

Kiwi Link

Community Pest Control Area

Year 3 Report

July 2019



Background

Community-led conservation groups involved in Kiwi Link are working together to restore biodiversity over approximately 14,000 ha between Taraunui and Ngunguru Ford in eastern Whangarei. This project has been named the 'Kiwi Link', as the primary goal is to rebuild kiwi populations and connect the kiwi strongholds of the Whangarei Heads peninsula and the Tutukaka Coast. The Kiwi Link Community Pest Control Area (CPCA) got underway with Northland Regional Council (NRC) in January 2017.

The vision of Kiwi Link is "Flourishing flora and fauna, with abundant kiwi roaming safely between Taraunui and Ngunguru Ford by 2026".

Kiwi Link enables the creation of New Zealand's first kiwi corridor as identified by the Kiwi Coast. Kiwi Link feeds into the strategic goals of the Kiwi Coast and is part of the 'first focus area' identified in the Kiwi Coast Strategic Plan (2017).

This report summarises the results and achievements of the Kiwi Link CPCA during its third year of operation from July 1 2018 – June 30 2019.

Goals

To achieve its vision the Kiwi Link will:

- Work together as communities and land managers to restore the native flora and fauna between Taraunui and Ngunguru Ford.
- Fill the remaining gaps to complete a continuous predator trapping network that will significantly reduce predators and assist native biodiversity to thrive.
- Coordinate animal and plant pest operations for maximum efficiency and effectiveness.
- Rebuild the small remnant kiwi populations and ensure their genetic viability by reducing key predators and translocating more and genetically diverse kiwi into the area.
- Carry out monitoring to inform decision making and track progress towards goals.
- Secure funds and resources to ensure all existing community-led conservation projects in the area continue to operate successfully.
- Motivate and empower further landowners to actively participate in environmental stewardship/ kaitiakitanga by holding joint community events and skill building workshops.
- Link in and coordinate with the Kiwi Coast and enable the creation of NZ's first kiwi corridor.

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

- Possums
- Rodents
- Mustelids
- Feral cats
- Feral Pigs
- Woolly nightshade
- Elaeagnus
- Climbing asparagus
- Taiwan cherry
- Wild ginger
- Moth plant

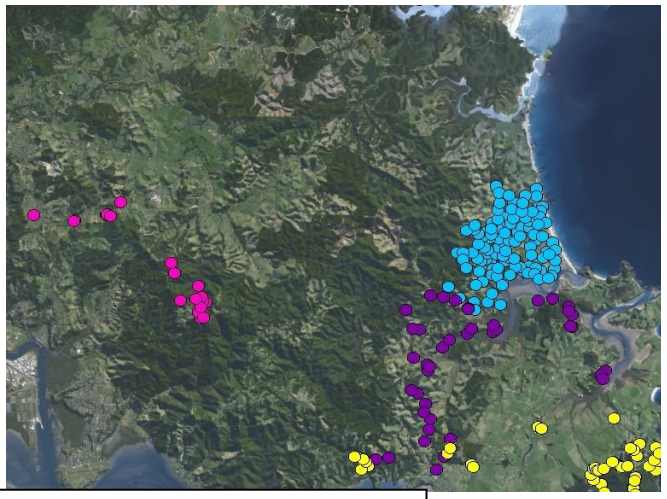
Kiwi Link Groups and Projects

There are 10 projects working together as Kiwi Link over 14,133 hectares. Map 1 shows the location of the project areas.

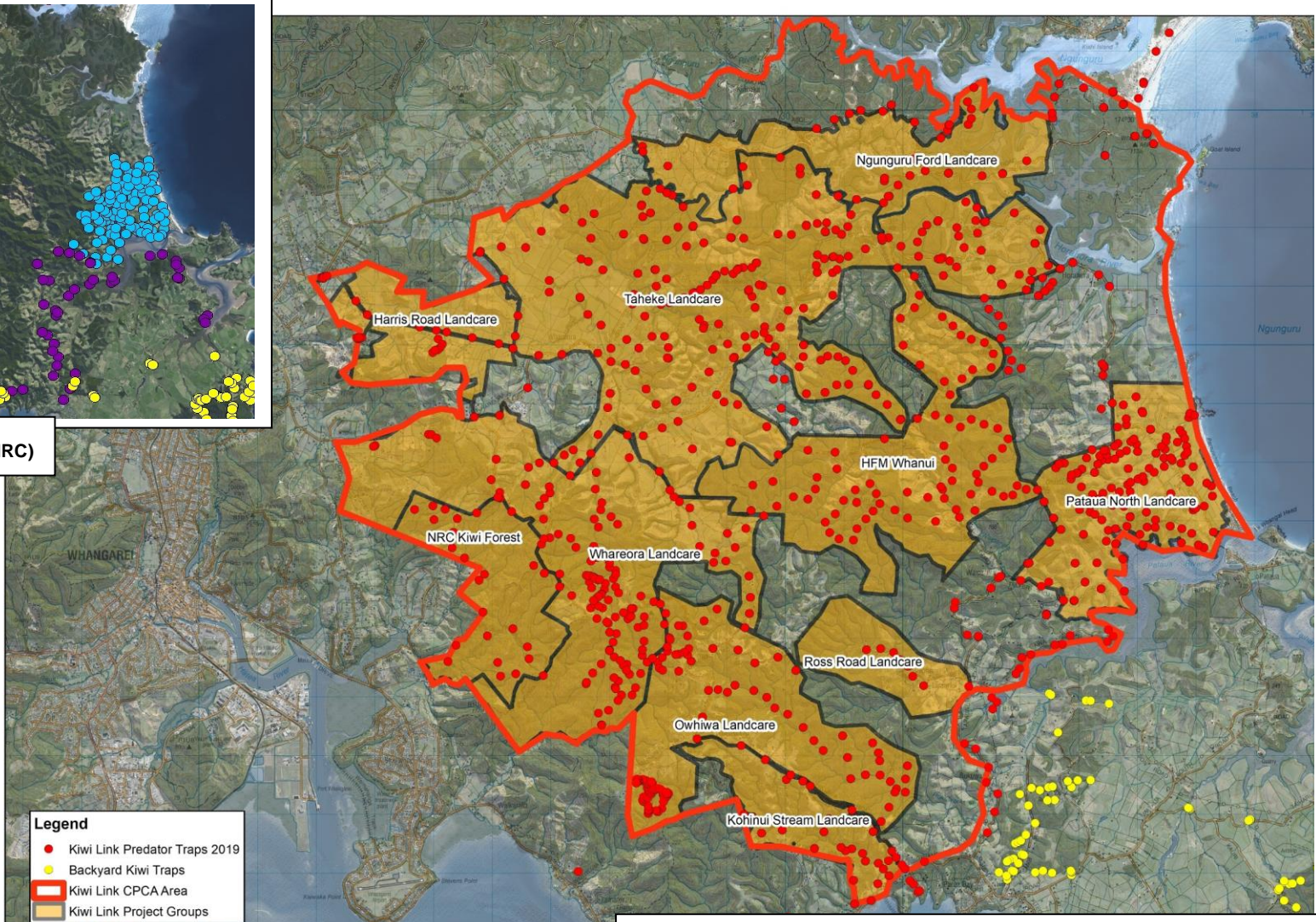
- Harris Rd Area Landcare
- HFM Whanui Project
- Kohinui Stream Landcare
- Ngunguru Ford Landcare
- NRC Mt Tiger Forestry Block
- Owhiwa Landcare
- Pataua North Landcare
- Ross Road Landcare
- Taheke Landcare
- Whareora Landcare



Todd Hamilton tracks transmitted kiwi (Photo: Heather Hunt)



Map 2: Predator traps 2013 (Map: NRC)



Map 1: Kiwi Link CPCA Groups and Predator Traps, June 30, 2019. (Map: NRC)

Objectives

Kiwi Link CPCA progressed all five key objectives in Year 3:

Objective 1: Enable the groups to continue their existing work

Resources were provided to the groups including traps, lures, toxins, bait stations, weed spray, monitoring and safety equipment as requested. For the first time, demand exceeded budget constraints and not all products requested were able to be supplied.

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.

Two workshops were held to assist with building the skills and capacity of private landowners to carry out successful pest control and monitor biodiversity outcomes. These were the Weed Control Workshop run by Whangarei Heads Weed Action and the Targeted Five Minute Bird Count Training Workshop.

Ongoing concern from landowners across the Kiwi Link CPCA regarding rising pig numbers, increased illegal pig hunting activity and the risk posed by these in spreading Kauri Dieback

Disease (KDB) into Kiwi Link's currently disease-free kauri stands resulted in a Coordinated Pig Control Plan being developed. This was put together by Good Wood Aotearoa, NRC, Kiwi, Coast, Department of Conservation (DOC), Whangarei District Council (WDC), local Landcare Group representatives, and professional pig hunters.

NRC and DOC both contributed additional resources in 2019 to actively reduce pig numbers on their blocks and on private land when possible. A number of local pig hunters also took up the opportunity to become further upskilled in KDB hygiene protocols, kiwi aversion training for their dogs and health and safety practices which has enabled them to gain hunting permits for the NRC and DOC blocks and be the 'first port of call' for landowners requiring pigs controlled on their property.

A funding application to the DOC Community Funds by Kiwi Coast to bring additional resources in to help support the Coordinated Pig Control Plan has been submitted. The next step is to engage further pig hunters and landowners so that the coordinated pig control can be spread over a wider area and achieve a further reduction in the pig population.



Kukupa in nikau above Kohinui Stream, November 2018

Objective 2: Fill the gaps to complete a continuous predator control trapping network

The Kiwi Link predator trap network targeting feral cats and mustelids (weasels, stoats and ferrets) was further expanded, linked and infilled.

In July 2016, there were 672 predator traps being operated within the Kiwi Link area by a mix of unpaid community volunteers, paid community-based professionals and trained staff from NRC and DOC. As at June 2018, this has increased to 1,554 predator traps.

The expanded trapping network reflects the increasing number of local landowners getting actively involved in pest control and biodiversity stewardship.

Objective 3: Establish a combined bait station network

Further bait stations were supplied to landowners to infill and expand the bait station network over the Kiwi Link area. Mapping of the bait stations continues.

Toxins continue to be pulsed and cycled. As advised by Glen Coulston (Goodwood Aotearoa) at the 2017 Kiwi Link Trapping Workshop, the toxins used for possum and rat control were cyanide and pindone respectively. These were supplied in July and August 2018 to carry out a coordinated Winter Knockdown with willing and licensed landowners.

DOC Whangarei also supplied 100 bait stations for the Maungatika Scenic Reserve at Mt Tiger.

NRC staff assisted Taheke Landcare with establishing new trap and bait station lines to link existing lines and improve efficiencies.



**Cyanide in biobag in Mt Tiger forest
(Photo: Whareora Landcare)**

Objective 4: Rebuild Kiwi Populations

Kiwi Link CPCA continued its dual approach to building kiwi numbers and genetics during the year.

Firstly, the breeding success and survival of existing kiwi was protected and enhanced with intensive professional predator control. Secondly, further kiwi were translocated into the Pataua North Landcare project to supplement the existing kiwi population and boost genetic variability. Two further kiwi releases were carried out by Pataua North Landcare in September 2018 and

May 2019. A combined total of 345 people came to the releases, which provided great opportunities for locals to see kiwi up close and learn about the crucial importance of good dog control.

Four kiwi were also released by the Backyard Kiwi project at Whangarei Heads in February 2019 at Parua Bay in the hopes that they might disperse into the Kiwi Link area. These kiwi were all fitted with transmitters and subsequently tracked by Backyard Kiwi Project Manager Todd Hamilton.

An unfortunate sign of success for the Kiwi Link CPCA occurred with the road death of a kiwi on Mt Tiger Road in November 2018, the first of its kind for the area. An examination by NRC and Backyard Kiwi experts with DOC and Kiwi Coast revealed the kiwi to be a juvenile male, approximately four years old. The absence of transmitter or microchip confirmed for the first time that kiwi are breeding within the Whareora Landcare project area.

Dog owners throughout the Kiwi Link CPCA should be congratulated that despite increasing kiwi numbers, no kiwi deaths due to dogs occurred during the year.

With Taheke Landcare now working on a kiwi translocation proposal for their predator controlled area, the kiwi population of the Kiwi Link area is set to increase further still.



Sue and Brad Walters with Donald the kiwi, Pataua Nth Landcare Kiwi Release (Photo: Anne Stewart)

Objective 5: 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 moth plant, Elaeagnus, wild ginger, climbing asparagus, woolly nightshade and Taiwan Cherry.

A weed control workshop, run by Whangarei Heads Weed Action Coordinator Jo Barr was held for Kiwi Link groups in August 2018 to help upskill landowners in identifying problem plant pests, understand different control methods, and learn how to effectively eradicate them from their properties



Kiwi Link landowners are shown the 'Dirty Dozen' plant pests by Jo Barr at the Weed Control Workshop

Meet a Kiwi Event

Events such as the 'Meet a Kiwi' afternoon hosted by Whareora Landcare at the local hall on September 9th, 2018 attended by 225 people demonstrate the power of kiwi to bring people together and motivate action.

Such events also provide opportunities to discuss the importance of good dog control to ensure the fledgling local kiwi populations can continue to grow and thrive.

After entralling the crowd, the two kiwi – Donald and Ariki – were released into Pataua North Landcare's predator controlled area.



Whareora 'Meet a Kiwi' event (Photo: Malcolm Pullman)

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 data. The results show that a collective total of 6,244 animal pests were trapped by the groups and projects involved in Kiwi Link during 2018 (Table 1).

As stoats kill 95% of kiwi chicks before they reach one year old, the 178 stoats trapped would have increased the likelihood of kiwi chick survival. As stoats are known to range large distances, this may have also assisted kiwi chick survival rates in the neighbouring strongholds of Tutukaka and Whangarei Heads.

As these results do not account for pests removed by toxins, the actual numbers of animal pests removed from the area would have been far higher.

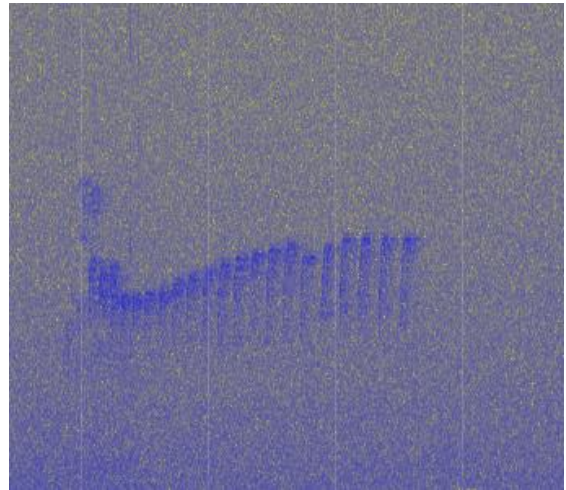
Table 1: Kiwi Link Groups & Projects Collated Pest Control Results Jan - Dec 2018

Group or Project	Possums	Rats	Ferrets	Stoats	Weasels	Feral Cats	Wild Rabbits & Hares	Feral Pigs	Magpie	Myna	Hedgehog	Mice	Other catches	Totals
Harris Road Area Landcare	326	275	0	6	0	2	0	0	0	0	0	0	0	609
HFM - Whanui Project	1	113	0	21	19	4	1	0	0	0	13	0	23	195
Kohinui Landcare	295	276	0	4	1	2	33	0	6	7	22	62	0	708
Ngunguru Ford Landcare	53	196	0	30	17	7	2	0	0	0	34	1	0	340
NRC - Mt Tiger Forest	0	21	0	12	3	0	0	0	0	0	3	0	0	39
Owhiwa Landcare	579	336	0	22	4	6	14	34	13	52	7	17	45	1,129
Pataua North Landcare	49	354	0	15	31	4	4	0	1	7	42	0	0	507
Ross Road Landcare	1	46	0	5	1	0	1	0	0	0	7	0	0	61
Taheke Land Care	658	562	0	30	41	16	0	6	0	0	44	40	0	1,397
Whareora Landcare	573	428	0	33	17	5	14	59	6	10	11	88	15	1,259
Totals	2,535	2,607	0	178	134	46	69	99	26	76	183	208	83	6,244

Kiwi

All Kiwi Link projects participated in the Annual Kiwi Call Count Survey, either with human listening at known accessible kiwi sites or with Kiwi Listening Devices (KLDs) at less accessible sites or where no kiwi are known to be present. See Appendices 1 and 2 for the results.

Preliminary analysis of the 2019 KLD data suggests that kiwi numbers are increasing at some sites within the Kiwi Link CPCA in addition to those being released. Kiwi pairs have been recorded dueting for the second year in a row at the Franklin Rd site within Owhiwa Landcare, and also within the NRC Forestry block. Excitingly, kiwi have also been recorded for the first time within Ross Rd Landcare and at a new site for Ngunguru Ford Landcare near the Ngunguru River.



Male kiwi call from Wrack Rd KLD, NRC Forestry Block, June 2019

However, human listeners at both the Kauri Villas (Owhiwa Landcare) and Maungatika Scenic Reserve (Whareora Landcare) kiwi call count stations did not hear any kiwi calls in 2019. The Maungatika Scenic Reserve was subsequently further monitored with three KLDs, none of which recorded any kiwi calls. As other Northland kiwi projects suspect that the dry summer and autumn may have effected kiwi call count rates, it will be interesting to see if call rates improve during the 2020 listening survey.

Kiwi with transmitters are now being tracked by Pataua North Landcare, and Todd Hamilton from Backyard Kiwi. Over the last year, kiwi were tracked moving from Whangarei Heads through the Kiwi Link CPCA within the Owhiwa, Kohinui, Ross Rd and Pataua North Landcare projects, with one (Ross) showing signs of settling at Pepi Road (See Appendix 3).

Pateke

DOC coordinated the Annual Pateke Flock Count Survey in February 2019, with Pataua North Landcare and the NorthTec Conservation Management students once again participating. Pataua North Landcare counted 33 pateke on ponds with further suspected to be in the many drains and streams. NorthTec re-surveyed the Horahora Estuary where they observed pateke for the first time last year and were pleased to observed 10 birds at this site in 2019.

Five Minute Bird Counts

Targeted Five Minute Bird Counts were carried out for the first time, 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, kaka and bellbird/korimako.

Dr Morgan upskilled landowners from Kiwi Link groups with a special training workshop held at the Bream Head Scenic Reserve in November 2018 to enable them to carry out the monitoring and build their knowledge of their local biodiversity. Each of the 10 groups then completed at least 1 line of 10 birdcount stations during November, yielding over 100 count stations.



Kiwi Link Bird Monitoring Workshop, Nov 2018

The results were analysed by Dr Morgan as shown in Figure 1, establishing a baseline of native bird abundance. Individual species results are shown in Appendix 4. Kaka were recorded at one site (Kohinui Landcare). Bellbirds were not recorded at any sites. The response of native bird populations to the pest control work being carried out will can now be measured over future years.

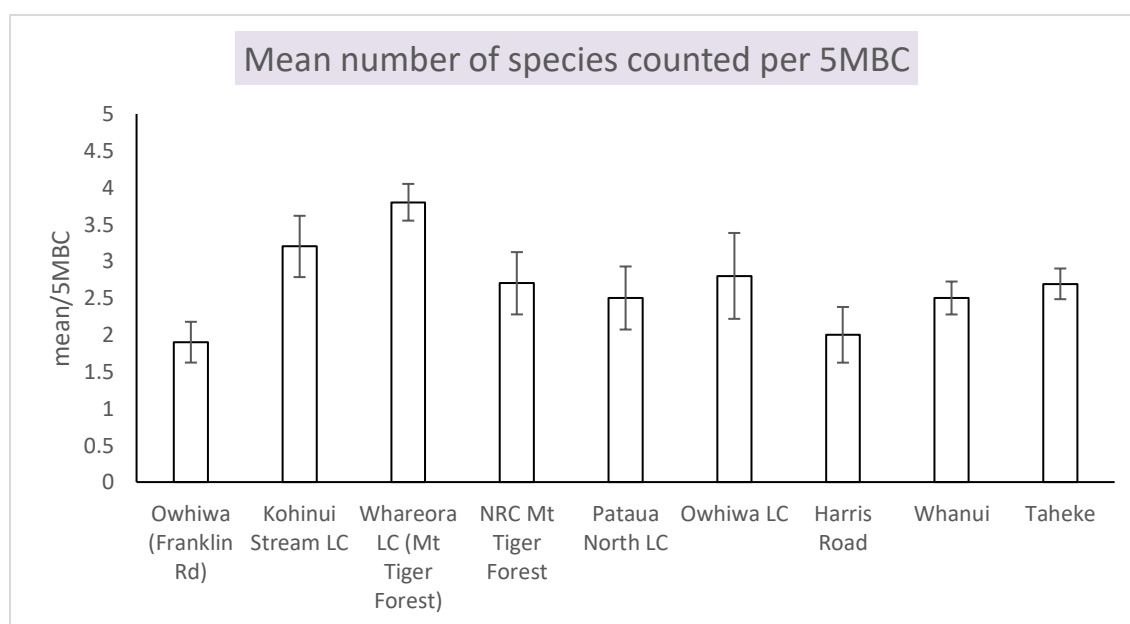


Figure 1: Mean Number of Targeted Bird Species Counted by Project, November 2018

In addition to the Five Minute Birdcount monitoring, kaka have been increasingly reported by landowners within Kohinui, Owhiwa and Whareora Landcare Groups, with a flock of 18 kaka regularly observed on properties in the lower end of the Kohinui Stream catchment.

Financial Summary

A total of \$221,257 resourced Year 3 activities and events of the Kiwi Link CPCA (see Table 2). In addition to the \$70,000 supplied by NRC for the CPCA, unpaid labour by the landowners involved amounted to \$103,200. The Department of Conservation supplied \$10,000 worth pest control products and the Kiwi Coast also supplied resources and support worth \$4,476.

Other contributions were made by Hancock Forest Managers, the Martin Trust, NorthTec and Tahi estate.

Table 2: Financial Summary: Kiwi Link Group/Project Resources and Unpaid Labour 1 July 2018 - 30 June 2019

	NRC Kiwi Link CPCA funds	Kiwi Coast	Unpaid labour (\$20/hour)	Direct Contribution by Landowner / manager	DOC	Hancock Forest Management	Other	Totals
Administration/Project Management	8,150		8,320	2,080				18,550
Animal Pest Control - labour	45,456	1,576	86,400	8,000	8,000	6,000		155,432
Plant Pest Control - labour			3,760	14,000				17,760
Pest Control Products - toxins, traps, herbicides	8,411	2,700			2,000			13,111
Planting			500					500
Education and Communications	2,024		500					2,524
Monitoring	3,260		3,570	2,000			1,000	9,830
Workshops and Training	588		650	100			600	1,938
Research and Technology	2,112							2,112
TOTALS	70,000	4,276	103,200	26,180	10,000	6,000	1,600	221,257

Nb: All figures exclude GST.

Celium Technology Trial

This trial has continued, with the scheduled firmware upgrade completed by Encounter Solutions in 2018, and hubs and nodes redeployed to Kiwi Link projects in 2019.

Phase 1 of the trial has proven that the technology works well in the undulating eastern Whangarei topography of the Kiwi Link area across several projects. Phase 2 has involved relocating the nodes to a more concentrated area across just two projects – HFM Whanui and Pataua North Landcare - so that the technology can now be trialled for improving trapping efficiency and management.

Initial stages of Phase 2 are looking promising. In June 2019, Cam McInnes, professional predator trapper for Pataua North Landcare, reported checking a trap three weeks ahead of schedule after being notified via cellphone by the Celium technology that the trap had been sprung. Clearing a fresh stoat within a kiwi breeding area, and resetting the trap so it was available for further predators, made the extra effort worthwhile.

Ultimately, Kiwi Coast and NRC would like to support the development of the technology to enable the Celium nodes to receive information from kiwi transmitters to assist with tracking kiwi movements. Discussions continue with 'Hub & Node' system developers and other kiwi recovery projects around New Zealand interested in partnering to enable this work.



**Stoat caught in DOC 200 trap at Pataua North after notification by Celium node
(Photo: Cam McInnes, June 2019)**

Summary

The third year of the Kiwi Link CPCA 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 14,133 hectares.

The combined resourcing of the Kiwi Link CPCA by NRC, Kiwi Coast Trust and local land managers ensured all groups were able to continue their active stewardship or kaitiakitanga across the Kiwi Link. The considerable amount of unpaid labour contributed by landowners shows that resources are being put to good use, and the monitoring results that the hard work is paying off.

New predator traps deployed into key gaps have linked further traplines of neighbouring groups together into a growing combined predator trapping network between Whangarei Heads and Tutukaka.

Building capacity of the groups to carry out their own outcome monitoring, has been successful with the establishment of baseline native bird abundances achieved across the project. The response of native bird populations to the pest control work being carried out can now be measured over future years.

Kiwi are going from strength to strength across Kiwi Link with kiwi monitoring showing kiwi numbers are slowly but surely increasing at a number of sites. Flocks of kaka and pateke, along with the confirmed movement of kiwi between the Whangarei Heads peninsula and the Kiwi Link area indicates that the assumptions, methods and hard work from all the landowners, organisations and agencies involved is beginning to yield much sought after results.

Appendix 1: Kiwi Link CPCA Kiwi Listening Device Results July 2018 – June 2019

Project/Group	Site Name	Date out	Date in	Start time	Finish time	No. Hours Analysed	Male Calls	Female Calls	Duets	Total Calls
Owhiwa Landcare	Bob and Carol Gibson	23/06/2019	2/07/2019	18:00	06:00	60	10	7	2	17
Owhiwa Landcare	Mullooly	5/7/19	12/7/19	18:00	06:00					In analysis
Ngunguru Ford Landcare	McQuoid	31/05/2019	6/06/2019	18:00	06:00	72	1	0	0	1
Ngunguru Ford Landcare	Robbies driveway	31/05/2019	6/06/2019	18:00	06:00	72	2	0	0	2
Taheke Landcare	Taheke Kauri Ridge	3/06/2019	9/06/2019	18:00	06:00	84	4	0	0	4
Whareora Landcare	Maungatika 1: MSR bluff	23/5/19	29/5/19	18:00	06:00	84	0	0	0	
Whareora Landcare	Maungatika 2: Reg's Ridge	29/5/19	17/6/19	18:00	06:00	240	0	0	0	0
Whareora Landcare	Maungatika 3: Home Straight Stream Ridge	22/5/19	2/6/19	18:00	06:00	120	0	0	0	0
Whareora Landcare	Big Kauri Ridge, Mt Tiger	6/6/19	29/6/19	18:00	06:00	132	0	0	0	0
Whareora Landcare	Walters paddock	23/5/19	29/5/19	18:00	06:00	84	0	0	0	0
Ross Rd Landcare	Ruth and Lawrence's	3/6/19	11/6/19	18:00	06:00		1			In analysis
Pataua Nth Landcare	-			18:00	06:00					In analysis
Harris Rd Landcare				18:00	06:00					pending
NRC Mt Tiger Forest	Original Trapline site, Mt Tiger Rd	4/6/19	13/6/19	18:00	06:00					In analysis
NRC Mt Tiger Forest	Site 20	24/05/2019	30/05/2019	17:55	12:00	42	4	0	0	4
NRC Mt Tiger Forest	Site 21	24/05/2019	30/05/2019	17:55	12:00	42	4	1	0	6
NRC Mt Tiger Forest	Site 22	24/05/2019	30/05/2019	17:55	12:00	42	0	0	0	0
NRC Mt Tiger Forest	Site 25	24/05/2019	30/05/2019	17:55	12:00	42	1	0	0	1
NRC Mt Tiger Forest	Site 26	24/05/2019	30/05/2019	17:55	12:00	42	16	0	0	16
NRC Mt Tiger Forest	Site 29	24/05/2019	30/05/2019	17:55	12:00	42	5	2	1	7

Appendix 2: Annual Kiwi Call Count Survey – Human Listening: 2014 – 2019

Project/Group	Site Name	Location	EASTING	NORTHING	Average Kiwi Calls/Hour 2014	Average Kiwi Calls/Hour 2015	Average Kiwi Calls/Hour 2016	Average Kiwi Calls/Hour 2017	Average Kiwi Calls/Hour 2018	Average Kiwi Calls/Hour 2019
Kohinui Stream Landcare	Kauri Villas	Kauri Villas			-	-	-	0.375	0.375	0
Taheke Landcare	Ian and Sandy Page's	Page's Deck			-	-	-	-	1 male heard	n/a
Whareora Landcare	MSR1: bluff ridge	Maungatika Scenic Reserve	1727254	6045154	1	0.88	0.66	0.75	0.125	0

Appendix 3: Kiwi Report by Todd Hamilton, Backyard Kiwi, June 2018

Backyard Kiwi radio monitored kiwi that have either moved into the Kiwi Link Area or are present on the border:

2003: Vinnie was released by DOC at the Nook and travelled north to the middle of Campbell Rd 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 Rd and settled there. He did not breed until 2011 but since then has successfully hatched 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.

In 2018 five kiwi were released by BYK north of the Parua Bay village. Rukuwai headed east to the Kerr rd/ Kauri Mt area but the others have all remained in the Kiwi Link area:

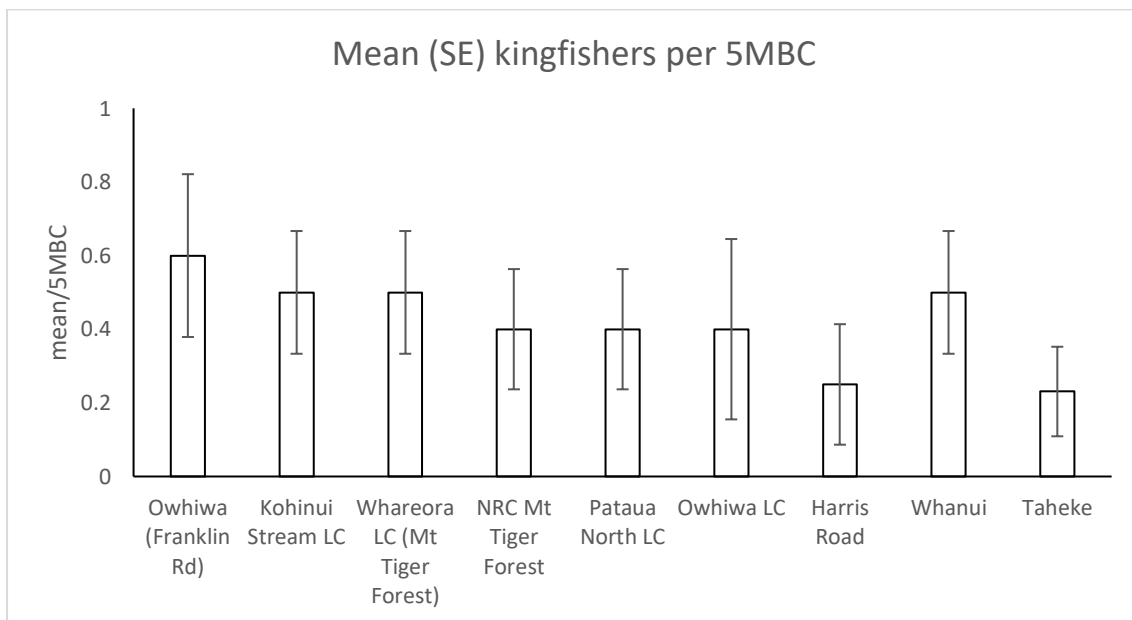
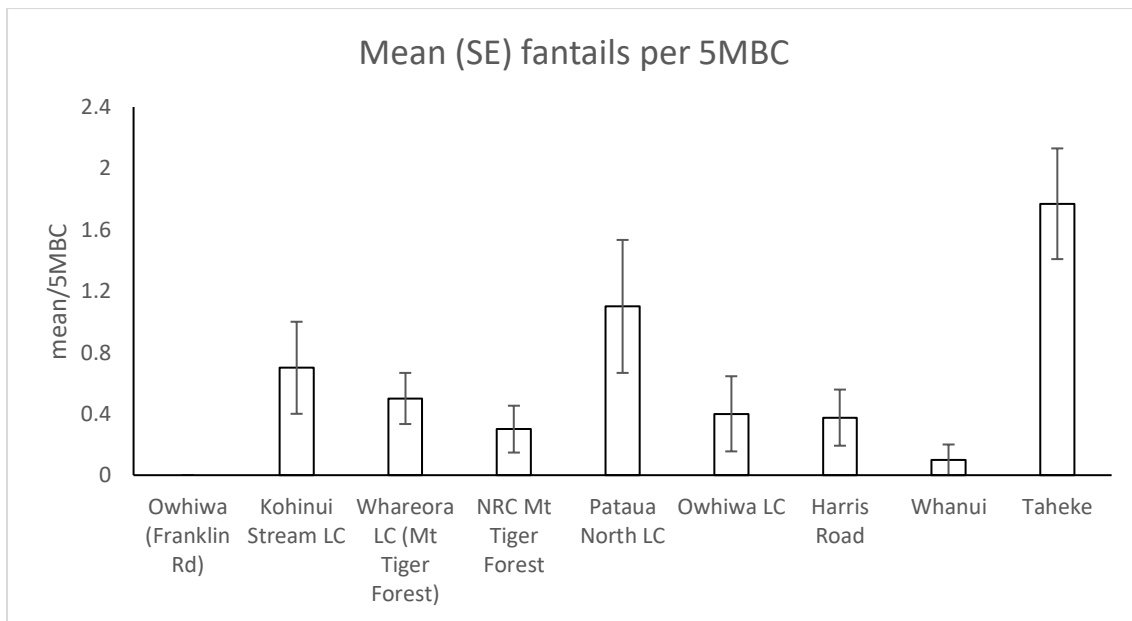
- Harikoa is half way down Campbell rd.
- Mokopuna is a female who has headed to the north end of Campbell Rd and found a mate "Wally" (who unknown to us had walked out of the BYK area in 2009).
- Mia was in pines north of her release spot when her transmitter failed
- Ross - an adult male - has headed east and after spending time in the Kohinui Valley and Parua Bay is now at Pepi Road.

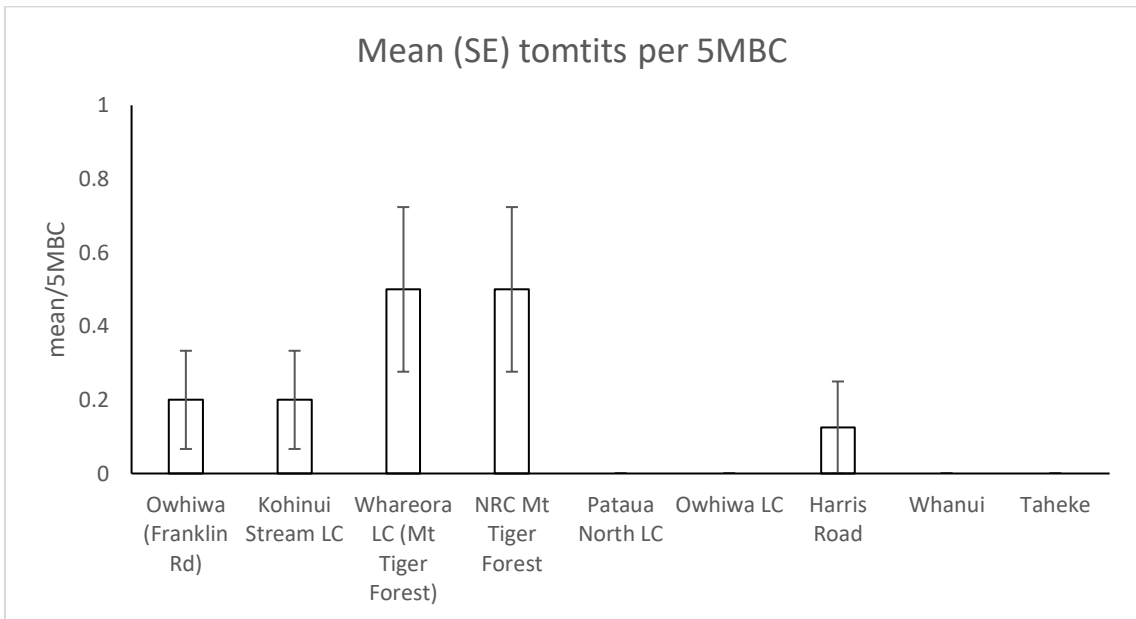
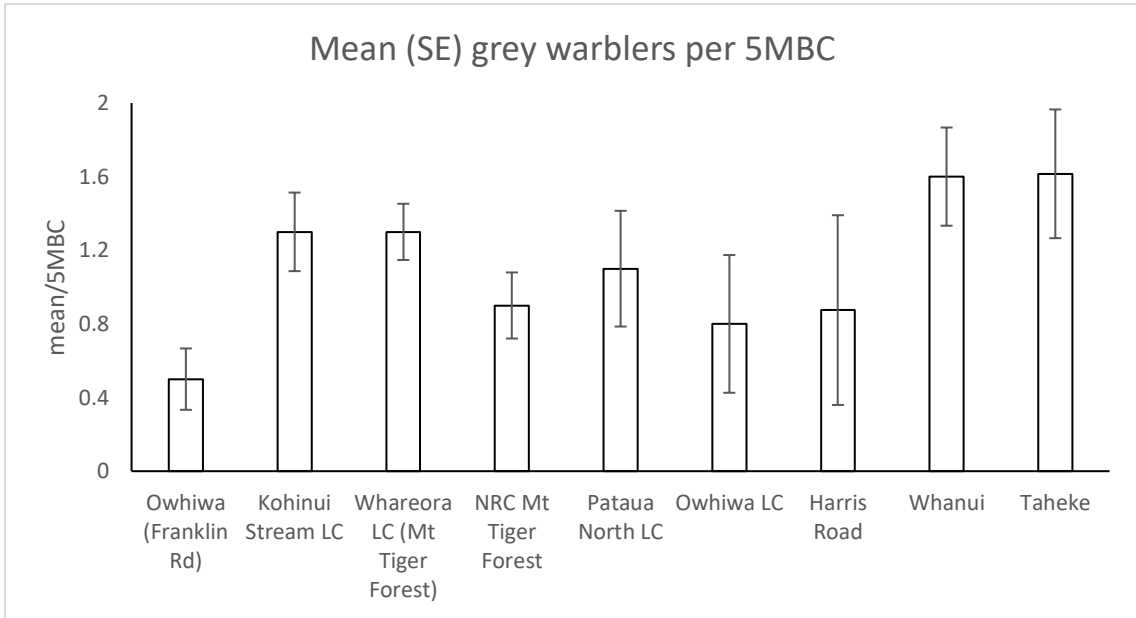
In February 2019 four more kiwi were released north of the Parua Bay village.

- Teina - an adult male - has remained in the pines at the start of Taraunui Road.
- Malaika - a young female has remained at Taraunui Rd.
- Awhi - an adult female- travelled south to the Parua Bay village, then east as far as Kohinui Valley where she spent several months before walking back to her release site in the pines at Taraunui Road.
- Pakiri - a young kiwi - has headed north and spent time at Ross road and the northern end of Taraunui road before turning up last week in the Pataua North Landcare monitored area.

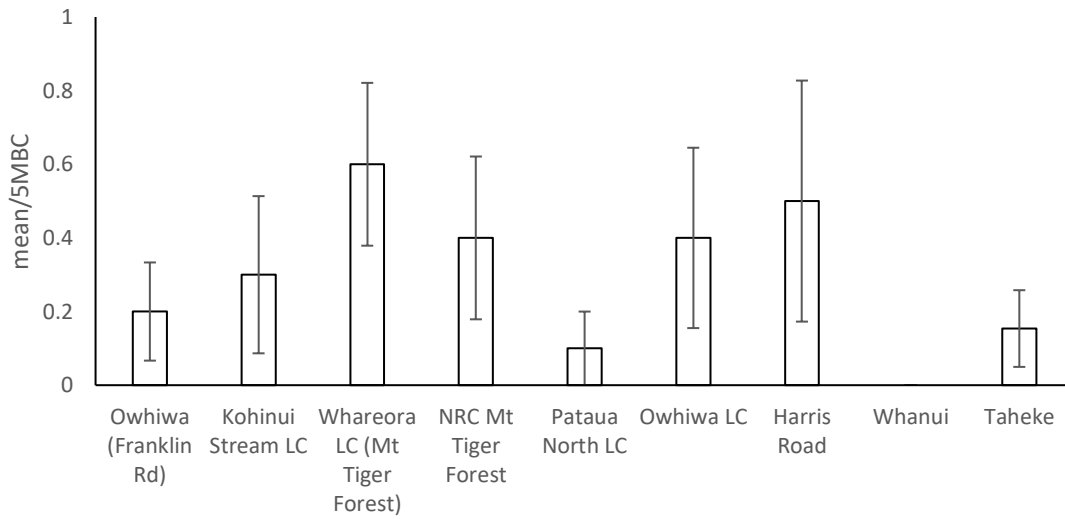
There will be other kiwi without radio transmitters that have moved from the Backyard Kiwi managed area into the Kiwi Link area as the estimated population at the Whangarei Heads has grown from approximately 80 in 2001 to over 900 in 2018.

Appendix 4: Kiwi Link CPCA Baseline Five Minute Bird Count Data





Mean (SE) kukupa per 5MBC



Mean (SE) tui per 5MBC

