

Kiwi Link

Community Pest Control Area

Year 2 Report

July 2018



Front cover photos: *Left: Quincy the kiwi at the Pataua Nth Kiwi Release*

Right: Wetland and forest sequence view from Steve McQuoids Property, Ngunguru Ford Landcare

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 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 second year of operation from July 1 2017 – June 30 2018.

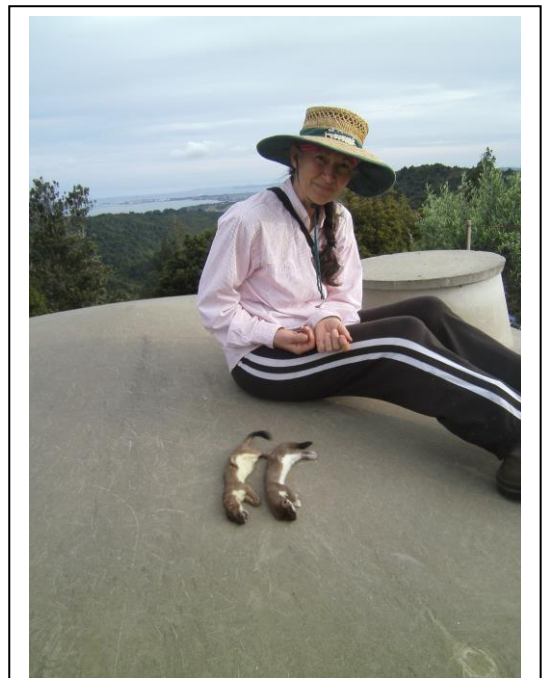
Goals

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 this project area include:

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

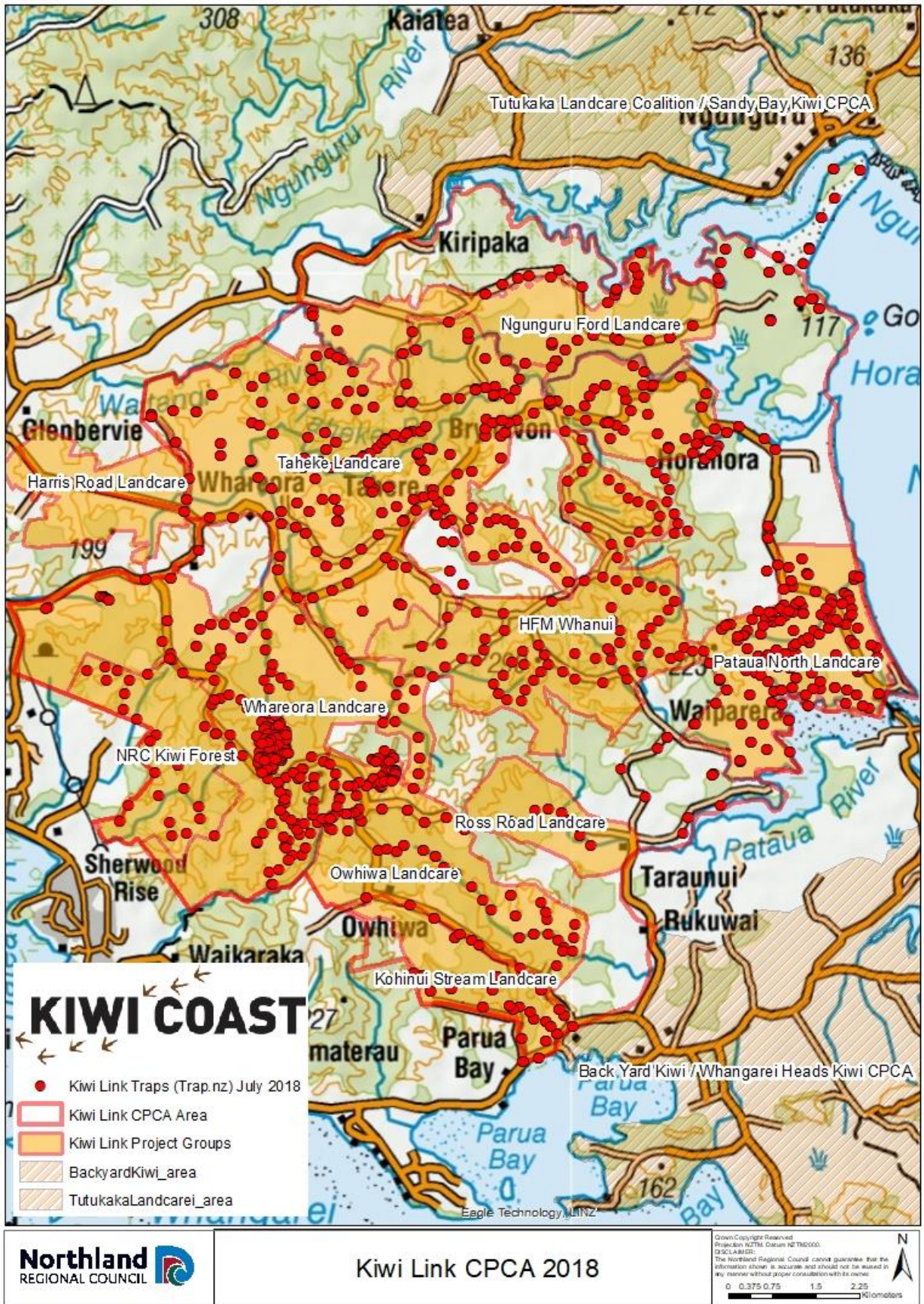


Carol Gibson with 2 stoats trapped November, 2017 (Owhiwa Landcare)

Kiwi Link Groups and Projects

With the establishment of Harris Rd Area Landcare, there are now 10 projects working together as Kiwi Link over 14,133 hectares. Map 1 shows the location of the project areas.

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



Map 1: Groups involved in Kiwi Link and their project areas as at June 30, 2018. Map: NRC

Objectives

The Kiwi Link progressed all five key objectives in Year 2:

Objective 1: Enable the groups to continue their existing work

The first priority of ensuring each group had the resources to continue their work was achieved. All animal and plant pest control products requested were provided to the groups including traps, lures, toxins, bait stations, weed spray, monitoring and safety equipment. Professional predator trappers under contract to Kiwi Coast were resourced to work with each project to complement the unpaid work of the many landowners involved.

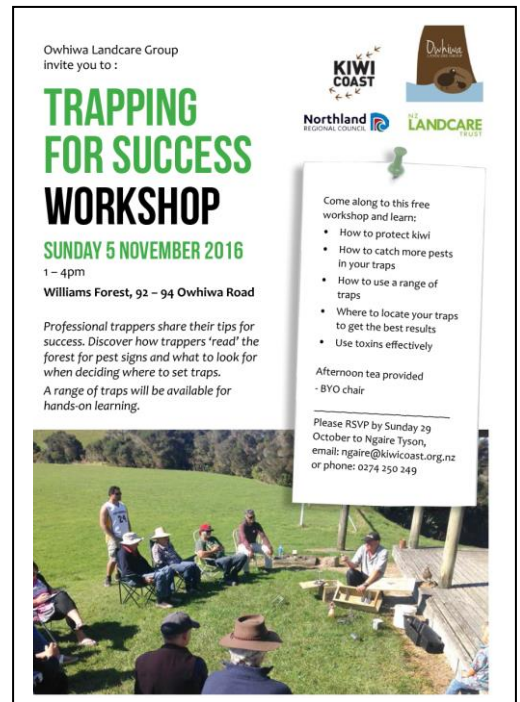
To assist with building the skills and capacity of private landowners to carry out successful pest control, Owhiwa Landcare hosted a Local Trapping Workshop in November 2017. Professional trappers Todd Hamilton from Backyard Kiwi and Glen Coulston from Good Wood Aotearoa shared their vast experience and knowledge with 37 local landowners.

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 1,326 predator traps.

A new Landcare Group was supported to get underway on Harris Road filling a vital gap between Glenbervie, Taheke Landcare and Whareora Landcare. A paid professional predator trapper was resourced for Ross Road Landcare and the first predator traps have been deployed to start building their predator control network.



Objective 3: Establish a combined bait station network over 13,624ha

The first Kiwi Link coordinated pest knockdown was carried out in the winter of 2017 after chew card monitoring showed rat and possum abundances had reached saturation point at a number of places. A controlled single pulse of brodifacoum was carried out in August with willing private landowners, in coordination with the Northland Regional Council. This is the first time that landowners and managers have used the same toxin at the same time in a coordinated operation and was a milestone for the Kiwi Link CPCA.

The primary aim of the 'Winter Knockdown' was to sufficiently reduce rat and possum numbers to improve native forest health and ensure native birds could successfully nest in spring. Selecting brodifacoum meant its secondary poisoning effects would also reduce any trap-shy predators that may have built up in the area as some of the Kiwi Link projects have been using traps as the sole means of predator control for over ten years.

500g of brodifacoum, was placed in bags, in bait stations secured to trees, for a maximum of four weeks. Any toxin remaining after this time was removed and returned to the NRC for appropriate disposal. As per regulations when this toxin is used to target possums, signs advising the use of the toxin were provided to landowners and these were placed at the entrance to participating properties.

The toxin take was very successful, with most landowners reporting bait stations were emptied in the first four nights. It is estimated over 95% of the toxin was consumed, and very little was left to retrieve for disposal after the four week period.

Participating landowners were pleased with results, reporting an immediate and dramatic decrease in trap catches. Whareora Landcare group noted whole, ripe tawa berries on the forest floor that would usually show signs of rat gnawing and observed a rare hebe (*Hebe macrocarpa* var. *latisejala*) flowering for the first time ever known.

Concerns raised by local pig hunters regarding the use of brodifacoum were responded to by NRC and the Kiwi Link Coordinator.

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 October 2017 and April 2018 taking the total number of kiwi translocated into Pataua North to 23. A combined total of 337 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.

In addition, the Backyard Kiwi project at Whangarei Heads released four kiwi in March 2017 at Parua Bay in the hopes that they might disperse into the Kiwi Link area. The willingness of Backyard Kiwi to release kiwi in this location for the first time and with this aim in mind, is testament to the confidence held in Kiwi Link landowners in terms of good dog control and successful predator control. One of the four kiwi, Ross, is a monitored bird and has been tracked by Backyard Kiwi Project Manager Todd Hamilton moving through the Ross Road, Owhiwa and Kohinui Stream Landcare projects, raising much excitement from landowners in these areas. Ross is currently at Pepi Road, just outside the Kiwi Link project area. Further predator traps may be required if Ross establishes a territory in this area and the local landowners wish to get involved in providing protection.

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



Joel Tomlinson meets Harapa the kiwi at the Pataua Nth Landcare kiwi release.

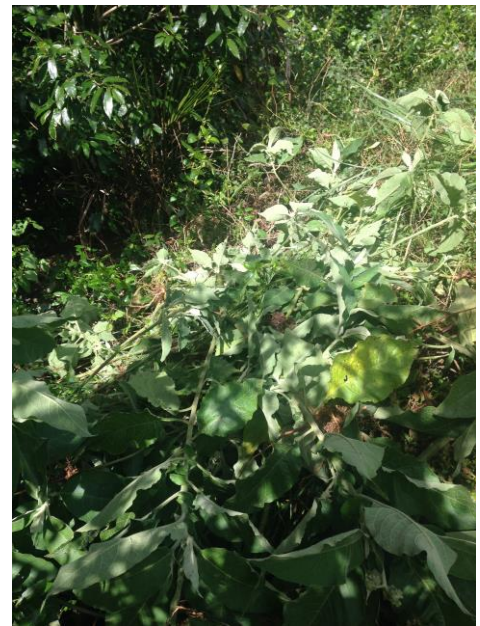


Ross the kiwi at the Parua Bay Kiwi Release

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, eleagnus, wild ginger, climbing asparagus, woolly nightshade and Taiwan Cherry.

Contact has been made with the Weed Action Whangarei Heads coordinator to investigate linking in with their weed campaigns, and gaining assistance with the distribution of herbicides in small amounts for landowner use and the organisation of coordinated weed control action. The first Kiwi Link plant pest workshop, led by Weed Action Whangarei Heads is scheduled for August 12, 2018.



Pile of woolly nightshade cut and treated by Whareora Landcare, September 2017

Monitoring

All scheduled monitoring has been completed, and additional monitoring completed after the Winter Knockdown in order to ascertain resulting animal pest levels.

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 7,237 animal pests were trapped by the groups and projects involved in Kiwi Link during 2017 (Table 1).

As stoats kill 95% of kiwi chicks before they reach one year old, the 164 stoats trapped would have raised kiwi chick survival rates. As stoats are known to range large distances, this may have also assisted kiwi chick survival in the neighbouring strongholds of Tutukaka and Whangarei Heads.

As these results do not account for pests removed by toxins, and brodifacoum was also used in a single pulse during the Winter Knockdown, and diphacinone paste, or Ratabate is used by a number of groups for rat control year round, the actual numbers of animal pests removed from the area would have been far higher.

Post-operation chew card monitoring of the Winter Knockdown for possums and rats yielded surprisingly high results that did not correlate with landowner records of a dramatic trap catch decrease or observations of improved native biodiversity. These results were discussed with Dai Morgan, Northtec Conservation Management Tutor, and led to a research investigation into chew cards Vs tracking tunnel monitoring methods as part of the Kiwi Coast 2018 Student Summer Research program.

Table 1: Kiwi Link Groups & Projects Collated Pest Control Results Jan - Dec 2017

Group or Project	Possums	Rats	Ferrets	Stoats	Weasels	Feral Cats	Wild Rabbits & Hares	Feral Pigs	Maggie	Myna	Hedgehog	Mice	Other catches?	Total Pest Animals Caught
Harris Road Area Landcare	282	424	0	2	0	0	34	0	6	11	2	220	0	981
HFM - Whanui Project	0	71	0	17	9	0	0	0	0	0	24	0	0	121
Kohinui Landcare	424	200	0	5	1	3	22	0	3	0	34	0	0	692
Ngunguru Ford Landcare	66	176	0	25	27	10	2	0	0	0	45	1	0	352
NRC - Mt Tiger Pines Block	0	7	0	7	1	0	0	0	0	0	1	0	0	16
Owhiwa Landcare	693	327	0	29	10	4	25	11	1	104	14	22	15	1255
Pataua North Landcare	69	268	0	11	27	11	4	0	0	0	32	3	0	425
Ross Road Landcare	128	64	0	3	3	1	12	0	0	0	2	0	2	215
Taheke Landcare	961	313	1	26	30	14	5	0	1	0	47	0	0	1398
Whareora Landcare	1069	529	0	39	19	5	7	60	0	0	9	45	0	1782
Totals	3,692	2,379	1	164	127	48	111	71	11	115	210	291	17	7,237

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. Excitingly, KLDs recorded kiwi for the first time in the Ngunguru Ford Landcare project area.



Pete Graham, NRC, helps with monitoring the Pataua North kiwi.

KLDs also recorded male-female duets within the Owhiwa Landcare area at Franklin Rd for the first time and one of the pairs recorded in 2017 in the NRC Mt Tiger Pines block was also confirmed, indicating breeding pairs are present at both sites. As these pairs each occur within 3km of the known kiwi pair – Reg and Kahu - on Mt Tiger in the Maungatika Scenic Reserve, it is possible that Reg and Kahu's offspring have dispersed into the nearby area, established territories and formed pairs of their own. This cannot be confirmed however without DNA testing and may simply be wishful thinking!

In addition, Pataua North Landcare are monitoring six of their released kiwi with transmitters (See Map 3).

John Craig from Pataua North Landcare reports:

We are currently following six transmitterd kiwi. A seventh, Jo from our first kiwi release, has been tracked several times to out-of-reach places deep in hollow puriri logs. DOC have confirmed he is now sitting on an egg and we think he has paired up with a female from the third release. Jo also attempted a nest last season, but abandoned the nest after 65 nights as young kiwi dads are prone to do. While his transmitter batteries have now failed, we have borrowed a trail cam from Kiwi Coast so we can monitor the nest.

We are following and tracking the other six kiwi, mapping their movements regularly. Some have moved from their release sites closer to the Pataua estuary, and kiwi footprints have been found. For the first time kiwi listening has confirmed that kiwi are now resident at Pataua North and it's exciting to think that we may soon have our first kiwi chick...!



Map 3: Pataua North Transmitted Kiwi Locations, as at June 30 2018

Pateke

Pataua North Landcare participated in the Annual Pateke Flock Count Survey in February 2018. Pateke were once again confirmed at Pataua North, with 34 pateke observed on the ponds and further suspected to be in the many drains and streams. Five breeding pairs were counted and at least 18 chicks were estimated to have successfully fledged based on regular observations.

Financial Summary

A total of \$246,662 resourced Year 2 activities and events of the Kiwi Link CPCA (see Table 2). In addition to the \$60,000 supplied by NRC, unpaid labour by the landowners involved amounted to \$94,450 and the Kiwi Coast supplied resources and support worth \$19,655.

Other contributions were made by the NZ Landcare Trust, Hancock Forest Managers, QEII National Trust, Tahurangi Estate, Kiwis for Kiwi Trust, Whangarei District Council and the Department of Conservation.

Kiwi Link Groups also participated in the Kiwi Coast Collation of Financial Data for the 2017/18 financial year.

Table 2: Financial Summary: Kiwi Link Group/Project Resources and Unpaid Labour 1 July 2017 - 30 June 2018

	NRC	Kiwi Coast	Donations, Sponsors, Own Income Generated	Unpaid labour (\$20/hour)	Direct Landowner Contributions	Hancock Forest Managers	Other sources	TOTALS
Administration/Project Management	1,340	11,700		6,840				19,880
Animal Pest Control - labour	35,481	1,987		52,290		5,000	35,910	130,668
Plant Pest Control - labour				19,300	1,140		11,051	31,491
Pest Control Products - toxins, traps, herbicides	11,302	2,682	620	0	1,220		2,134	17,958
Planting	0	0	350	7,060	700		5,432	13,542
Education and advocacy	5,874	2,086	7,000	500	2,000			17,460
Monitoring	5,022	1,200		8,460				14,682
Other	981							981
TOTALS	60,000	19,655	7,970	94,450	5,060	5,000	54,527	246,662

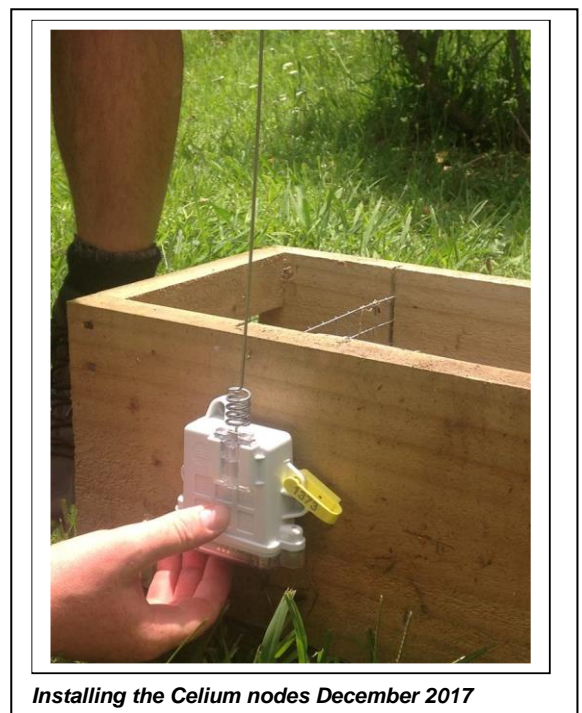
Celium Technology Trial

Over the past year, Kiwi Coast and NRC have partnered to trial the [Celium technology](#) developed by Encounter Solutions. NRC supplied 150 Celium nodes and two Hubs to establish a basic trial network. The nodes were attached to DOC 200 trap boxes in the Tutukaka, Ngunguru Ford, Whareora, Whanui and Taheke Landcare project areas. The Celium nodes relayed trap status information (ie when the trap has been sprung, reset or is in need of attention) via two receiving Celium hubs located at Mt Tiger.

Kiwi Coast resourced two of the professional predator trappers working to trial the technology and investigate its feasibility within the Kiwi Link and Tutukaka CPCA areas. Initial results look promising, with the technology working well in the undulating eastern Whangarei topography.

The next steps are for the nodes to have a firmware upgrade and be redeployed through the Whanui and Pataua North Landcare projects with the aim of progressing the use of the technology for trap management. For example, a DOC 200 trap baited with eggs in winter may not need to be visited every three weeks as per the current schedule if the trap has not been sprung, saving considerable time and energy. Alternatively, a sprung trap within a known kiwi or pateke pair's territory during the breeding season may be checked more often to increase chick survival rates.

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 are currently being held with other kiwi recovery projects around New Zealand interested in partnering to enable this work.



Summary

The second 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 and the Kiwi Coast Trust 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. The establishment of the Harris Road Area Landcare Group fills a key gap on the western edge of Kiwi Link and raises the possibility of linking into the Glenbervie area and the known kiwi site there in time.

The first coordinated toxin operation – the ‘Winter Knockdown’, involved numerous landowners in pre and post operation monitoring as well as the toxin operation itself. Whilst the post-operation chew cards monitoring results were questionable, the high bait take, reduced post-operation trap catch results and landowner biodiversity observations point to the operation being a success.

Kiwi are going from strength to strength across Kiwi Link with pairs confirmed for the Owhiwa Landcare and NRC Mt Tiger Pine Block projects. Together with the Pataua North Landcare and Parua Bay kiwi translocations, the kiwi genetics and numbers of the area are increasing, boding well for the future.

Appendix 1: Kiwi Link CPCA Kiwi Listening Device Results July 2017 – June 2018

Group/Project	Site Name	START DATE	FINISH DATE	EASTING	NORTHING	START TIME	FINISH TIME	SPAN in hours	Total no. calls	M	F	Duets/Pairs?
Hancock FM	Tuatua	7/06/2018	14/06/2018			18:00	22:00	32h	27	19	8	?
Hancock FM	Oyster	3/07/2018	15/07/2018			18:00	22:00	52h	43	32	11	?
Harris Rd Area Landcare	240 Harris Rd	14/06/2018	27/06/2018	1724091	6049649				n/a device failed			
Ngunguru Ford Landcare	Steve McQuoid Site	2/07/2018	5/07/2018			17:30	0:30	28h	0	0	0	
Ngunguru Ford Landcare	Robbie`s Driveway Site	2/07/2018	5/07/2018			17:30	0:30	28h	2	2		
NRC	Site 1	16/06/2018	25/06/2018			17:45	23:45	24	20	16	4	Yes
Owhiwa Landcare	Williams Forest	3/02/2018	4/03/2018			21:00	5:00	140h	0			
Owhiwa Landcare	Peterson	5/06/2018	9/06/2018			18:00	4:00	40h	0			
Owhiwa Landcare	Simon Craig	8/06/2018	12/06/2018			17:50	5:50	48h	0			
Owhiwa Landcare	Bob and Carol Gibson	15/06/1018	19//06/2018			17:30	22:30	20h	10	6	4	Yes
Owhiwa Landcare	Glenys Mullooly	22/06/2018	26/06/2018			18:00	23:00	25h	0			
Pataua North Landcare	Site1	15/06/2018	17/06/2018			17:30	20:30	9h	1	1		
Pataua North Landcare	Site2	18/06/2018	30/06/2018			17:30	20:30	39h	22	17	5	Yes
Whareora Landcare	Maungatika Site 1	5/06/2018	11/06/2018	1727254	6045154	17:30	22:30	15h	3	3		
Whareora Landcare	Maungatika - Home Stream Hilltop	5/06/2018	14/07/2018	1728043	6045201	18:00	0:00:00	6h	0			
Whareora Landcare	Maungatika - Reg & Kahu's log	2/07/2018	13/07/2018	1727284	6044474	18:00	0:00:00	6h	0			
Whareora Landcare	Holwell Ridge	13/06/2018	20/06/2018	1726944	6046407	17:30	3:30	10h	0			
No group	Taraunui Rd	16/06/2018	19/06/2018					0	n/a device failed			

Appendix 2: 2017 Annual Kiwi Call Count Survey – Human Listening – 2014 – 2017

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