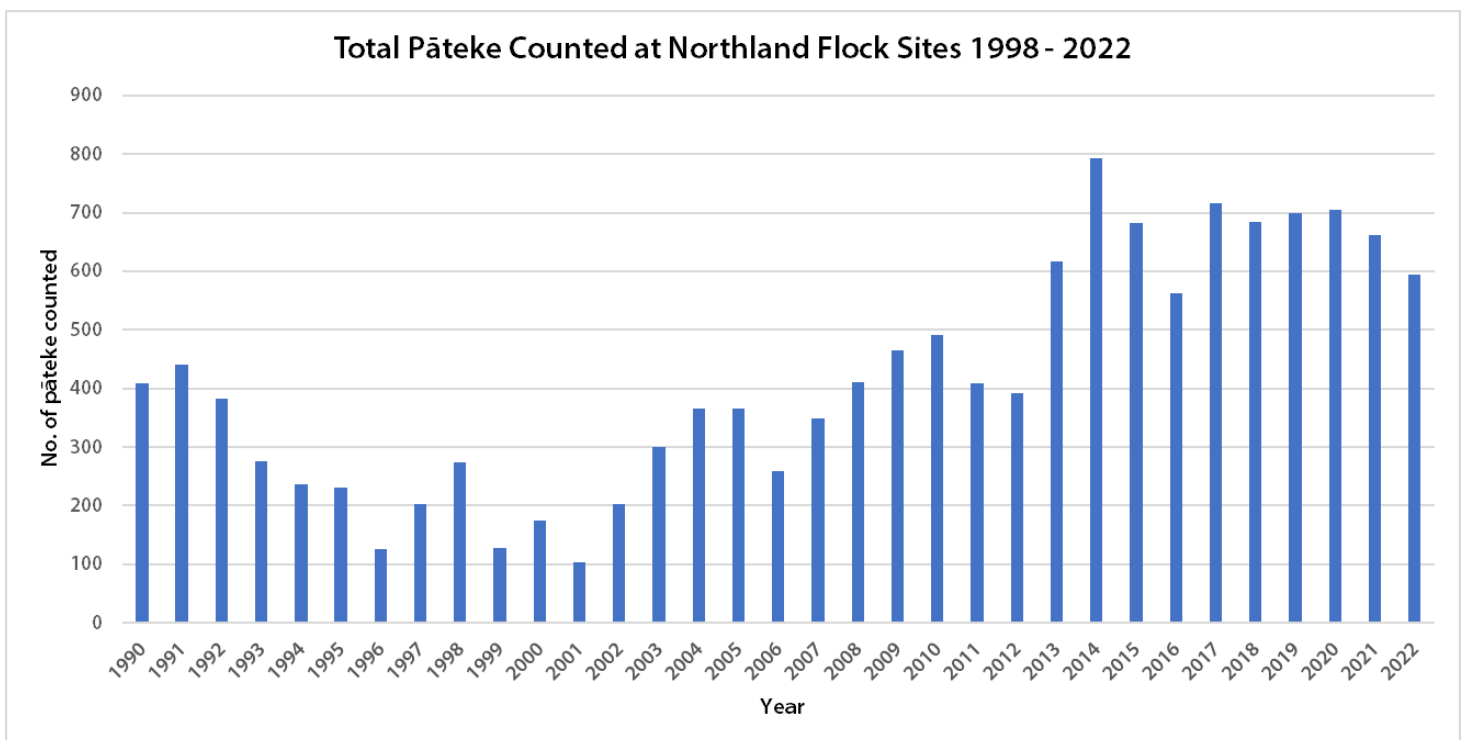
*"This could well reflect the impact of the two previous summer droughts. During a dry summer, smaller waterways and ponds often dry up.*

*Pāteke are then more likely to congregate at the known flock sites that have large, reliable water sources – especially the young and unattached birds, chased away from their natal ponds by the dominant parents.*

*With increased dry years one of the likely impacts of climate change in Northland, waterways and wetlands will become even more crucial for the survival of native wildlife such as pāteke.*

*A traditional flock site such as Mimiwhangata has probably seen their flock count peak some years ago, with young birds flying out to find new territory. The lucky ones will settle in the safe sanctuary provided by sustained predator control.*

*With the amount of predator control expanding each year in Northland, thanks in the main to the initiative, passion and drive of community groups, supported by Kiwi Coast with funding from the NRC, the likelihood of this happening is also increasing. The not so lucky will fail to survive in the absence of any trapping at their final destination."*



**Figure 2: Northland Pāteke Flock Count Data. Source: Dept of Conservation, 2022**



## Five Minute Bird Counts

One of the aims of the Kiwi Link is to have flourishing fauna across the management area. To track progress towards this goal, annual targeted Five Minute Bird Counts have been carried out for the past four years, using special methodology developed by Dr Dai Morgan, NorthTec Conservation Management Tutor.

Eight key native bird species were monitored: tui, kingfisher/kotare, waxeye/ riroriro, kukupa, tomtit/miromiro, fantail/piwakawaka, kākā and bellbird/korimako.

Each year the results were analysed by Dr Morgan as shown in Figure 3, with the latest data indicating that these bird species are indeed increasing across the Kiwi Link HVA.

Increased observations of kākā have also been received during the year from Kohinui, Owhiwa, Mt Tiger and Harris Rd landowners.

Dr Morgan stated:

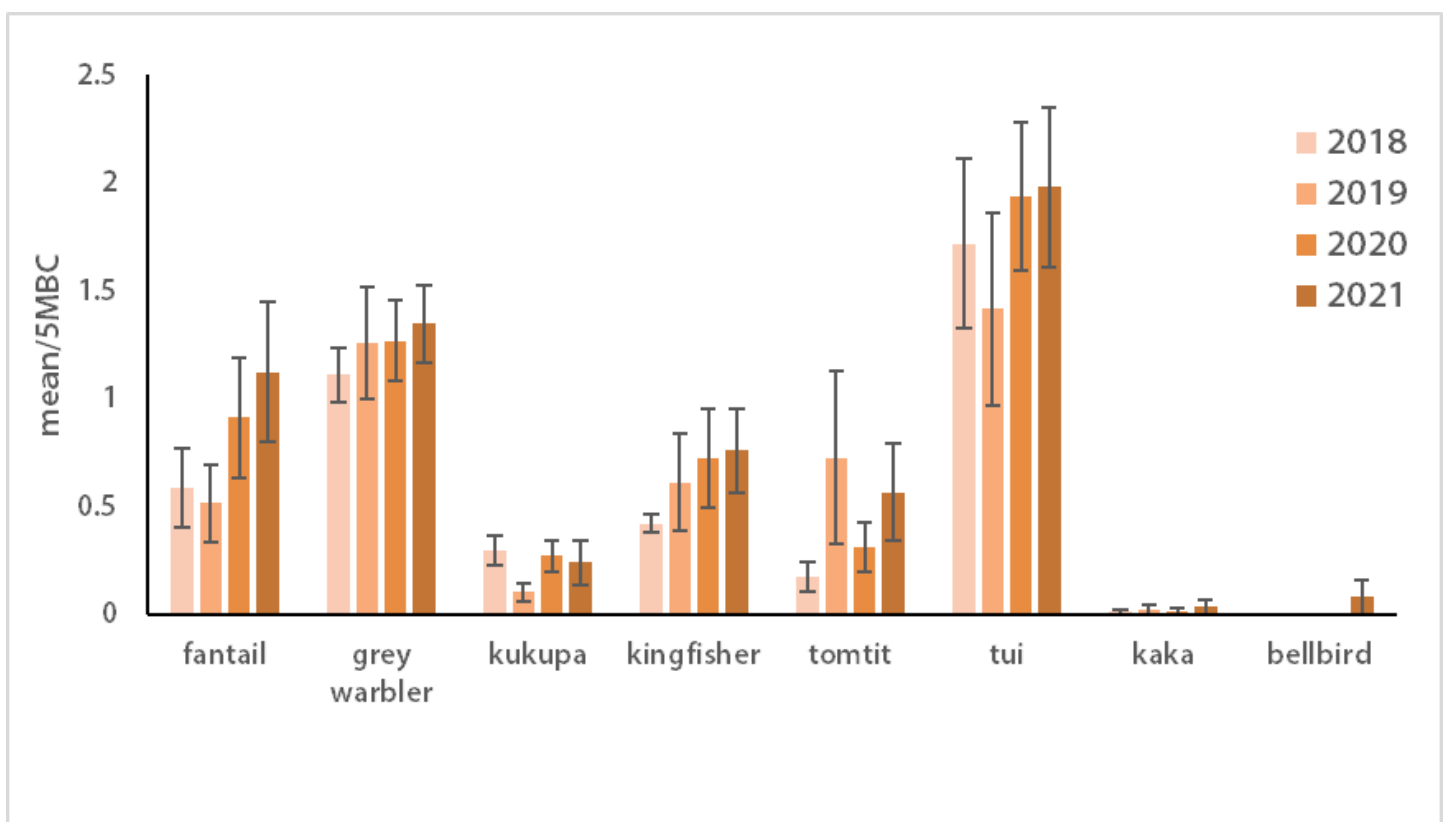
*"It is pleasing to see the upward trend in bird abundance continue for the Kiwi Link project.*

*Only one species (kukupa) had an abundance lower than that recorded in 2020; however, the decline was small and appears to be within the margin of error.*

*It is encouraging to see the mean species detected per site increasing considerably to 3.58/site from 2.89/site in 2020. Remarkably, there has been an increase in the mean number of species detected each year since counts began in 2018.*

*Of particular note is the recording of bellbird for the first time during the Kiwi Link Five Minute Bird Counts by Harris Rd Landcare, who also recorded kākā in their area for the first time.*

*Together these results suggest the hard work by the communities in controlling pests is achieving the desired results of not only increased birdsong, but an increase in bird species. Further monitoring will hopefully continue to demonstrate these upward trends."*



**Figure 3: Mean abundance (SE) of key bird species across Kiwi Link Sites (2018-2021)**

## Summary

Over the past year the Kiwi Link HVA has been a success with good progress made towards all five objectives. All groups involved have worked well together, carrying out animal and plant pest control and monitoring over 15,000 hectares.

In addition to funds provided during the 2021/22 financial year by NRC and Kiwi Coast Trust, local land managers, research partners, businesses and private landowners contributed \$730,465 of unpaid labour and resources. This significant contribution demonstrates the outstanding commitment and dedication of the groups and projects involved to their native forests, wildlife and kiwi.

New predator traps and bait stations installed into key gaps thanks to additional funds from Predator Free Whangarei have further linked traplines of neighbouring groups together into a growing combined predator control network. As Kiwi Link lies at the heart of the PFW 60,000ha mustelid suppression zone, it has a critical role to play in this project.

The removal of 36,958 roaming animal pests over the past six years has improved forest health and helped to restore birdsong to the once near-silent forests.

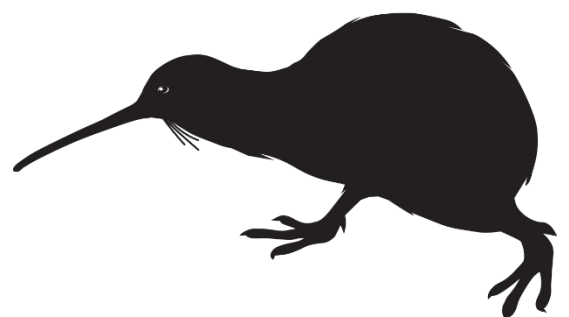
Kiwi are going from strength to strength within the Kiwi Link HVA as evidenced not only by increasing kiwi call rates but also confirmation of a number of new sites with breeding pairs.

Additional monitoring data, including five-minute bird counts, show upward trends in populations of a range of other native species. Increasing observations of key species such as kākā and korimako / bellbird bring hope that such species will return in strength.

These results can be attributed to the ongoing hard work carried out by the many local landowners and land managers involved. The achievements of the Kiwi Link HVA will also be resulting in a beneficial 'halo' effect for the adjoining Whangarei Heads and Tutukaka biodiversity strongholds. Less pests will be re-invading these areas and native wildlife will be spilling into them.

Kiwi Link thanks NRC for the continued support and resources over the past six years. The strong working relationship formed with NRC Biosecurity officers and managers has provided a strong foundation for the success of the project.

Huge thanks are also due to all the private landowners, professional predator trappers and land managers who have been servicing traps, filling bait stations, counting birds and collecting data for the past six years (and more!). The immense community effort and leadership remains the key to success. Without it, our local native forests and wildlife would have remained in decline.



**Appendix 1: Kiwi Link HVA Financial Contributions, July 1 2021 – June 30, 2022**

nb: all figures exclude gst

	NRC Kiwi Link HVA funds	Kiwi Coast	Unpaid labour (\$30/hour)	Contribution by Landowner / manager	DOC	Martin Trust	QEII National Trust	Predator Free Whangarei	Donations	Totals
<b>Administration / Project Management</b>	<b>\$10,000</b>	<b>\$8,750</b>	<b>\$10,170</b>	<b>\$3,120</b>	<b>\$500</b>	<b>\$1,440</b>	<b>\$300</b>	<b>\$0</b>	<b>\$3,300</b>	<b>\$37,580</b>
Harris Rd Area Landcare			\$300							
Manulife - Whanui & Ngunguru				\$1,560						
Kohinui Landcare			\$300							
Ngunguru Ford Landcare			\$300							
NRC - Mt Tiger Pines Block			\$0	\$1,560						
Owhiwa Landcare			\$780			\$1,440				
Pataua North Landcare			\$3,540						\$2,800	
Ross Rd/Taraunui Landcare			\$300							
Taheke Landcare			\$3,000							
Whareora Landcare			\$1,650						\$500	
<b>Animal Pest Control - labour</b>	<b>\$51,638</b>	<b>\$3,700</b>	<b>\$216,810</b>	<b>\$78,000</b>	<b>\$2,000</b>	<b>\$28,047</b>	<b>\$3,500</b>	<b>\$4,281</b>	<b>\$0</b>	<b>\$387,976</b>
Harris Rd Area Landcare			\$88,500							
Manulife - Whanui & Ngunguru				\$6,000						
Kohinui Landcare			\$30,630							
Ngunguru Ford Landcare			\$2,310							
NRC - Mt Tiger Pines Block			\$0	\$8,000						
Owhiwa Landcare			\$29,310			\$28,047				
Pataua North Landcare				\$64,000						
Ross Rd/Taraunui Landcare			\$10,500							

Taheke Landcare			\$16,260							
Whareora Landcare			\$39,300							
<b>Plant Pest Control - labour</b>	<b>\$2,580</b>	<b>\$0</b>	<b>\$74,790</b>	<b>\$38,957</b>	<b>\$0</b>	<b>\$20,010</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$136,337</b>
Harris Rd Area Landcare			\$3,000							
Kohinui Landcare			\$46,770	\$957						
Ngunguru Ford Landcare			\$3,060							
Owhiwa Landcare			\$4,950			\$20,010				
Pataua North Landcare				\$38,000						
Ross Rd/Taraunui Landcare			\$1,500							
Taheke Landcare			\$960							
Whareora Landcare			\$14,550							
<b>Pest Control Products - toxins, traps, herbicides</b>	<b>\$18,257</b>	<b>\$5,500</b>	<b>\$480</b>	<b>\$16,653</b>	<b>\$1,500</b>	<b>\$4,197</b>	<b>\$0</b>	<b>\$6,912</b>	<b>\$3,855</b>	<b>\$57,354</b>
Harris Rd Area Landcare				\$1,000						
Kohinui Landcare			\$480	\$350						
Owhiwa Landcare				\$500		\$4,197				
Pataua North Landcare				\$10,605					\$3,855	
Taheke Landcare				\$3,873						
Whareora Landcare				\$325						
<b>Planting</b>	<b>\$0</b>	<b>\$0</b>	<b>\$16,500</b>	<b>\$80,269</b>	<b>\$0</b>	<b>\$6,149</b>	<b>\$0</b>	<b>\$0</b>		<b>\$102,918</b>
Pataua North Landcare			\$8,700	\$78,200						
Kohinui Landcare			\$1,200	\$2,069						
Owhiwa Landcare			\$600			\$6,149				
Taheke Landcare			\$3,000							
Whareora Landcare			\$3,000							

<b>Engagement, Education and Communications</b>	<b>\$6,760</b>	<b>\$5,750</b>	<b>\$2,760</b>	<b>\$261</b>	<b>\$1,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$16,531</b>
Pataua North Landcare			\$900	\$261						
Taheke Landcare			\$360							
Whareora Landcare			\$1,500		\$1,000					
<b>Monitoring</b>	<b>\$7,115</b>	<b>\$8,500</b>	<b>\$51,390</b>	<b>\$1,100</b>		<b>\$0</b>	<b>\$9,000</b>	<b>\$0</b>	<b>\$6,087</b>	<b>\$83,192</b>
Harris Rd Area Landcare			\$600							
Manulife - Whanui & Ngunguru				\$100						
Kohinui Landcare			\$300							
Ngunguru Ford Landcare			\$300							
NRC - Mt Tiger Pines Block				\$1,000						
Owhiwa Landcare			\$60							
Pataua North Landcare			\$48,630							
Whareora Landcare			\$1,500							
<b>Other</b>	<b>\$3,650</b>	<b>\$1,500</b>	<b>\$1,950</b>	<b>\$5,178</b>					<b>\$30,000</b>	<b>\$42,278</b>
Taheke Landcare			\$1,200							
Pataua North Landcare				\$5,178						
Trial New Technology	\$3,650									
Boffa Miskell EzyLure Fieldtrial			\$750						\$30,000	
<b>TOTALS</b>	<b>\$100,000</b>	<b>\$33,700</b>	<b>\$374,850</b>	<b>\$223,538</b>	<b>\$5,000</b>	<b>\$59,843</b>	<b>\$12,800</b>	<b>\$11,192</b>	<b>\$43,242</b>	<b>\$864,165</b>

## Appendix 2: Kiwi Listening Device Results 2020 - 2022

ns - not surveyed  
 f kld - faulty kiwi listening device  
 nd - no data

Group/ Project	Site Name	2020						2021						2022					
		SPAN in hours	Total no. calls	M	F	Duets	Calls per hour	SPAN in hours	Total no. calls	M	F	Duets	Calls per hour	SPAN in hours	Total no. calls	M	F	Duets	Calls per hour
Glenbervie Landcare	Lisas House	ns						ns						50	1	1	0	0	<b>0.02</b>
Glenbervie Landcare	Daileys Farm	ns						ns						70	0	0	0	0	<b>0.00</b>
Manulife - Whanui	Oyster	28	49	43	6	5	<b>1.75</b>	20	35	28	7	7	<b>1.75</b>	56	101	74	27	17	<b>1.80</b>
Manulife - Whanui	Toheroa	28	3	3	0	0	<b>0.11</b>	20	16	14	1	2	<b>0.80</b>	56	26	18	8	3	<b>0.46</b>
Manulife - Whanui	Mussell	28	72	54	18	12	<b>2.57</b>	20	44	35	9	8	<b>2.20</b>	56	198	158	40	29	<b>3.54</b>
Harris Rd Landcare	Easterbrook Farm	70	0	0	0	0	<b>0.00</b>	60	0	0	0	0	<b>0.00</b>	50	0	0	0	0	<b>0.00</b>
Kohinui Stream Landcare	Kauri Villas	ns						60	5	2	3	1	<b>0.08</b>	50	4	4	0	0	<b>0.08</b>
Mangahui	Neil & Forrester	ns						60	34	26	8	2	<b>0.57</b>	50	24	21	3	0	<b>0.48</b>
Ngunguru Ford Rd Landcare	Steve McQuoids	70	26	22	4	3	<b>0.37</b>	0	f kld					50	15	10	5	3	<b>0.30</b>
Ngunguru Ford Rd Landcare	Robbies Driveway	70	2	0	2	0	<b>0.03</b>	0	f kld					50	11	8	3	1	<b>0.22</b>
NRC Mt Tiger Forest	Site 1 - Original	38	7	6	1	0	<b>0.18</b>	60	14	12	2	0	<b>0.23</b>	50	16	12	4	1	<b>0.32</b>
NRC Mt Tiger Forest	MT21	pete has data?						15	18	15	3	3	<b>1.20</b>	8	21	15	6	nd	<b>2.63</b>
NRC Mt Tiger Forest	MT22	pete has data?						17.5	5	4	1	1	<b>0.29</b>	8	2	2	0	nd	<b>0.25</b>
NRC Mt Tiger Forest	MT25	pete has data?						18	0	0	0	0	<b>0.00</b>	8	0	0	0	nd	<b>0.00</b>
NRC Mt Tiger Forest	MT26	pete has data?						12	1	1	0	0	<b>0.08</b>	8	9	5	4	nd	<b>1.13</b>
NRC Mt Tiger Forest	MT29	pete has data?						15	30	19	11	8	2.00	6	16	10	6	nd	2.67
Owhiwa Landcare	Mullooly	70	3	0	3	1	0.04	84	0	0	0	0	0.00	50	0	0	0	0	0.00

Group/ Project	Site Name	SPAN in hours	Total no. calls	M	F	Duets	Calls per hour	SPAN in hours	Total no. calls	M	F	Duets	Calls per hour	SPAN in hours	Total no. calls	M	F	Duets	Calls per hour
Owhiwa Landcare	Bob & Carol	70	17	14	3	2	0.24	84	8	8	0	0	0.10	50	23	13	10	6	0.46
Owhiwa Landcare	Kerry Martin: watertanks	ns						ns						50	37	17	20	8	0.74
Owhiwa Landcare	Kerry Martin: back fence	ns						ns						50	77	49	28	10	1.54
Owhiwa Landcare	Petersons	ns						50	17	17	0	0	0.34	ns					
Ross Rd/ Taraunui Landcare	Lifshutz	50	8	8	0	0	0.16	60	25	20	5	2	0.42	60	16	16	0	0	0.27
Taheke Landcare	Saparelli	70	23	18	5	4	0.33	ns						50	35	25	10	8	0.70
Taheke Landcare	Taheke Scenic Reserve	ns						ns						50	23	8	15	3	0.46
Taheke Landcare	Norman Boundary	ns						ns						50	13	9	4	2	0.26
Whareora Landcare	MSR 1: Listening Site Bluff	70	0				0.00	84	0	0	0	0	0.00	50	1	0	1	0	0.02
Whareora Landcare	MSR 2: Reg & Kahu's Log	70	0				0.00	60	0	0	0	0	0.00	70	0	0	0	0	0.00
Whareora Landcare	MSR 3: Above Home Stream	70	0				0.00	60	0	0	0	0	0.00	70	0	0	0	0	0.00
Whareora Landcare	Holwell Ridge	70	0				0.00	60	0	0	0	0	0.00	50	0	0	0	0	0.00
Whareora Landcare	Simon & Sue - The Knob	70	0				0.00	60	0	0	0	0	0.00	50	0	0	0	0	0.00
Whareora Landcare	Waikaraka Walkway Top Rimu	ns						ns						50	14	8	6	4	0.28
Whareora Landcare	Waikaraka Walkway Cedar Knoll	ns						ns						60	88	65	23	20	1.47
Whareora Landcare	Waikaraka Walkway Top Pines	ns						ns						50	3	1	2	0	0.06
Whareora Landcare	Waikaraka Walkway Junction West	ns						ns						50	17	12	5	2	0.34

**Appendix 3: Annual Kiwi Call Count Survey Results – Human Listening: 2014 – 2022**

Project/Group	Site Name	Easting	Northing	Human Listening: Kiwi Call Count Survey Average No. Calls Per Hour								
				2014	2015	2016	2017	2018	2019	2020	2021	2022
Kohinui Stream Landcare	Kauri Villas	1726717	6045466	-	-	-	0.375	0.375	0	0	0	0
Pataua North Landcare	Kumara Pit	1735036	6047730	-	-	-	-	-	-	-	2.25	3.4
Pataua North Landcare	Ohuatahi	1734754	6047333	-	-	-	-	-	-	-	2.63	4.1
Pataua North Landcare	Sue's bus	1736104	6046851	-	-	-	-	-	-	-	2.88	-
Whareora Landcare	MSR1: bluff ridge	1727254	6045154	1	0.88	0.66	0.75	0.125	0	0	0	0



#### **Appendix 4: Radio Transmitted Kiwi that have moved into the Kiwi Link HVA from the Backyard Kiwi Area.**

Todd Hamilton, Backyard Kiwi Project Manager,  
June 2022

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##### *2022 Update of monitored kiwi in or near the Kiwi Link area:*

**Chookie** an adult male released in 2021. He has remained in the Martins' dog free Forestry block on Owhiwa Road and found a mate. After several unsuccessful nesting attempts, he successfully hatched two chicks in December 2021.

**Malaika** She was released at Parua Bay in 2019. She is 4.5 years old now and almost fully grown. After travelling 10km north to the Whanui forestry block she made her way back to settle at Martins' Forestry block east of Owhiwa Road. She looks to have paired up with the 2021 released male Chookie.

**Teina** He was released at Parua Bay in 2019 and moved his way into the Kiwi Link area. He is now well settled at Martins' Forestry block east of Owhiwa Road. He did not show any nesting activity this season and has fattened up to a very heavy 3025g.

**Ross** An adult male released in 2018 who headed west passing through the Kiwi Link area and eventually settled at the top of Pepi road. He is yet to breed and unfortunately dropped his transmitter recently.

**Pepi** Is a wild hatched and grown kiwi (he had no ID chip) that was found with Ross. He is a male kiwi and finding two males together is very unusual. He now has a radio transmitter and is being monitored at Pepi Road.

**Wally** This male was released back in 2008 at Kauri Mt and turned up in 2018 at Campbell Road with a tracked Parua Bay released female. Although not in the Kiwi Link area he continues to produce chicks very nearby. Once again, this guy made a super nesting effort with back-to-back nests producing two chicks this season.

**Beach Girl** This adult female was rescued from the DOC Moturoa Island crèche during the 2020 drought and released at Taraunui Road. She is now 2650g in weight after being a very skinny 1500g on rescue. She has moved NW to the Halses' property on Ross Road and has been settled there for the breeding season.

**Valentine** a young female kiwi released in 2021 who has wandered around the pine blocks east of Owhiwa road, then over to Taraunui Road before return to the pines on Owhiwa Road.

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##### *Previously monitored kiwi that moved into the Kiwi Link area:*

2003: **Vinnie** was released by DOC at the Nook and travelled north to the middle of Campbell Road before dropping his transmitter.

2007 Adult female **Melville** travelled North from Timperly Rd and was located by DOC right at the end of Taraunui Rd in the Pataua North area on 30/10/2007 before contact was lost.

2006 Adult male **Darwin** walked from southern Manaia to Lamb Road and settled there. He did not breed until 2011 but since then has successfully hatched over 20 chicks - most of them transponded (ID chipped). One of those chicks "**James**" was found drowned in a lifestyle block stock trough at Owhiwa Rd in January 2014.

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*In 2018 five kiwi were released by Backyard Kiwi north of the Parua Bay village.*

One, **Rukuwai**, headed east to the Kerr Road/ Kauri Mt area but the others have all remained in the Kiwi Link area or on its border:

**Harikoa** after time on Taraunui Road she is now halfway down Campbell Road. She settled at the NE end of Campbell Road and her transmitter was removed in 2021.

**Mokopuna** is a female who headed to the north end of Campbell Road and found a mate "**Wally**" (who unknown to us had walked out of the BYK area in 2009). This pair have now had many successful nests together.

**Mia** was in the pines north of her Parua Bay release spot when her transmitter failed

**Ross** an adult male, headed west and after spending time in the Kohinui Valley and Parua Bay is now settled at Pepi Road. He is the most westerly of the known kiwi.

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*In February 2019 four more kiwi were released north of the Parua Bay village.*

**Teina** an adult male who headed NW and has settled in the large pine block on the east side of Owhiwa Road.

**Malaika** a young female spent time at Taraunui Road before heading over to the same pine block on Owhiwa road as Teina

**Awahi** an adult female- travelled south to the Parua Bay village, then east as far as Kohinui Valley (opposite the pub) where she spent several months before walking back to her release site in the pines at Taraunui Road. She then headed North-East down the end of Campbell Road, where settled and her transmitter was allowed to fall off in 2021.

**Pakiri** a young kiwi headed north and spent time at Ross Road and the northern end of Taraunui road before turning up in the Whanui pine plantation. This guy was found dead late in 2019- possibly killed by a dog.

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*In February 2020 a further five kiwi were released by BYK north of the Parua Bay village*

**Hancock** an adult female has worked her way towards the top end of the Kohinui valley (between Franklin Road and Owhiwa Road)

**Taonga** another adult female who was fitted with a temporary transmitter was tracked to the pines east of Owhiwa Road.

**Kohi** an adult male named by Kohinui Landcare was proving to be a great kiwi ambassador by first moving down Taraunui Road and then heading across to Owhiwa Road. Unfortunately, he was run over there on the last night before the first covid lockdown.

**Jemina** a young female kiwi just kept heading north until she settled in the Whanui Pine plantation on the Pataua North Road.

**Kaitiaki** This girl had headed westward to Owhiwa Road before using the quiet roads of the lockdown period to head through the Parua Bay village area and then south to Mt Manaia.

In late May 2020 **Beach Girl**, a malnourished adult female, was released into a wetland on Taraunui Road after being rescued from a drought stricken Moturoa island. She settled in well and recovered significant weight and condition.

Likewise, another kiwi rescued from Moturoa, a young male **Ngaehe**, was nursed back to health and released in July 2020. Unfortunately, a poorly controlled pet dog from Ross Road killed him a week later.

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## 2021 Update

**Hancock** settled at the top end of the Kohinui valley (between Franklin Road and Owhiwa Road) before dropping her transmitter.

**Malaika** is 3.5 years old now and after travelling 10km north to the Whanui forestry block she has made her way back to settle at Martins' Forestry block east of Owhiwa Road. She may have paired up with the 2021 released male Chookie.

**Teina** is well settled at Martins' Forestry block east of Owhiwa Road. He made a nesting attempt in late November 2020 that lasted 97 days until in March 2021 it was found that he had been incubating a rock! This just shows how keen that he is to nest.

**Ross** still settled at the top of Pepi road but he is yet to breed.

**Wally** is well and truly making up for lost breeding time and had two back-to-back nests producing 4 chicks at the end of Campbell Road this year

**Beach Girl** seems to have recovered after her 2020 rescue transfer and is now over 2500g in weight cf under 1500g on rescue from Moturoa. She is settled northwest of Ross Road.

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*In February 2021 a further five kiwi were released by BYK north west of the Parua Bay village*

**Cook** an adult female named after Owhiwa Road founder Neil Cook. She settled in well at Martins' Forestry block east of Owhiwa Road after first going for a wander through Kohinui Valley up to Franklin Road and back. Once settled her temporary transmitter was allowed to fall off.

**Aroha** an adult female who was released with the male Chookie as a pair but she headed south to the pines at the southern end of Owhiwa Road where her temporary transmitter fell off.

**Matarae** an adult female who initially settled into Martins' Forestry block east of Owhiwa Road before heading west to Kohinui Valley where her temporary transmitter fell off.

**Valentine** a young female kiwi who has wandered around the pine blocks east of Owhiwa road before heading east to settle in a large dog free property on Taraunui Road.

**Chookie** is an adult male named after Chookie Martin whose large forestry and bush block he was released on. He has settled there and has just made his first nesting attempt.

There will be other kiwi without radio transmitters that have moved from the Backyard Kiwi managed area into the Kiwi Link area as the estimated population at the Whangarei Heads has grown from approximately 80 in 2001 to over 1,000 in 2021 and the kiwi there expand outwards.



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