Annual Report

on the Biosecurity Operational Plan

He Pūrongo Mahi Haumaru Koiora

2021-2022

Northland REGIONAL COUNCIL

Te Kaunihera ā rohe o Te Taitokerau

Foreword

Nau mai, haere mai

Welcome to the annual report on biosecurity for the Northland Regional Council.

Within these pages you will see the progress the Northland Regional Council has made over the last year with implementation of the Northland Regional Pest and Marine Pathway Management Plan 2017-2027 via both council-led programmes and with community-led pest and weed management. Community and landowner pest management is now operating at a landscape scale, and we are proud to support its continued growth. These initiatives are restoring kiwi populations and other rare biodiversity across more than 241,000 hectares of Te Taitokerau via High Value Area programmes and Kiwi Coast.

New research has also provided evidence that browsing pests like deer, goats and possums are making a significant contribution to climate change by eating their way through our native forests and we aim to turn the tide on that for Te Taitokerau. Other pest actions include Predator Free 2050, which is underway, and we highlight our involvement in this aspirational programme. We also describe a tough ongoing battle with weeds including wilding pines and the awesome efforts of weed action across the region.

Kauri protection also features, and we showcase what is happening in marine biosecurity both within the region and across the top of the north.

Relationships with our Te Tiriti partners continue to grow evidenced by more than 20 collaborations now underway with iwi, hapū and whānau- these relationships form the foundation of projects which we aim to sustain well into the future. We have also worked hard to develop relationships with the crown agencies of the Department of Conservation and Ministry for Primary Industries and co-funded projects where a collective agency approach is required. An exciting example of this is the recent allocation for $30M dollars by central government to address feral deer populations throughout Aotearoa. Our region is uniquely placed to receive funding to achieve eradication of feral deer and in doing so, safeguard our kauri forests and protect our rural economy from stock diseases like bovine tuberculosis- a disease that feral deer can carry.

Our goal is to keep supporting the aspirations of Northlanders for a better environment. We can't do it alone and we wish to thank everyone who takes the time to report anything unusual - you are the eyes and ears of better biosecurity for our region, and we welcome your ideas to help protect our environment, our culture and economic future.

Our Northland -together we thrive.

Jonathan Gibbard, Tāhūhū Rangapū - CEO

Northland Regional Council

Geoff Crawford

Chair Biosecurity and Biodiversity Working Party

Read below the summary report on the significant damaging impact browsing pests are having on climate change:

https://www.forestandbird.org.nz/sites/default/files/2021-06/Native%20Habitat%20Carbon%20in%20Crisis%20Report%20v2.pdf

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1. Introduction

Timitanga kōrero

1. Timitanga kōrero | Introduction

Background

The Northland Regional Council (council) is the management agency responsible for developing and implementing the Northland Regional Pest and Marine Pathway Management Plan 2017-2027 in accordance with the Biosecurity Act 1993 (Pest Plan). The Pest Plan is a combination of the eradication or effective management of specified pests (or groups of pests), and a marine pathway plan designed to prevent and manage the spread of harmful marine organisms via boat hull fouling within Northland coastal waters.

An Operational Plan is prepared and reviewed annually as a requirement of the Biosecurity Act 1993 (section 100B). It describes how the Pest Plan will be implemented for a given year. Council has a statutory requirement under the Act to report on progress in implementing the Pest Plan within five months of the end of the relevant financial year.

This Annual Report on the Operational Plan 2021-2022 is the fourth produced under the 10-year Pest Plan. The report notes progress made against aims, objectives and performance measures contained in the Operational Plan and expands on these where appropriate. This report should be read in conjunction with the Operational Plan 2021-2022 and the Northland Regional Pest and Marine Pathway Plan 2017-2027.

Practical Pest Management

Pest management delivery is undertaken by Council in the following areas:

Partnerships	Pest animal and weed projects with communities, iwi and hapū.
Pest Plants	Pest Plant control and enforcement led by Council, focused on preventing the spread and establishment of low incidence species and reducing impacts of sustained control species.
Incursions & Response	Delivery of: - Wild animal control - Incursion response - Freshwater pest animals and the Check, Clean, Dry programme
Marine	Eradication and control of marine pests
Kauri Protection	Regional actions to protect kauri and to meet the objectives of the kauri national plan.
Predator Free 2050	Whangārei and Bay of Islands (Pēwhairangi Whānui) projects

Council achieves practical pest management by:

- Requiring residents to adhere to pest or pathway management rules
- Undertaking inspections of properties and places
- Carrying out direct control (service delivery) of high threat pests where council is best placed to coordinate control efforts
- Promoting awareness and providing education and practical advice to residents on biosecurity issues and actions.
- Supporting community-led pest management activities through non-regulatory approaches such as council's biosecurity partnerships.

2. Ngā riwha katoa i te rautaki |Pest Species in the Plan

	NUMBER OF SPECIES (OR GROUPS OF SPECIES) IN THE PEST PLAN					
Type of Pest	**Exclusion**	**Eradication**	**Progressive Containment**	**Sustained Control**	**Banned from sale or distribution**	**Total**
Plants	13	22	5	18	35	**93**
Animals	11	3		12		**26**
Diseases				1		**1**
Fresh water	3	8	3	2		**16**
Marine				7		**7**
Total	**27**	**33**	**8**	**40**	**35**	**143**

3. Whakarāpopoto ā pūtea | Financial Summary

During the year significant external funding was received from the Ministry for Primary industries for Kauri Protection. Funding was also received from the following external agencies:

Ministry for Primary Industries:

Manchurian Wild rice control $300k

Wilding pine removal $1.4m

Kauri Protection of approximately $1 million

Marine incursions $115k

MBIE: Kauri Boardwalk Development $2m (of which $1m drawn down)

Department of Conservation: Wild Deer programme for Northland $50k

In addition, $740k of external funding was drawn down for Predator Free F2050.

Delays with recruitment and partnership agreements due to Covid 19 resulted in a variance of $352,902 (2.7% of expenditure) as at the end of June 2022.

Biosecurity Activities 2021- 2022	Budget (revised)	Actual	Variance
Expenditure	$14,029,024	$12,942,325	$1,086,699
Revenue	$11,806,498	$11,072,701	-$733,797
Operational deficit/surplus	**-$2,222,526**	**-$1,869,624**	**$352,902**

4. Community Engagement and Bicultural collaboration

Performance Measure	Result	Details
Bicultural collaboration The number of relationships or collaborative projects underway with hapū, whānau or iwi increases by a minimum of 5% annually.	**Achieved** **20 collaborations in 21/22 up from 11 the previous year**	At the end of 2021-2022, the Biosecurity team had new and strengthened collaborative relationships established with hapū, whānau or iwi as follows: • Te Rūnunga o Te kao / Te Aupōuri iwi – Wilding confiers • Ngāti kuri – wildign conifers • Te Orewai Te Horo Trust- Wilding conifers • Pātaua Tiaki Whenua Project Community Pest Control Area • Aki Tai Here – pest plants and PF2050 • Whirinaki Toiora Trust – Kaimahi for nature support • Patuharakeke - Piroa brynderwyn High Value Area, Kauri protection and marine biosecurity • Te Uri o Hau - Piroa brynderwyn High Value Area and Kauri protection • Ngati Hine Forestry – Kaimahi for nature support for farm restoration • Ngati Torēhina; Ngati Rehia; Patukeha; Ngati Kuta - PF2050 • Ngati Tirairaka o Ngati Hine – Restoration of Motatau Maunga and Kauri protection • Ngapuhi – Kauri protection • 3B2 Trust Rāwhiti – PF2050 and Kauri protection • Te Rarawa – Kauri protection • Ngāti Torehine ki Matakā – Marine biosecurity • Te Waiariki – Marine biosecurity
Bicultural capability All permanent staff will have achieved competency level 1 in council's Te Whāriki workshops.	**Achieved**	All permanent staff in the Biosecurity Group have achieved competency in level 1 of the Te Whāriki workshops, or in the case of recently employed staff they are booked in for this training.

Events

During the year many events were cancelled or unable to run due to Covid-19 regulations. Events are a vital part of the community engagement work carried out by the council biosecurity team and it has been difficult navigating two years of Covid-related restrictions.

The team looks forward to a reinvigorated events season in 2022-2023.

Pest Control Hub

The Pest Control Hub is the council's interactive portal, reached through the NRC website, that enables the public to identify pests and report them.

There were 85,543 visits to the Pest Control Hub homepage between 1 July 2021 and 30 June 2022, in comparison with 42,421 visits in the prior year, demonstrating the increasing success of the Hub as an awareness-raising and reporting tool.

Social Media and Media Engagement

The biosecurity team continues to actively engage via the council's Facebook site, website and with regular media releases.

Performance Measure	Result	Details
Community Engagement – social media Total number of social media interactions is maintained or is greater than the previous year.	**Achieved**	We have previously recorded this measure via total number of various social media posts and views; however, due to changes in the way data are collected this year's statistics are not directly comparable to previous years. A more useful metric is the engagement data from social media interactions. Below we highlight the top three facebook posts during 2021 -2022 as an example which shows we regularly achieve greater than industry standard rates of engagement on biosecurity issues.

Most popular Facebook posts

Metrics explained

How is our engagement rate compared to other pages?

Engagement metric 1 = Likes + Comments + Shares (for the post) / Total Fans

Industry average = 1% – 2%

Date/Month/Year	Post	Metric 1 Engagement / Total Fans
28 July 2021	Toxic Sea Slug found at Mangawhai Heads	7.89%
20 April 2022	Media release on the revamped section of Te Araroa trail	2.95%
26 June 2022	Video on Far North wilding pines project	1%

Left: Toxic Sea Slug

Above: Wilding pines project

Left: Te Araroa trail

5. Pest Plants

Riha otaota

1

Exclusion species incursions

16

Eradication plant incident reports

7

Biofund projects with a pest plant component

1,098

Public enquiries

74,800

Wilding pines controlled

9,541

Weed Action volunteer hours

85,543

Pest control hub total page views

For all pest species

1000+

Eradication site inspections

45

Weed workshops participants

1,100 since 2011

5.1 Exclusion plants

Key points of the exclusion pest plant programme

- Enforcement of rules relating to exclusion plants.
- Eradication of exclusion plants found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National Pest Plant Accord). This performance measure is reported in ***Section 6.4 Sustained control plants***

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
New incursion sites of exclusion plants are identified through passive and active surveillance by council staff, the public, or through regional surveillance.</td><td>Achieved</td><td><table><tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr><tr><td>Confirmed incursions</td><td>1</td><td>0</td><td>1</td></tr></table></td></tr>
<tr><td colspan="3">A single site of the exclusion species Climbing spindleberry (Celastrus orbiculatus) was discovered in the Onerahi area by a Biosecurity Officer.
There was one report of potential velvet leaf infestation by the public. The site was inspected and found to be a juvenile whau plant.</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days.</td><td>Achieved</td><td>Initial investigation of the single potential incursion was undertaken within 5 working days and response plan completed within 20 days.</td></tr>
<tr><td colspan="3">Climbing spindleberry management site
This site was discovered in June 2022. The yellow foliage was spotted from the road by a biosecurity officer and was subsequently investigated, confirmed and controlled immediately. An extended search was conducted in the area surrounding the single identified adult plant, but no further plants were detected, despite the plant having been in situ for a long period, given the very large main trunk of vine. Drone survey, digital media and a mail out is planned for next autumn when the foliage of the species is most distinctive. This is the only known site in Northland.

Houttuynia management sites
Ongoing surveillance continued at the two existing Houttuynia management sites (three inspections per annum). At the most recent management site (discovered October 2019), no plants were found over the course of the 2021-2022 visits. The second management site (discovered 2017) 10 seedlings/areas of re-growth were detected on the most recent visit, despite the three previous inspections having been clear, reflecting the persistence of this species.

Velvetleaf surveillance site
Annual surveillance was undertaken at the existing velvetleaf management site (a property which received fodder beet seed from a batch infected with velvetleaf seed in 2016) and no plants were observed.</td></tr>
</table>

5.2 Eradication Plants

Key points of the eradication pest plant programme

- Enforcement of rules relating to eradication plants.
- Eradication of listed eradication pest plants found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National pest plant accord). This performance measure is reported in ***Section 6.4 Sustained control plants*.**

Performance Measure	Result	Details
Identify new sites New incursion sites of eradication plants are identified through passive and active surveillance by council staff, the public, or through regional surveillance. *Unbracketed figures are the total confirmed new sites identified in the year.* *Bracketed figures are the subset of the new sites arising from public reports.*	**Achieved**	See table below

New sites identified	2019-20	2020-21	2021-22
Bat-wing passionflower	31 *(5)*	39 *(6)*	40 *(10)*
Mickey mouse plant	16 *(2)*	181 *(8)*	160 *(4)*
Yellow flag iris	4 *(1)*	2 *(1)*	9
Evergreen buckthorn	2	1	-
Spartina	1 *(1)*	1 *(1)*	2 *(1)*
Mexican feathergrass	1 *(1)*		4
Wilding kiwifruit	1 *(1)*	1 *(1)*	-
Firethorn	1	1 *(1)*	5 *(1)*
Akebia	1	1 *(1)*	-
Balloon vine	-	1 *(1)*	-

The effectiveness of eradication work is predicated on having a high certainty that most infestation sites are known. In 2021- 2022, there was a continued focus on trying to better delimit some of the eradication species programmes where there was more risk of undetected sites due to previous capacity constraints restricting this type of work. The largest eradication programmes, bat-wing passion flower and Mickey mouse plant were again a particular focus for this work resulting in many new management sites as detailed above and below.

Eradication species		Identification of new management sites
	Bat-wing passionflower	There were twelve bat-wing passion flower reports received from the public, resulting in 10 confirmed new sites. Some of these reports were prompted by mail outs undertaken in buffer areas surrounding known management sites. Continued intensive surveillance in both residential and forest areas in the buffer area around known sites has again resulted in a significant number of new management sites being detected (40). This is a factor of having had limited capacity in previous years to undertake additional surveillance over and above the scheduled inspection of known management sites, resulting in unknown sites contributing to further spread. Despite further survey work, there were no further infestations of bat-wing detected in the Whangārei Heads area in 2021 2022 , following the discovery of an isolated cluster of seedlings in that area in February 2021. (Note: 3 further seedlings have subsequently been detected in Sept 2022).
	Evergreen buckthorn	Further extended abseil search work was undertaken along the coastal cliff in the Sandy Bay area, continuing the search work further north from the infestations confirmed in 2020 -2021. One outlying seedling was discovered, and the existing management area has been extended as a result..
	Field horsetail	No new sites. Juveniles found this year in a different place to previous records, but still within the existing management area, which is believed to have arisen from contaminated fill.
	Firethorn	Four new sites from staff identification in the field. One site is a range expansion from a further delimiting survey. Three reports from the public were investigated. One proved to be a different species of pyracantha, one was not pyracantha, and the other was confirmed as a new site of firethorn (Pyracantha angustifolia).
	Mexican feather grass	Staff identified four new sites via search and traceback around one incidental observation.
	Mickey mouse plant	The extended field surveillance started last year continued, targeting a buffer area around known sites. This again resulted in a significant number of new management sites (160). Six Mickey mouse plant reports were also received from the public with four confirmed as new sites.
	Spartina species	One public report was investigated and confirmed as a new site in the Kaipara harbour. Staff also undertook a desktop analysis of aerial photos and identified and subsequently further confirmed a further site in the Kaipara harbour. A trial using drones was also undertaken at two known sites to assess how successful the technology is in defining known sites and detecting new infestations. Subsequent ground-truthing of the sites is yet to be undertaken.
	Yellow flag iris	Total of nine new sites identified from a staff report and an extended search.

Performance Measure	Result	Details
Incident investigation and response Initial investigations for all reported sightings and/or discoveries of eradication species undertaken within 10 working days and control actions completed within 20 days.	**Not achieved**	<table><tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr><tr><td>Incidents reported</td><td>26</td><td>34</td><td>22</td></tr></table> Of the 24 incident reports responded to, seven took longer than the target time for inspection/control actions to be completed.
Due to the workload posed by the existing known management sites, and the distance of some reports from where staff are based, it is still difficult to be able to respond to all reports within the target period. This was exacerbated in in 2021-2022 by COVID-19 restrictions and illness impacting on staff capacity.		

Performance Measure	Result	Details
Best practice management All management sites visited on scheduled best practice rotation. *(based on biological characteristics of each species and defined in the species programme record in the Council's IRIS database).*	**Achieved in part**	Refer species details below.
The frequency of inspection and control for management sites of eradication species is dependent on the species ecology and the site status. Each species has a target inspection schedule that would reduce the risk of plants reaching maturity between inspections based on the growth rate and likelihood of plants being missed in the previous inspection. Prior to the addition of new sites from public reports and extended surveillance work undertaken this year, there were 1128 small scale, and 124 moderate to large scale eradication pest plant management sites spread across the Northland region that required regular inspection and control on varying rotations. Despite some additional contract resource for the program in 2020 in 2021, it remains challenging to meet the best practice targets for all management sites, for all species, while still completing surveillance and delimiting work. One additional staff member now working in the Community Partnership space has reduced some workload for the three FTEs that deliver the eradication programme. Staff are continuing to support contract staff to upskill and build capacity to help deliver this work. COVID-19 restrictions on staff and contractor field work, and illness during the Omicron wave, also had a major impact on delivery capacity. Three months of the key summer control period were severely impacted. This had a major impact on most programmes, especially those with seasonal restrictions like the spartina programme.		

Eradication plant management site visits 2021-2022			
Eradication plant		Results	Details
	Akebia	Achieved in part	Best practice (biannual inspection of active sites) was achieved for 57% of sites. Two active sites received a single inspection and treatment visit, one site was not inspected, while the remainder received two inspection/control visits.
	Balloon vine	Achieved	The target annual inspection and control activity was undertaken for each of the two existing large-scale balloon vine management sites. Additional extended surveillance was undertaken for the site identified late last year.
	Bat-wing passionflower	Not achieved	Best practice (triannual inspection/ four monthly inspection rotation) was only achieved for 1.6% of sites, as very few sites received three inspections/treatments in 2021- 2022. It remains challenging to resource more than 900 inspections required per annum to meet the best practice target. The current manual data recording and entry system is also very time consuming and inefficient and adds significantly to workload. Work continues to build contractor resource and capacity, and develop a replacement database with spatial data capture, management and reporting capabilities.

	Cape tulip	Not applicable	Managed by Ministry for Primary Industries.
	Cathedral bells	Achieved in part	Best practice (biannual inspection of active sites) was achieved for 50% of sites; three active sites received only one site visit, rather than the target of two. Two of those sites are approaching status change to Monitoring, with no plants detected. At the fourth site, a significant new area of infestation found and treated.
	Chilean rhubarb	Not achieved	The large Chilean rhubarb infestation area did not receive the planned annual survey and control.
	Evergreen buckthorn	Not achieved	Best practice (biannual inspection of active sites) was only achieved for 30% of sites
	Field horsetail	Achieved	The targeted biannual inspection and control were undertaken.
	Firethorn	Achieved in part	Best practice (annual inspection of active sites) was achieved for 57% of sites. Three Active sites did not receive annual inspection and control.
	Gypsywort	Not applicable	Managed by the Department of Conservation and Fish and Game New Zealand.
	Lesser knotweed	Not achieved	Best practice not achieved (updated best practice now triannual inspection of active sites). Single and inspection and control visit only due to restriction's around rail line access and COVID.
	Mexican feather grass	Achieved in part	Best practice (annual inspection of active sites) was achieved for 80% of sites. One active site did not receive annual inspection. One historic site still on record with insufficient location information.
	Mickey mouse plant	Achieved in part	Best practice of biennial inspection and control was achieved for 86% of sites, and extended searches undertaken in buffer zone of known infestation sites.
	Monkey musk	Not achieved	Best practice of biannual inspection and control not achieved. Three sites received only a a single inspection and treatment visit. One site was inspected but not controlled due to access issues/landowner concerns
	Nassella tussock	Not achieved	The single active coastal cliff site and surrounds was searched by staff and abseil contractors in 2021-2022, and two further monitoring sites were searched. The remaining Monitoring sites were not searched due to capacity issues. These are large scale sites on long-term reinspection timeframes. 20 of these sites are due for re-inspection, and a further 10 historic sites have been identified for final inspections to confirm as eradicated (20 years). Resourcing this work remains difficult, especially for the sites in regenerating bush, as it is very labour intensive and there are no local trained contractors available for this work.

	Nutgrass	Achieved	Best practice of biannual inspection and control achieved. Two inspections were undertaken at the single known management site. Control required on the most recent.
	Royal fern	Not achieved	One of the two large management sites received annual surveillance and treatment. Scheduled contract ground truthing of drone surveillance and control work in Autumn 2022 was cancelled due to COVID impacts on contractor availability.
	Spartina species	Not achieved	Best practice (annual inspection of active sites) was achieved for 20% of sites. Sites in the Whangaroa Harbour, Taipā, Mangonui, Rangaunu Harbour, and Pārengarenga Harbour were previously managed by the Department of Conservation but are now no longer being actively managed. Before council staff can recommence aquatic herbicide treatment, full consultation with local iwi and hapū will be required. Additional survey and delimitation will also need to be completed. There is still limited capacity to initiate this work, as the current council resource to manage and deliver spartina work in the mid and far north remains a 0.5 FTE role, based in the Waipapa office, that is also responsible for numerous other pest plant species control programmes and community liaison.
	Wilding kiwifruit	-	No existing sites were able to be prioritised for follow up within existing resources. The risk of regrowth at these previously treated sites is very low, and there have been no further reports.
	Yellow flag iris	Achieved in part	Best practice (annual inspection and control) was achieved for 88% of sites. There were 6 sites that did not receive an annual inspection.

Modified performance measure		
Progress towards eradication Annual decrease in number of adult plants observed and/or the infestation area at existing management sites.	**Modified measure**	Refer species details in table on facing page.

This performance measure is used to determine if current management practices are successful in preventing the maturation of plants (and thereby reducing the risk of spread to new sites), or in reducing the total infestation area. Data recorded are:

- Number of sites with mature foliage – this is as recorded at the most recent inspection.
- Count of adult plants – is data for the entire inspection year.
- Infestation area – measured at the most recent inspection, for species where count data cannot be utilised.

Until the new mobile data collection tools are developed with mandatory fields and units for each species, data collection is still in a transition phase, especially for programmes with sites at a range of scales, where large sites are often recorded by infestation area, and small sites recorded as count data.

It should also be noted that based on current technology, infestation area data is subjective. It relies upon observer skills in assessing both area and density to give an estimation of total infestation area.

Despite reduced capacity in 2021 2022, there was still progress made on many of the smaller scale programmes. For some of the larger and more challenging programmes however, there was some impact on eradication progress, due to mature plants being found at existing and previously undetected sites.

- The akebia programme is showing good progress with one site moved to eradicated, and regrowth but no mature foliage at any of the management site at the last inspection.
- The cathedral bells programme has 3 sites in monitoring status, 2 close to status change to monitoring, and only one more significant active site where adult foliage was found.
- Of the two large balloon vine management sites, only limited juveniles were found at the site that has been under long term management. The newer site had significantly reduced area since the initial control but 2 plants with mature foliage were found.
- The single known site of field horsetail continues to produce the occasional juvenile plant despite 7 years of at least biannual surveillance and control. This species is known to have a long- tail to confirm eradication.
- The single management area of lesser knotweed has seen a reduction in infestation area, but needs consistent triannual control to effectively limit re-growth and achieve eradication.
- More control effort is required to ensure firethorn management sites are contained and eradicated. Five new sites were added to the program and an extended search of properties adjacent to known roadside site found significantly more adults scattered over 200m2 area.
- Four new sites of Mexican feathergrass added to that programme. Existing sites now very small/zero density.
- In the monkey musk programme there were 2 sites with active growth and mature foliage. No plants were found at the other two sites.
- One active site of Nasella with six small plants found in one small area (stunted but still possibly mature foliage). The other sites are in long-term monitoring (20 years to determine eradicated).
- The single site of Nutgrass continues to produce seedlings and re-growth despite regular control (c 20 stems at last inspection).
- For the yellow flag programme, there is still a relatively high proportion of sites with mature foliage (27% but overall area is reducing and two sites were confirmed eradicated. However, a significant area (70m2) of new infestations was also found.
- For the evergreen buckthorn programme, additional extended search work is still required to fully delimit the extent of this species given several sites not receiving scheduled treatment.
- Increases in site numbers and adult plants from extended search for Mickey mouse and bat-wing passion flower indicate that these programmes are still not well contained. These are challenging programmes because of their scale, and in case of bat-wing, due to its growth rate to maturity. Forty new sites were recorded for bat-wing and a high count of plants found with mature foliage. One hundred and sixty new sites were recorded for Mickey mouse. Inspections were finding a large proportion of sites had plants with mature foliage present and had a high count of mature plants present in those sites (276 – though it should be noted that this figure is inflated by initial inspection figures for the large number of sites that were new last year still being reflected in the data).

Eradication plant	Year	Number of sites		Number of sites with mature foliage		Count of adult plants		Infestation area	
		Existing	New	Existing	New	Existing	New	Existing	New
 Akebia	2019-20	5	1	4 (80%)	1 (100%)			n/a	n/a
	2020-21	6	2	1 (17%)	1 (50%)			100 m^2	7 m^2
	2021-22	7	0	0	-			43.75 m^2	-
 Balloon vine	2019-20	1 (large)	0	0	-			n/a	n/a
	2020-21	1 (large)	1	0	1 (100%)			0.91 m^2	30 m^2
	2021-22	2 (large)	0	1 (50%)	-			3.5 m2	-
 Bat-wing passionflower	2019-20	259	31	39 (15%)	17 (55%)	72	166		
	2020-21	272	39	42 (15%)	8 (21%)	176	9		
	2021-22	307	40	29 (9%)	19 (48%)	121	39		
 Cathedral bells	2019-20	6	0	2 (33%)	-			1,000 m^2	-
	2020-21	6	0	1 (17%)	-			1,000 m^2	-
	2021-22	6	0	1 (17%)				750 m^2	-
 Chilean rhubarb	2019-20	1 (large)	0	1 (large)	-	18	-		
	2020-21	1 (large)	0	1 (large)	-	26	-		
	2021-22	1 (large)	0	1 (large)	-	26			
 Evergreen buckthorn	2019-20	46	2	7 (16%)	2 (100%)	29	16		
	2020-21	48	1	9 (18%)	1 (100%)	44	20		
	2021-22	51	0	10 (20%)	-	40			
 Field horsetail	2019-20	1	0	0	-	-	-		
	2020-21	1	0	0	-	-	-		
	2021-22	1	0	0	-	-	-		
 Firethorn	2019-20	5	1	1 (20%)	1 (100%)	n/a	1		
	2020-21	6	1	5 (83%)	1 (100%)	n/a	3		
	2021-22	7	5	2 (29%)	5 (100%)	53	9		
 Lesser knotweed	2019-20	1	0	1	-			75 m^2	-
	2020-21	1	0	1	-			92 m^2	-
	2021-22	1	0	1	-			22 m^2	-
 Mexican feather grass	2019-20	5	1	1 (20%)	1 (100%)	5	25		
	2020-21	6	0	2 (33%)	-	6	-		
	2021-22	5	4	1 (20%)	4 (100%)	2	41		
 Mickey mouse plant	2019-20	506	16	84 (17%)	6 (38%)	207	18		
	2020-21	522	181	47 (9%)	59 (33%)	96	187		

Eradication plant	Year	Number of sites		Number of sites with mature foliage		Count of adult plants		Infestation area	
		Existing	New	Existing	New	Existing	New	Existing	New
	2021-22	695	160	112 (16%)	54 (34%)	276	124		
 **Monkey musk**	**2019-20**	4	0	2 (50%)	-			n/a	-
	2020-21	4	0	3 (75%)	-			n/a	-
	2021-22	4	0	2 (50%)	-			295 m^2	-
 **Nassella tussock**	**2019-20**	33	0	0 (0%)	-	0	-		
	2020-21	33	0	n/a	-	n/a	-		
	2021-22	34	0	1 (2.9%)	-	6	-		
 **Nutgrass**	**2019-20**	1	0	0	-	-	-		
	2020-21	1	0	0	-	-	-		
	2021-22	1	0	0	-	-	-	1 m^2	-
 **Royal fern**	**2019-20**	3	0	-	-	n/a	-		
	2020-21	3	0	1	-	n/a-	-		
	2021-22	3	0	1 (33%)	-	50	-		
 **Spartina**	**2019-20**	120	0	n/a	-			n/a	-
	2020-21	120	1	n/a	n/a			n/a	n/a
	2021-22	116	2	n/a	n/a			102150 m^{2*}	2320 m^2
 **Yellow flag iris**	**2019-20**	45	4	13 (29%)	4 (100%)			n/a	n/a
	2020-21	49	2	18 (37%)	2 (100%)			1,291 m^2	3 m^2
	2021-22	48	9	13 (27%)	9 (100%)			539 m^2	69 m^2

**This is an approximate estimate only; Data is incomplete and infestation area has not been consistently interpreted as extent x density.*

5.3 Progressive Containment Plants

Key points of the Progressive Containment programme

- Eradication of plants outside the defined containment zones in Northland.
- Enforcement of rules relating to occupier led control.
- Council will also support communities to reduce the impact of progressive containment pests through non-regulatory biosecurity programmes.

The objectives and rules of the progressive containment plant programme vary by species and location. Control responsibilities are summarised below.

Species	Responsibility for control	
	Outside the containment zone	Inside the containment zone
African feather grass	Council led eradication	Owner-occupier management to reduce the risk of spread
Pultenaea	Council led eradication	Owner-occupier management to reduce the risk of spread
Mile-a-minute	Council led eradication	No requirement to control
Lantana	Owner-occupier management to reduce the risk of spread	No requirement to control
Manchurian wild rice	Ministry for Primary Industries led eradication, delivered by council	No requirement to control

Progress in achieving aims

Annual status reports

Annual reporting on the status and number of new sites of all progressive containment plants is required in the Pest and Operational Plans. With the exception of Manchurian wild rice, the 2021-2022 status reports are detailed in the performance measure tables below. The Manchurian wild rice programme is funded by the Ministry for Primary Industries as part of its National Interest Pest Response Programme and is reported on separately – only highlights from the programme are reported here.

Performance Measure	Result	Details
Identify new sites New sites of progressive containment plants are identified through passive and active surveillance by council staff, the public, or through regional surveillance.	**Achieved**	New sites identified: 2021-2022 African feather grass: 0 Pultenaea: 0 Mile-a-minute: 24 Lantana: 3
Incident investigation and response Initial investigations for all reported sightings and/or discoveries of Progressive Containment species are undertaken within 10 working days and decisions documented within 20 working days.	**Achieved**	2019-20 / 2020-21 / 2021-22 Public reports: 8 / 4 / 2 COVID-19 restrictions meant that these reports could not be actioned within the target period

African feather grass

A survey of the existing roadside management units outside of the containment zone was undertaken to audit contractors and ensure there were no undetected infestation sites. No further sites detected.

A second survey was undertaken to finish delimiting the site found on the coast of the Poutō peninsula. A second cluster of infestation sites (approximately 3,925 m2) were found to the north, but still within a relatively contained area.

Lantana

Three new small scale lantana sites were identified and controlled, and the landowners made aware of requirement for follow up control.

Mile-a-minute

An extended search was undertaken in the Bayly's beach area to confirm the boundaries of the infestation in this area given the identification of a second site in 2020 2021. Twenty-two new sites totalling approximately 500m2 were found, 6 of which had mature foliage present.

Two other sites were identified by staff, one in urban Whangarei and one a slight range extension (seedlings only) of an existing site in Marsden Point.

Performance Measure	Result	Details
Best practice management All Council managed sites visited on scheduled best practice rotation. *(based on biological characteristics of each species and defined in the species programme record in the Council's IRIS database).*	**Achieved in part**	Refer species details below.

Progressive containment plant management site visits 2021-2022			
Pest plant		**Results**	**Details**
	**African feather grass**	**Not achieved**	Scheduled contract control work in the dune management unit and road management units was not undertaken due to contractor capacity.
	**Lantana**	**Not achieved**	Control is undertaken by occupiers, and the programme currently has no set targets for follow up contact with landowners where control or management plans have previously been enforced. Inspection of previous sites for continued compliance had largely been put on hold because of capacity issues, which were exacerbated by COVID-19 restrictions (progressive containment being a lower priority than the eradication work).
	**Mile-a-minute**	Achieved in part	Best practice (annual inspection for active sites) was completed for 86.7% of management sites.
	**Pultenaea**	Achieved in part	Best practice (annual inspection for active sites) was undertaken at all except one site.

Modified performance measure		
Progress towards eradication Annual decrease in number of adult plants observed and/or the infestation area at existing Council managed sites.	**Modified measure**	Refer species details below.

This performance measure is used to determine if current management practices are successful in preventing the maturation of plants (and thereby reducing the risk of spread to new sites), or in reducing the total infestation area. Data recorded are:

- Number of sites with mature foliage – this is as recorded at the most recent inspection.
- Count of adult plants – is data for the entire inspection year.
- Infestation area – measured at the most recent inspection, for species where count data cannot be utilised.

Until the new mobile data collection tools are developed with mandatory fields and units for each species, data collection is still in a transition phase, especially for programmes with sites at a range of scales, where large sites are often recorded by infestation area, and small sites recorded as count data.

It should also be noted that based on current technology, infestation area data is subjective. It relies upon observer skills in assessing both area and density to give an estimation of total infestation area.

Eradication plant	Year	Number of sites		Number of sites with mature foliage		Count of adult plants		Infestation area	
		Existing	New	Existing	New	Existing	New	Existing	New
 **African feather grass**	**2019-20**	26	0	12 (48%)	-			n/a	-
	2020-21	27 [1]	0	13 (50%)	-			[2] 7,823 m^2	-
	2021-22	27	0	8 (30%)	1 (100%)			6720 m^2	3,925 m^2
 **Mile-a-minute**	**2019-20**	45	0	3 (7%)	-			n/a	-
	2020-21	45	1	2 (4%)	1 (100%)			121 m^2	50 m^2
	2021-22	45	24	10(22%)	7(29%)			372m^2	539m^2
 **Pultenaea**	**2019-20**	4	0	3 (75%)	-	131	-		
	2020-21	4	4	4 (100%)	3 (75%)	795 [3]	28		
	2021-22	8	0	4 (50%)	-	26	-		

1 Increase in African feather grass sites is because of splitting of one large management unit into two to improve management and reporting.

2 Includes a 6,665 m^2 infestation site in Poutō sand dunes reported in 2019-2020, but only delimited in 2020-2021.

3 The bulk of these plants came from a large management site that received intensive grid search and control.

Manchurian wild rice

The Manchurian wild rice control programme is carried out in partnership with the Ministry for Primary Industries as part of the National Interest Pest Response Programme (NIPR), and a detailed annual report is produced as part of the funding agreement and is summarized below for 20-21.

Work outside containment (Intransigent) zone

The programme in Northland is based on progressive containment and prioritising sites outside of the Intransigent zone which is centred around the core river infestations, for eradication. Progress toward eradication of sites outside of the intransigent zone can be seen in the change in T.I.M.E [4] classification status.

Over the course of the 2021-2022 management period, 22 sites underwent a positive change in classification; 14 Treatment sites were updated to Interim, three Interim sites were updated to a Monitored classification, and five sites were confirmed as eradicated. Eight sites underwent a negative change; seven Interim sites reverted to Treatment, and one Monitored site reverted to Treatment after three fronds of live foliage were found. This is summarised in the table below

Two potential new sites were identified throughout the year, one through public reporting and the other during an extend surveillance survey. The sites were investigated, confirmed, with traceback and delimitation undertaken. At year end the total number of sites under management outside the Intransigent zone was 255.

Covid lockdown and restrictions presented some operational challenges throughout the year, delaying the start time of treatment rounds due to regional travel restrictions and impacting the availability of contractors as they became exposed to the virus. Due to the delays the second round of treatment was pushed into the winter months, so some sites where not accessible due to saturated ground conditions. Despite the challenges 74% of sites received two rounds of treatment.

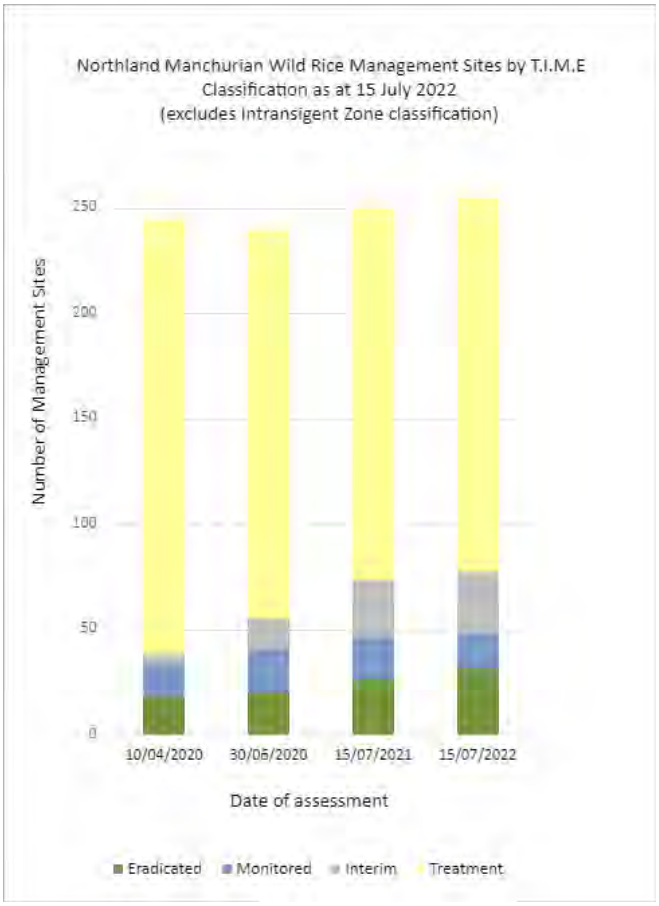
Manchurian wild rice treatment site classification changes			
Positive change	**2019-20**	**2020-21**	**2021-22**
Treatment to Interim	10	20	14
Treatment to Monitored	-	4	-
Interim to Monitored	9	4	3
Monitored to Eradicated	1	6	5
Negative change	**2019-20**	**2020-21**	**2021-22**
Interim to Treatment	3	1	7
Monitored to Interim	-	2	1

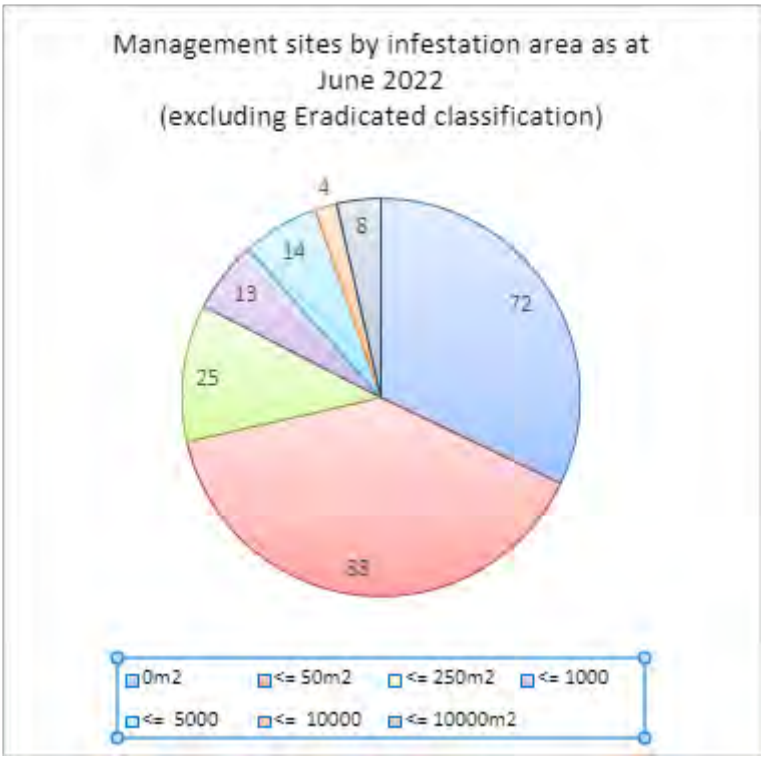
Manchurian wild rice growing along a drainage channel inside the Intransigent zone.

[4] T.I.M.E treatment site classification system utilized by the Ministry for Primary Industries (T = treatment, I = interim, M = monitored, E = eradicated).

The below graph gives an overview of the total number and relative proportions of management sites by the T.I.M.E classification status as progress is made toward eradication. The positive trend continues, but progress is still slow, reflecting the difficult nature of this species to control.

However, infestation size can also be seen to be reducing; The adjacent pie chart shows the relative proportions of management sites by infestation area, showing that the majority of sites are now relatively small (≤50 m^2), or are sites with little to no live foliage present.





Manchurian wild rice regrowth in a roadside water table.

Inside the containment (Intransigent) zone

Land occupiers are not required to undertake control of Manchurian wild rice on their properties inside the intransigent zone however, council staff continue to work with and support landowners to undertake control, provide advice and information on best practice techniques and herbicide.

NRC was able to supply support and herbicide to 14 landowners undertaking ongoing control, and 11 new landowners commencing control in 2021-2022.

Work is also underway with landowners looking at alternate treatment methods, to reduce herbicide use and time to eradication. The Ministry for Primary Industries has recognised the value in the work being done by Northland farmers and the NRC this year, and has agreed to fund alternative treatment trials and control approaches in the next year of the programme.

5.4 Sustained Control Plants

Key points of the sustained control pest plant programme

- Enforcement of rules relating to sustained control plants.
- Enforcement of Good Neighbour Rules [5].
- Inspection and enforcement of rules relating to quarries.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National Pest Plant Accord).
- Enforcement of rules relating to road and rail corridors, and development and implementation of management plans relating to the corridors.
- Reducing the impacts of pests that are widespread in suitable habitats throughout Northland. These pests all cause adverse effects to the environmental, economic, social, or cultural values of the region.
- Council will provide education, advice, and support to enable landowners to manage sustained control pests on their properties.

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Request response time
Response to requests from the public on sustained control plant pests responded to within 20 working days.</td><td>Response time data not available</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Sustained control pest plant requests</td><td>657</td><td>1,227</td><td>1,098</td></tr>
</table>
The council database reporting system is not currently able to report on request response times and requires modification to capture response data (rather than close date) for this performance measure.
</td></tr>
<tr><td colspan="3">Enforcement requests (incidents)
Of the 35 requests for enforcement of sustained control pest plant rules, 18 were actioned within 20 working days. Note, the majority of these enforcements were not resolved within 20 days because of the enforcement process compliance window must allow for inspection, serving of the Notice, and then a reasonable period for control work to take place.
The increase in enforcement requests noted 2020-2021 was sustained in 2021-2022. Covid-19 restrictions again had a significant impact on this service delivery as enforcement fieldwork was largely put on hold during the initial Omicron outbreak, along with other eradication delivery work that had to be prioritised when normal work resumed, compounding the delays.</td></tr>
<tr><td>Road and rail five year weed management plans
All road and rail authorities have 5 year weed management plans or prioritised annual plans approved and implemented.</td><td>Not achieved</td><td>Whangarei District Council have a plan in place and due for renewal in 2023. Waka Kotahi, the New Zealand Transport Agency had a plan in place, which has now expired.

Discussions have been had with the Kaipara District Council, Far North District Council and New Zealand Rail to progress their lack of compliance with the Regional Pest Management Plan rule.</td></tr>
<tr><td colspan="3">During the period disrupted by COVID-19, It has been challenging to achieve meaningful buy-in by the roading authorities into updating/ completing and actioning plans that meet the intent of the Regional Pest Management Plan rules relating to road and rail corridors.

However, good progress has recently been made with KiwiRail and NZTA representatives, and the Chair of the Northern Transport alliance (NTA) that is comprised of all of the District Council roading authorities. They are now more aware of the objectives of the plans, however, all of the authorities find resourcing the plans highly challenging. The majority of vegetation management budgets are still focused on safety and maintenance, and there is a lack of certainty around baseline and future funding. All authorities have been asked to provide more detailed costings in the management plans to better quantify the cost of more substantial and proactive control and the shortfall in budget.</td></tr>
</table>

[5] Good neighbour rules are designed to address the external effects of pests spilling over from land onto adjacent properties.

Performance Measure	Result	Details
Plant retail outlet compliance All known plant outlets in Northland are inspected annually for exclusion, eradication, progressive containment and sustained control species, and species banned under the National Pest Plant Accord.	**Achieved in part**	

	2019-20	2020-21	2021-22
Nurseries inspected	61%	72%	44.9%

Plant retail outlet compliance

There was one instance of non-compliance found with needlepoint ivy cultivars of *Hedera helix* being offered for sale. These were voluntarily removed and destroyed by the seller. One further nursery was asked to control moth plant growing adjacent to the nursery area, and this has been completed.

Covid-19 restrictions again had a significant impact on this service delivery as non-essential fieldwork was largely put on hold during higher alert level settings and the subsequent Omicron outbreak, along with other eradication delivery work that had to be prioritised when normal work resumed, compounding the delays. We now have partnerships focused Biosecurity Officer that will be able to prioritise this work and nursery engagement/education in 2022-2023.

TradeMe

Trade Me was monitored through saved searches for species banned from sale and propagation (focussed on higher risk species). Two listings for agapanthus and five listings for banned tradescantia cultivars were reported and removed.

5.5 Community Partnerships

In addition to the regulatory work undertaken for pest plants, work continues to raise community awareness and understanding of the threat posed by pest plants, and to encourage and remove barriers to community action, though advice and funding support. The cases studies over page highlight the great work achieved by the pest plant focussed groups in three of the Council's High Value Areas, despite a challenging year due to COVID disruptions.

Partnership activity	Details

Council supported programmes – Biofund

Biofunds approved for the community.

Biofunds	2019-20	2020-21	2021-22
With pest plant component	10	11	7
Total biofunds granted	87	117	88

Council supported programmes – High Value Areas

Summary of the engagement work undertaken by the High Value Area Pest Plant groups.

Community group engagement	2019-20	2020-21	2021-22
Volunteer and education events	69	164	78
Awareness campaigns / media articles	13	31	24
Recorded volunteer hours	4,266	6,505	9,541
Landowner site visits, advice, and materials	164	89	124
Social media posts	106	160	94

Weed Action – Native Habitat Restoration Trust

https://weedaction.org.nz/whangarei-heads/

The Weed Action Native Habitat Restoration Trust, (Weed Action) is a community-based organisation focussed on protecting the ecosystems of Whangārei Heads peninsula through protecting and restoring native habitats by removing invasive weeds and preventing the spread. They do this through several channels; Raising awareness in the community, removing barriers to action, supporting and encouraging volunteer action; and building relationships with different agencies and advocating for action and resources. Biosecurity staff assist with advice and funding applications.

Key highlights this year include:

Weed Action's work was highlighted in the Parliamentary Commissioner for the Environment's report 'Space invaders: A review of how New Zealand manages weeds that threaten native ecosystems'.

The Action group continues to build a local hapū connection and develop successful funding applications for iwi-led initiatives, and to enable the deployment of the Aki Tai Here restoration team members on projects at the Heads. A series of hui were also held to explore hapū aspirations for the restoration of Manaia maunga, and how Weed Action might facilitate this.

An MOU has been developed with Whangarei District Council to support work on their reserves and provide volunteer support.

Successful funding grants and advocacy by Weed Action enabled 904 contract weed control hours to take place in Public Conservation and reserve land. This work would otherwise not have occurred.

Launch of the Whaka Ora Reotahi project, a collaboration between Weed Action and tangata whenua. This project is utilising funding from a successful Lotteries grant to support volunteer action, and to engage the Aki Tai Here team for control work in some of the more inaccessible and densely weedy areas of the maunga.

The third year of the Parua Bay Privet buffer project has been delivered and extended to 38 landowners committed to the project, delivering over 450 hours of in -kind privet control to match contractor hours.

Advocacy continued through roadside signs, Facebook posts, newsletters, mail drops and through initiatives like the moth plant pod disposal bin and community competition, which removed millions of seeds from the Whangārei Heads environment.

Weed Action also supported landowners to access Biofund and providing training and oversight to ensure follow on work continues,

Weed Action Whangārei Heads 21-22	
Volunteer events	62
Engagement initiatives	8
Volunteer members	40
Weed Action groups	8
Landowner support	79
Total volunteer hours	5645

NorthTec students and Aki Tai Here weed team about to head up Mt Manaia with Weed Action

The moth plant pod bin and awareness campaign and competition removed millions of seeds from the Whangārei Heads area

Specialist Weed Assistance Team (S.W.A.T) – Tutukaka

https://tutukakalandcare.org.nz/plant-pests/

The Specialist Weed Assistance team or 'S.W.A.T', are a part of the Tutukaka Landcare Coalition, focussed on action to stop the plant pests that are invading the Tutukaka Coast. The team is made up of community volunteers who are waging war on weeds and a project lead who coordinates activities.

It was a challenging year with numerous working bees cancelled due to COVID, however some great weed control work was still achieved. Corporate events added 231 volunteer hours, and local contractors were trained and supported to enable work to be carried out utilising NRC Biofund, targeting large infestations of moth plant and ginger

SWAT Coordinator giving a pre-briefing event briefing before local volunteers get stuck in weeding on the sandspit

Events 2021-2022	
Weed action events	9
Educational events	2
Volunteer members	60+
Landowner support	8
Total volunteer hours	**355**

Weed Action – Piroa Brynderwyns

https://weedactionpiroabrynderwyns.org.nz/

Key achievements this year include:

- Growth in the number of core Weed Action groups, now 14, that are consistently engaged in weed management and restoration at key sites.
- Transformation of the Lang's Beach Reserve through the committed efforts of a core group of volunteers and mailing list of over 150 casual volunteers.
- Successful funding and support requests to Kaipara District Council for local Weed Action groups working in District Council reserves.
- Partnership with DOC to maximise volunteer opportunities and delivery work.

Key awareness activities included the provision of a weed amnesty bin and the development of the Weed Action calendar, which identifies a different local weed problem weed each month and promotes the work of Weed Action Piroa-Brynderwyns.

Weed action Piroa Brynderwyns 20-21	
Volunteer and education events	5
Engagement initiatives and media	15
Weed Action groups	14
Volunteer members	103
Landowner visits	37
Total volunteer hours	**3,542**

Volunteers heads down weeding at the Lincoln road reserves.

Wilding pines

https://www.wildingconifers.org.nz/national-programme/

In 2021- 2022, Northland Regional Council was allocated funding from the National Wilding Conifer Control Programme to eliminate wilding pines in Northland. The programme is also building valuable relationships with Northland's communities and providing local work and training opportunities, whilst helping protect our native biodiversity.

Managed pine plantations are an essential resource in Northland's economy, however the region's unique dune, gumland, and wetland habitats are vulnerable to invasion from wilding pines. The programme is focused on removing pines from these habitats and controlling key seed sources in and around these habitats. A recent science publication on the damaging ecological effects of radiata pine can be found at: https://link.springer.com/article/10.1007/s10530-022-02892-6

Northland wilding pine control 2021-2022	
Jobs created (new starts)	81.5
Hours worked	10,581
Full time equivalent staff (non council)	6
Contractors engaged	4
Wilding pines controlled	74 825
Area controlled (hectares)	11,776
Number of control sites	21

CASE STUDY

Wilding pine control at Pipiwai

Forty-five minutes west of Whangarei in the Pipiwai district, a joint initiative is underway to eliminate wilding pines from unique gumland habitat. This partnership between Northland Regional Council, Te Orewai Te Horo Trust, and MPI through the community partnership fund, is just part of a larger restoration project taking place in the area. The trust is involved in setting up a native plant nursery and is already actively restoring native whenua.

As well as employing local rangitahi, building capacity and protecting taonga species, the programme is Increasing the use and opportunities for mātauranga Māori.

Te Orewai Te Horo Trust was the only successful Northland applicant for MPI's 2021- 2022 round of community partnership funding.

The unique biodiversity, flora and fauna on the 1,500ha Block is only now being celebrated and understood, including kiwikiwi, native orchids pollinated by native bats, fern birds, and others.
To date over 5,000 wildings have been removed from steep and remote terrain. With a third of the block still to cover the drill and fill crew expect to be busy killing 1,000s more wilding pines well into 2023.

Te Paki wilding pine control

The 2021- 2022 funding has allowed for the continuation of the wilding pine programme at Te Paki Station, a 2500ha, block owned and managed by Ngāti Kuri just South of Cape Reinga. Te Paki is home to some of Northland's most vulnerable and outstanding landscapes including the giant Te Paki sand dunes and several high priority dune lakes. Wilding pines are a huge threat to dune ecosystems, as they can invade and spread where other weed species cannot, and they significantly alter the habitats they invade. A large wilding pine can take up to 600 litres of water per day out of the environment given the right conditions; this greatly impacts the water table and water availability in these habitats.

Local operators OS Safetree and crew have been undertaking the work at Te Paki. To date the team have poisoned, hand pulled, or felled to waste over 25,000 wilding pines from the dunes, gum land and native bush at Te Paki.

The Ngāti Kuri Trust Board who manage Te Paki station have a restoration plan focused on returning the whenua to as a natural state as they can. This involves removing wilding pines and other weed species, pest control, fencing wetlands lakes and native areas and replanting using locally seed sourced plants that were once numerous in this area. The National Wilding Pine Control Programme funding has allowed for a major acceleration in the control of one of the main weed threats, and a major reduction in seed source, which will greatly slow reinvasion and further spread.

PREVENT THE SPREAD

5.6 Community Engagement

Performance Measure	Result	Details
Community engagement - events Total number of engagement events conducted to increase awareness of plant pests is maintained, or greater than the previous year.	**Not achieved**	See table below Refer Appendix for more details

	2019-20	2020-21	2021-22
Field Days / A&P Shows	5	1	0
Community events	4	1	1
School visits	2	0	0
Stakeholder activities	14	13	15
Pest workshops	5	8	3
	30	**23**	**18**

As for 2020, 2021, a number of the large-scale community events the Pest Plant team would normally attend or host were cancelled because of Covid-19 restrictions and alert level uncertainty. The annual weed workshops were also postponed to July 2022 to align with Biosecurity week, so figures include those events from the 2021 year that were in the 2021-2022 reporting period.

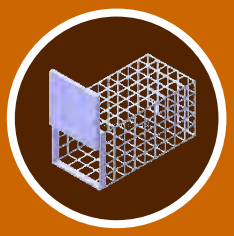
6. Pest Animals

Riha rawaho

2,865
Customer requests

7,345
hectares of new CPCAs

88
Biofund projects



416 since 2017

Kiwi numbers have gone from
80 → 1,130
in Whangārei Heads

Since 2002

210
Kiwi Coast Community Groups actively managing

241,000 ha

591,584
pests gone from the Kiwi Coast

since 2013

62,018
pests trapped in High Value Areas

6,585
Traps issued

45
Event activities

Exclusion animals

Key points of the exclusion programme

- Prevention of seven pest animal species establishing populations in Northland.
- Council and Crown agencies are responsible for control.
- Success is related to fast and efficient response planning and action in the field.
-

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Engagement events attended is maintained or greater than the previous year</td><td>Not Achieved</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Field Days / A&P Shows</td><td>5</td><td>1</td><td>0</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Rainbow lorikeet incursion
Confirmation of a Rainbow lorikeet population located in the Brynderwyn-Mangawhai area prompted Ministry for Primary Industries to launch an eradication response during 20/21. Ministry for Primary Industries is now in the process of engaging a specialist contractor to undertake surveillance of the Northland population with the aim of formulating an eradication plan. Auckland Council and Northland Regional staff will collaborate with Ministry for Primary Industries to ensure a successful eradication. There have been two other unrelated reports of Rainbow lorikeets, both of which have been resolved.

Wallaby
Two reports of a single wallaby in two separate incidences were responded to in South Hokianga however searches conducted at the time could not confirm the sightings and no further reports have been received. The response was limited to surveillance.

Big-headed ant
Two incidents were reported during the year, but all were found to be different species and not big-headed ant. No further response was initiated.</td></tr>
<tr><td>Identify new sites
New incursion sites of exclusion animals are identified.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Incident reports</td><td>18</td><td>8</td><td>4</td></tr>
</table>
</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days</td><td>Achieved</td><td>All exclusion pest animal investigations were undertaken within five days and where relevant response plans implemented within 20 working days. The rainbow lorikeet incursion is being led out by MPI under their plan.</td></tr>
</table>

Eradication animals

Feral deer have the potential to establish throughout the region and can cause adverse effects to the environmental, economic, social, or cultural values of the region. Council is either the lead agency or a partner in their eradication. Eradication will be undertaken by the council in conjunction with relevant Crown agencies, tangata whenua, and other stakeholders where practicable.

Regulatory programmes include:

- Enforcement of rules relating to eradication animals.
- Eradication of species listed within the eradication programme.

Non-regulatory services include:

- Support eradications undertaken by other Crown agencies, tangata whenua, and other stakeholders
- Provide advice about how to manage eradication animals
- Support, attend and provide public pest control workshops to raise awareness
- Manage contractors relating to control of eradication animals.

There are currently three species of deer known to be present in Northland; red deer (Cervus elaphus scoticus), fallow deer (Dama dama), and sika deer (Cervus nippon) and wapiti- red hybrid which have arisen from past farm escapes. Red deer and fallow deer are farmed, and sika deer are present in one area of Northland as a result of illegal releases.

Programme objectives

The goals of Northland Wild Deer Response Programme 2016-2025 (a collaboration of stakeholders including the Department of Conservation, OSPRI [11], and Northland Regional Council) has two broad goals:

- To eradicate low densities of wild deer in Northland through deer farmer liaison, fence inspections, surveillance, wild deer response activities and statutory management; and prevent the successful establishment of wild deer populations.
- To increase community awareness of the risks and environmental consequences of feral deer establishing in Northland to gain wide community support for the vision of no feral populations of deer in Northland.

Programme aims

Council will work cooperatively with the Department of Conservation and other stakeholders to achieve the objectives of the Northland Wild Deer Response Plan 2016-2025. Landowners, occupiers, and the public understand the risks and environmental consequences of feral deer establishing in Northland and are supportive of the programme.

Progress in achieving aims

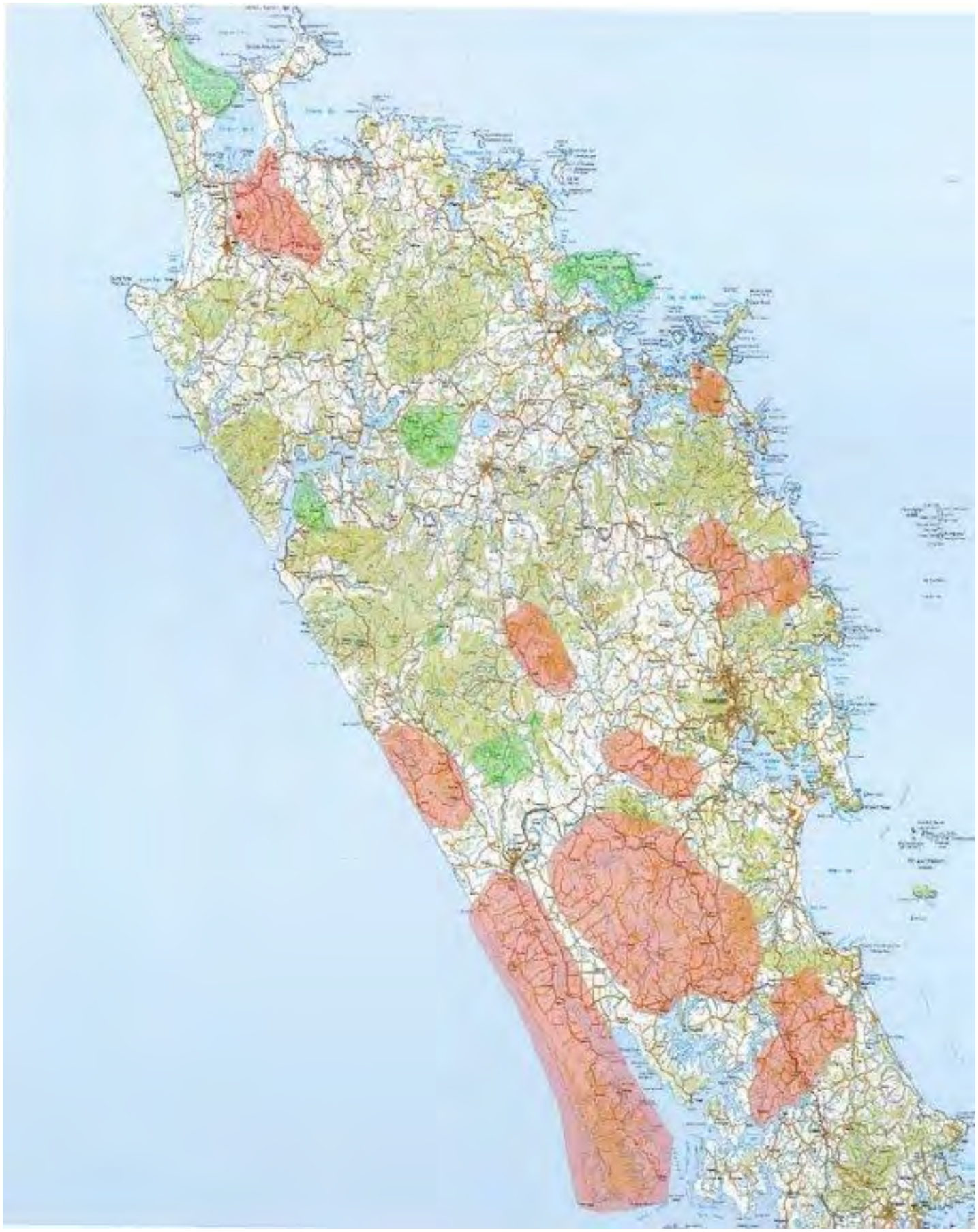
Performance Measure	Result	Details
Any faults in deer farm fences observed via field inspections that pose a risk of deer escaping are reported to the Department of Conservation within 24 hours for remedial action	**Achieved**	13 Farms had their biannual fence inspections with four failing. Three have been reinspected and passed. The fourth is in discussions with DOC with a recommendation to destock the farm and remove altogether the risk of further deer escapes.

[11] OSPRI is a partnership between primary industries and the government that manages two national programmes – NAIT and TBfree. NAIT provides the National Animal Identification and Traceability system and TBfree aims to eradicate bovine tuberculosis from New Zealand.

There were 18 reported deer sightings in the 2021-22 period with the highest number of reports in April during the roar, when stags are roaming and sightings are more common. The stags typically turn up around the permitted deer farms and open pastures, leading to an increase in public sightings.

Reporting Month	Animal	Total
Jul-2021	1	1
Aug-2021	2	2
Nov-2021	1	1
Dec-2021	2	2
Jan-2022	2	2
Mar-2022	2	2
Apr-2022	7	7
May-2022	1	1
Total	18	18

Performance Measure	Result	Details
Known deer populations are surveyed and mapped across Northland.	Achieved	A map of deer reports in 2021-2022 and known deer management sites in Northland is shown overleaf.
Attempt to resolve legal and accountability issues regarding feral deer in Northland.	Achieved	NRC and DOC are working together to resolve the issues and a new process for entry onto private land in accordance with the legislation is being developed. NRC Biosecurity staff have worked with DOC staff on establishing a set of protocols for regulating permitted deer farms and managing deer escapes in Northland.
100% of deer incidents are responded to within 48 hours.	Achieved	
Any faults in deer farm fences observed via field inspections that pose a risk of deer escaping are reported to the Department of Conservation within 24 hours for remedial action.	Achieved	



Above: Current active (red) and historic (green) deer management sites in 2021-2022.

Sustained control animals

Biodiversity restoration projects controlling sustained control pest animals are generally managed through council's Biosecurity partnership programmes. These include:

- **Community Pest Control Areas (CPCA)**
  A way of assisting communities to manage pests on private land.
- **High Value Areas (HVA)**
  Specifically identified areas of high biodiversity and/or cultural, recreational or economic value where the community lead and undertake pest control
- **Biofund (Environment Fund)**
  Small management agreements and grant funding to establish pest control projects.
- **Predator Free 2050 projects**
  These are large scale predator eradication and control projects that have been established in Northland in partnership with community, iwi and hapū, and other agencies.
- **Biosecurity Partnerships**
  Such as the Northland Regional Council – Kiwi Coast Trust Partnership to support and enable coordination of community pest control across Northland.

Council uses regulatory measures when required (rules differ for each animal), such as not holding mustelids in captivity.

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Land area in CPCAs
Increase in land under CPCA protection by 5,000 ha per annum.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>New CPCAs (ha)</td><td>10,107</td><td>5,732</td><td>7,345</td></tr>
</table>
New and pre-existing CPCAs are shown in the map overleaf.
</td></tr>
<tr><td colspan="3">New CPCAs initiated during the year were:
<table>
<tr><th>CPCA Name</th><th>Area (ha)</th></tr>
<tr><td>Pest Free Mangapai</td><td>2,735</td></tr>
<tr><td>Pest Free Peninsulas Hukatere</td><td>2,124</td></tr>
<tr><td>Opara-Wharekawa Kiwi Protection</td><td>1,686</td></tr>
<tr><td>Te Tangi o Te Ata</td><td>800</td></tr>
<tr><td>Total area new CPCAs (ha)</td><td>7,345</td></tr>
</table>
</td></tr>
<tr><td>Response to reports from public
Reports on sustained control pests will be responded to within 20 working days.</td><td>Response time data not available</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Requests received</td><td>4,263</td><td>4,149</td><td>2,865</td></tr>
</table>
</td></tr>
</table>

Kiwi Coast Partnership – Northland Regional Council

https://kiwicoast.org.nz

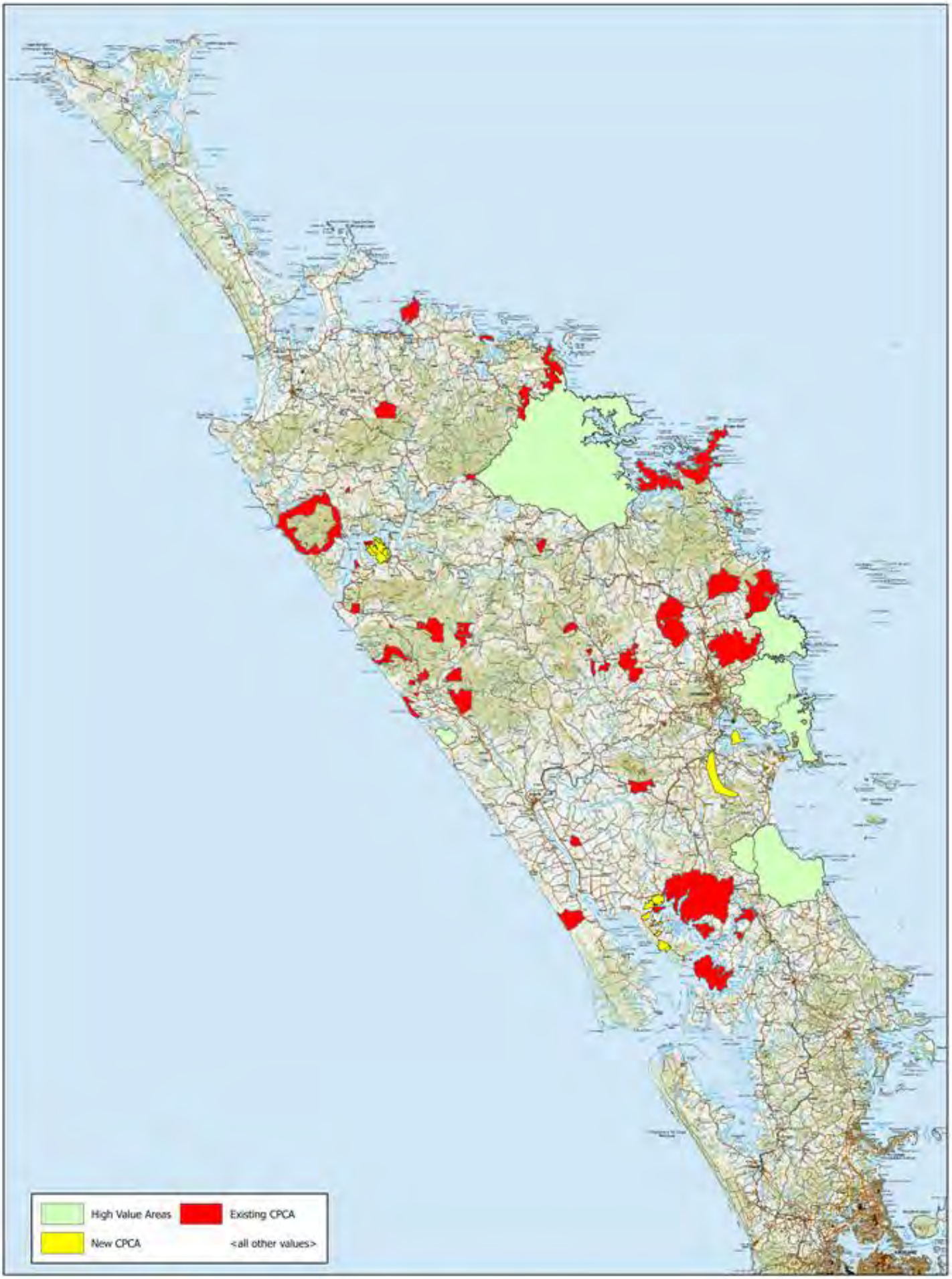
In 2022 council re-signed a new 5-year partnership agreement with the Kiwi Coast Trust consolidating its strong working relationship which began formally in 2017. Working together, they are ensuring gains made to date are not lost and momentum continues. Working in unity also allows both Kiwi Coast and council to leverage further potential funding and show a strategically coordinated regional approach to community conservation.

Despite Covid hampering the 'start-up' meeting of a few new community projects, the momentum of Kiwi Coast did not slow and the work of the many projects involved did not stop! Over the past year, a further 23 projects linked into Kiwi Coast, taking the total involved in the collaborative initiative to **210**. The collective area managed by these groups and projects increased from 225,000ha in 2021, to **241,000 ha** in 2022. Monitoring results continue to demonstrate the strength of Kiwi Coast's collaborative approach. Collated trap catch data shows that **591,584** animal pests were trapped by groups and projects involved in the Kiwi Coast over the last nine years. On average, **1,900** animal pests were trapped on the Kiwi Coast every week in the 2021 calendar year, up from 1,800 per week the previous year. These results not only demonstrate the sheer hard work and scale of effort, but also generate a sense of pride and mana in the work being done and the results achieved. It helps to show that individually, groups are achieving great results, but together they are achieving something truly phenomenal. The Kiwi Coast also supported and assisted projects to carry out pest control operations aimed at reducing trap -wise predators through the use of toxins with secondary poisoning effects.

In line with the Kiwi Coast Strategic Plan (2017), Kiwi Coast supported predator control in key areas to link distinct projects and create continuous trapping networks across the landscape that boost kiwi survival and allow their safe dispersal into new areas. A new working relationship with the NRC Predator Free team led to additional Kiwi Coast support to help coordinate and boost the 60,000ha predator control zone in eastern Whangarei and amplify the Pest Free Purerua Project.

Community events since 2013	
Skill building workshops	98
Kiwi event participants	19,268

Kiwi Coast Statistics *(calendar year)*	2017	2018	2019	2020	2021
Groups working to save kiwi	120	129	159	187	210
Land in active pest management *(ha)*	146,800	155,000	198,000	224,760	241,000
Animal pests gone *(since 2013)*	229,372	297,753	396,634	492,458	591,584



Northland Regional Council
Te Kaunihera ā rohe o Te Taitokerau

CPCAs and HVAs 2022

N

0 4 8 16 24 32 40
Kilometers

August 2 2022

Performance Measure	Result	Details
Council supported programmes – High Value Areas Number of traps issued, and number of pests trapped	**Achieved**	Over 6000 traps were issued to landowners and community groups in 2021-22; lower than previous years due to limited community group interactions and supply chain disruptions as a result of covid-19. Pests trapped and removed from the environment continue to increase as outlined below:

High Value Area outputs	Mustelids trapped			Total pests trapped		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
Mid-North	518	655	807	47,495	40,210	43,786
Tutukākā	142	49	195	2,812	2,027	3,788
Whangārei Heads	45	38	48	865	947	1,184
Piroa-Brynderwyn	226	271	252	2,917	3,497	3,751
KiwiLink			152			9,509
Total	**931**	**1,013**	**1,454**	**54,669**	**46,681**	**62,018**

Council supported programmes – Biofund Number of new Biofund grants approved.	**Achieved**		

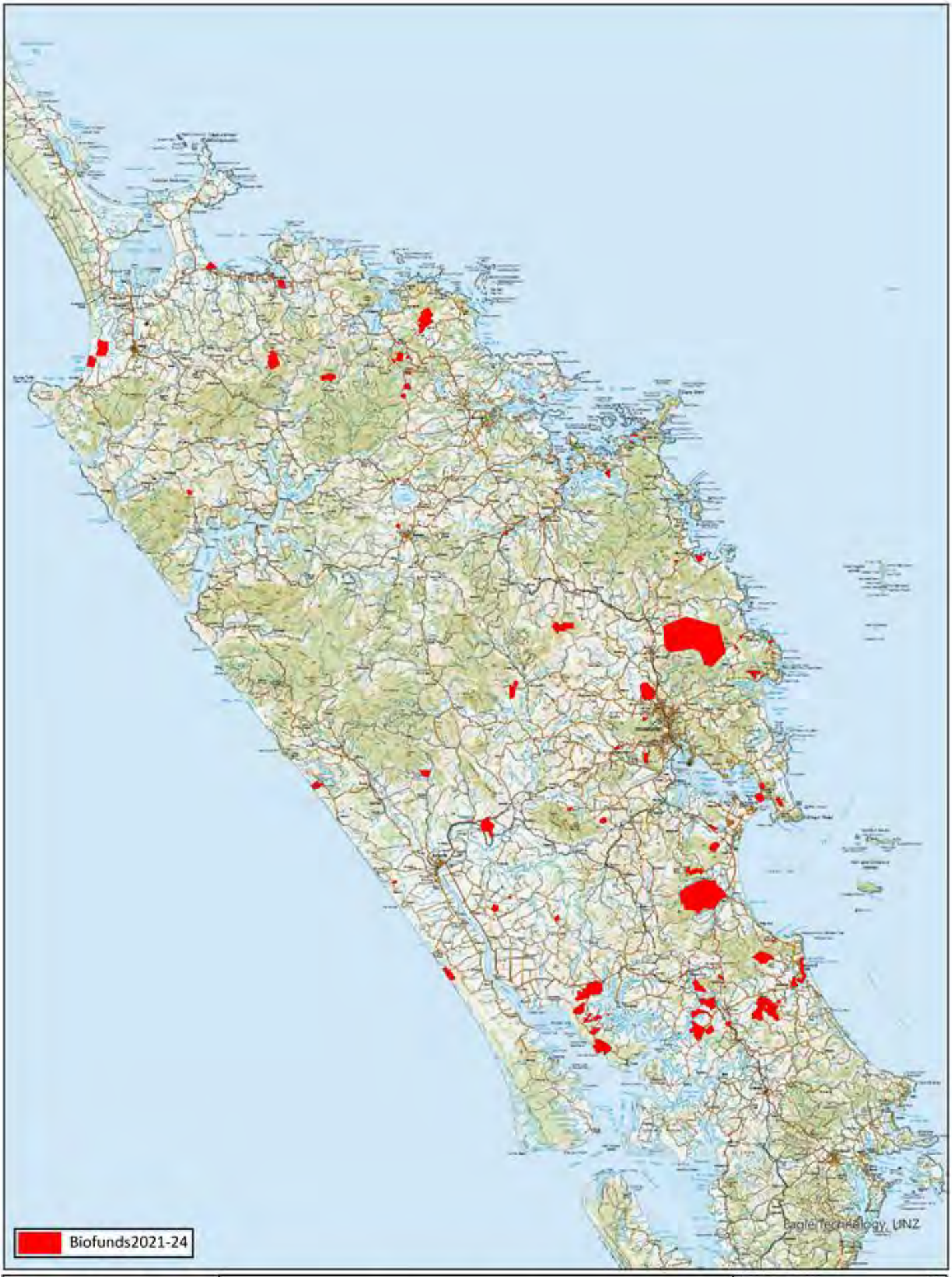
	2019-20	2020-21	2021-22
Biofund projects	87	117	88

There was a reduction in new Biofunds with 88 supported in 2021-2022 compared with 117 projects the previous year. This largely reflects the reduction in community pest education and awareness events held by council staff due to ongoing Covid-19 pandemic limitations and was not an unexpected result.
A map of Northland showing the location of the 2021-2022 Biofund projects is shown overleaf. These are described as 2021-2024 due to the majority being 3 years in duration.

BIOFUND
2021 - 2022

88 community projects were granted funding for pest control

***Right**: Installing traps secured through a Biofund grant with Te Orewai Te Horo Trust.*



Northland REGIONAL COUNCIL

Biofunds 2021-24

N

0 4 8 16 24 Kilometers

W:\ArcGIS Pro\Environmental Services\Biosecurity\Partnerships and Strategy\Monitoring\Argentine Ants\working_maps.aprx
User: mevoh

Date Saved: 2/08/2022 9:36 am

Performance Measure	Result	Details
Possum Index Monitoring Contractors specifically engaged by council for possum control will meet a target of 5% residual possum densities in council led operations. Council supported programmes undertaking possum control are achieving agreed targets set in community pest control area agreements.	**Achieved**	*Baseline establishment of a new performance measure 2021-2022.* There were no NRC funded performance-based contracts for possum knockdowns in 2021 - 22. Possum monitoring has been completed in some of the projects where sustained possum control is being carried out, using either the Residual Trap Catch (RTC) or the Waxtag Index (WTI) method: Native Forest Restoration Trust and Waipoua Forest Trust CPCA's completed possum monitoring in their adjacent reserves using the 3-night RTC method. Ten lines were randomly placed, and the result was 1.7% indicating their possum control is very effective. These results were also backed up by field observations of very little possum sign/browse and old scratch trees having healed up. Te Toa Whenua CPCA completed a 7-day wax tag post monitor in May 2022 following three bait station fills and top-ups between September 2021 - April 2022 with cyanide and one pulse of double tap in selected areas. The result of the wax tag monitor was 33% WTI. Although not directly comparable, this likely equates to around 10% RTC. Contractors noted that some of the random line placements were in weed and pine plantation buffer areas and suggest that future monitoring lines should only be in the native forest to avoid monitoring results being skewed by higher possum numbers in buffer areas. A pre and post 7-day WTI monitor was completed at Taharoa Domain to assess the effectiveness of a toxin operation in this area. Due to Covid disruptions, the bait was put out later than in previous years, however a 7-day wax tag post monitor was carried out prior to Christmas and returned a result of 23%, While slightly above the aim of 20% or less, this was still a good result. The results between years show that possum population numbers quickly recover (and grow) after an operation is completed due to rapid reinvasion from surrounding areas. Annual operations only achieve a short-term gain in possum population reduction and until there is pest control occurring on private land around the lakes there will be limits to what level of control can be achieved and maintained in the domain. No monitoring was completed at Maunganui Bluff CPCA as planned due to Covid disruptions.

CASE STUDY

Enviroschools

The Enviroschools Project Pest Control Programme continues to be a huge success, opening-up real opportunities for students including educational qualifications (NCEA credits), career pathways and the very real potential to make a living from possum fur. While Covid-19 disruptions led to fewer project pest control events taking place, the team was still able to attend four events and, overall, 91 Enviroschools students achieved NCEA credits in the last year.

The programme started with Project Possum in 2011 and evolved to include Project Mustelid in 2016 and Project Rodent in 2017. The three initiatives were combined into Project Pest Control the following year and now enjoy considerable success in the battle against pests.

Northland Regional Council (NRC) leads the theory and in-field based programme, supported by Can Train NZ and local industry. Students learn about the biology and impact of animal pests and are shown how to trap and kill them humanely, and how to skin possums and machine and hand pluck their fur.

As part of the best practice learning during the two-day skills course, tutors start with the life of the pests, establishing the creatures as living, breathing animals deserving of our respect and humane treatment.

Humane leg-hold traps are used to trap possums and the students are taught how to place them and set them to cause the least discomfort to the animal, while also placing the trap beyond the reach of Kiwi.

After a few weeks, to allow for pest control practice and completion of theory work, an assessment day is held. At this workshop, students are put through their paces and investigate a variety of biosecurity career pathways.

Enviroschool students with NCEA credit	
2019 - 2020	146
2020-2021	121
2021-2022	91
Since 2011	1068

Above and right: Biosecurity staff teaching trapping skills to students.

High Value Areas

The inspirational work of Northland communites across our High Value Area (HVA) programmes continued throughout 2021-2022, despite the cancellation of many events and education opportunities due to Covid-19 restrictions. Highlights from community groups with a weed focus have been described in the previous Pest Plants section, and here we showcase some of the stand-out achievements made in pest animal management over the past year. Kiwi monitoring, pāteke flock count surveys and targeted five minute bird counts for eight key native bird species (tui, kingfisher/kōtare, waxeye/ riroriro, kukupa, tomtit/miromiro, fantail/pīwakawaka, kākā and bellbird/korimako) were able to be conducted across many of these large landscape-scale projects with promising results showing the dividends of sustained animal pest management. The Department of Conservation's analysis of the 2022 annual pāteke flock count data confirmed that pāteke (the rarest mainland duck in New Zealand) are still flourishing in eastern Northland, particularly at sites with sustained and intensive predator control. However, numbers have fallen with 595 counted in 2022, down from 661 in 2021, and 704 in 2020, most likely because of successive summer droughts.

Tutukākā and Whangārei Heads

The Tutukākā and Whangārei Heads projects are two of Northlands longest running HVA's with a foundation built on twenty years of successful pest control and kiwi recovery work. Kiwi releases are usually a highlight of the year in both these areas; however, due to covid restrictions no kiwi releases were able to take place during 2021-2022. Despite the limited community engagement, these HVAs continued to deliver outstanding pest animal and weed management and kiwi populations continue to increase (see case study below on Backyard Kiwi). Kākā also continue to be seen regularly at Tutukākā – with groups of up to six at a time, often squawking and whistling loudly. The increased presence of kākā, most likely visiting from offshore islands, may indicate the habitat is more favourable for them to nest and breed on the mainland.

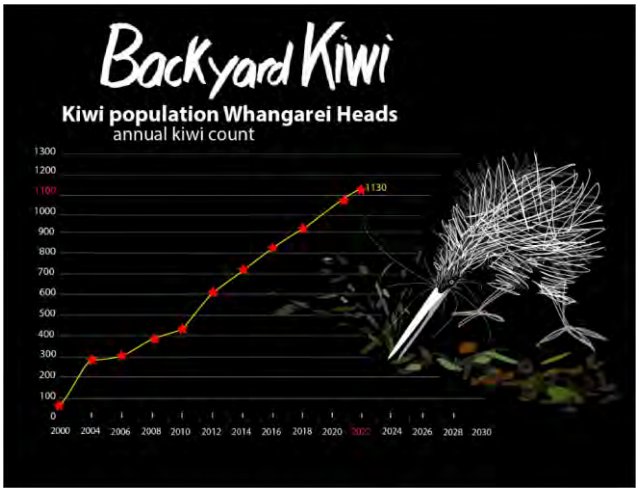
A special kākā sighting in Sandy Bay, an area where kākā sightings are extremely rare

CASE STUDY

Backyard Kiwi successes continue in the Whangārei Heads HVA

http://www.backyardkiwi.org.nz/

Twenty-two years of successful kiwi recovery work has seen the Whangarei Heads kiwi population increase from approximately 80 kiwi in 2001 to an estimated 1130 in 2022, up from last year's 1090. This kiwi population is also now expanding northwards into the Kiwi Link High Value Area programme range making Backyard Kiwi one of the most successful kiwi recovery projects in New Zealand. This is a measure of the effectiveness of the Kiwi Recovery work being conducted by our communities across Whāngarei Heads. What a fantastic community effort – particularly the crucial good dog control and the rate payer funding!



The results show that good stoat control, through quality trapping and toxin pulses, is leading to good kiwi chick survival and that responsible dog control by the majority of our community is paying dividends.

Kiwi Link

The Kiwi Link project is the most recent HVA, covering 15,000 hectares collectively and managed by 11 self-driven community groups. These groups work together to protect and restore native biodiversity between Taraunui and Ngunguru Ford in eastern Whangārei. This HVA is named the 'Kiwi Link', as the primary goal is to rebuild kiwi populations and connect the kiwi strongholds of the Whangārei Heads peninsula and the Tutukākā Coast. In addition, the groups involved in Kiwi Link continued with plant pest control, targeting the most pervasive weeds as a priority.

During 2021-2022, Kiwi Link groups and projects trapped 9,509 animal pests with 36,958 pests having been trapped since 2017 and contributed a significant amount of pest plant volunteer labour. Kiwi monitoring showed that kiwi are increasing within the project area, with a record number of kiwi calls recorded at the Manulife Whānui 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. In addition, 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.

The latest Five-Minute bird count data also indicate that other key native bird species are increasing across the Kiwi Link HVA.

Increased observations of kākā have also been received during the year from Kohinui, Owhiwa, Mt Tiger and Harris Road landowners. 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 Whangārei Heads and Tutukākā biodiversity strongholds. Less pests are re-invading these areas and native wildlife will be spilling into them.

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

Piroa-Brynderwyn

New Trust formation for Piroa Brynderwyn HVA and mana enhancement agreement with iwi/hapū

Iwi, hapū, landowners and community members have been working together collectively for over 5 years building on more than 30 years of community-led conservation in the Piora Brynderwyn area. As the Piroa Brynderwyn HVA steering group has grown in scale and breadth, there was recognition that sustainability would be made more certain by forming a charitable trust and in mid-2022 the Piroa Conservation Trust was formed. The Trust has a Mana Enhancing Agreement (MEA) to work in partnership with Te Uri o Hau and Patuharakeke, along with the operational delivery team of PBL.

A highlight of the year saw a large team from the Royal New Zealand Air Force arriving in Mangawhai to join the volunteers of Piroa-Brynderwyns Landcare for a week's work progressing important conservation efforts that benefit the local community. The team worked with the infamous local 'trackies', who are well known in the area, to 'cut in' a new section of a walking trail that will potentially be incorporated into the Te Araroa Trail which passes over Waorahi Conservation Estate and install a bait station network in the adjoining Department of Conservation Reserve. The track work has opened an important alternative route to the public, moving walkers off the public road to fully enjoy the wonderful coastal landscape of the area via a connected network of tracks.

Volunteers set up camp in preparation for a week's conservation work in the Piroa Brynderwyn area.

Mid North

A total of 43,472 animal pests were removed from the Mid North HVA, which covers approximately 40,000 hectares of pest control area, up by more than 3000 from the previous year. This included 16,758 possums, 15,100 rats, 581 stoats, 225 weasels and 751 feral cats. Additionally, a small number of skill-building trapping workshops and field days were still able to be held, despite restrictions, including the Mid North professional trapper field trip.

In February 2022, the Mid-North HVA once again assisted DOC to carry out the annual pāteke flock count survey, with Matakā station, with the Landing and NZ Corrections participating. While Mid North flock counts were slightly reduced this year because of the summer drought, it was pleasing to have reports of dispersed pāteke at Pakaraka, South Kerikeri Inlet, Matakā Station, Moturoa Island and NZ Corrections at Ngāwha.

Another exciting project within the Mid-North HVA, the 'Pest Free Purerua Peninsula' project, successfully completed its second year of operation. The Purerua Peninsula covers 7,600ha on the northern reaches of the Bay of Islands and is home to around 25% of Northland's kiwi population. The Pest Free Purerua project (https://pfp.kiwi), boosts existing pest control through a successful grant through Kiwis for Kiwi from DOC's Jobs for Nature Funding. New trapping and monitoring techniques were added during the past year including nodes on live capture traps, mayo lures with cameras and double-sided live capture traps.

The winner of the inaugural Kiwi Coast 'Outstanding Group of Project Award' was Bay Bush Action Project for a truly outstanding, community led project with proven results in forest health regeneration and steadily increasing kiwi populations in the Mid-North.

Mid-North_Pest Free Purerua, Mataka Station. Photo: Dean Wright.

Western Northland

Momentum continues to build in Western Northland

Three new CPCA's were started in Western Northland during 2021-2022:

- **Native Forest Restoration Trust** (NFRT) have four prominent reserves in Western Northland which all adjoin the Waipoua Forest Conservation Park: Professor W.R. McGregor Reserve (343ha), Elvie McGregor Reserve (141ha); Wekaweka Reserve (120ha) and Cynthia Hewitt Reserve (152 ha). This CPCA with NFRT will focus on establishing a kiwi protection area at Cynthia Hewitt Reserve (supported by surrounding forestry blocks) as well as provide funding for maintaining possum and rat control at the three other reserves.

- **The Waipoua Forest Trust** occupies 265ha of previously cleared land set aside for native regeneration. This land is made up of three reserves which border the northern and southern edges of the Waipoua Forest. The Waipoua Forest Trust is committed to restoring the natural balance of the forest ecosystem by replanting natives and controlling plant and animal pests. This CPCA has a particular focus on weed control.

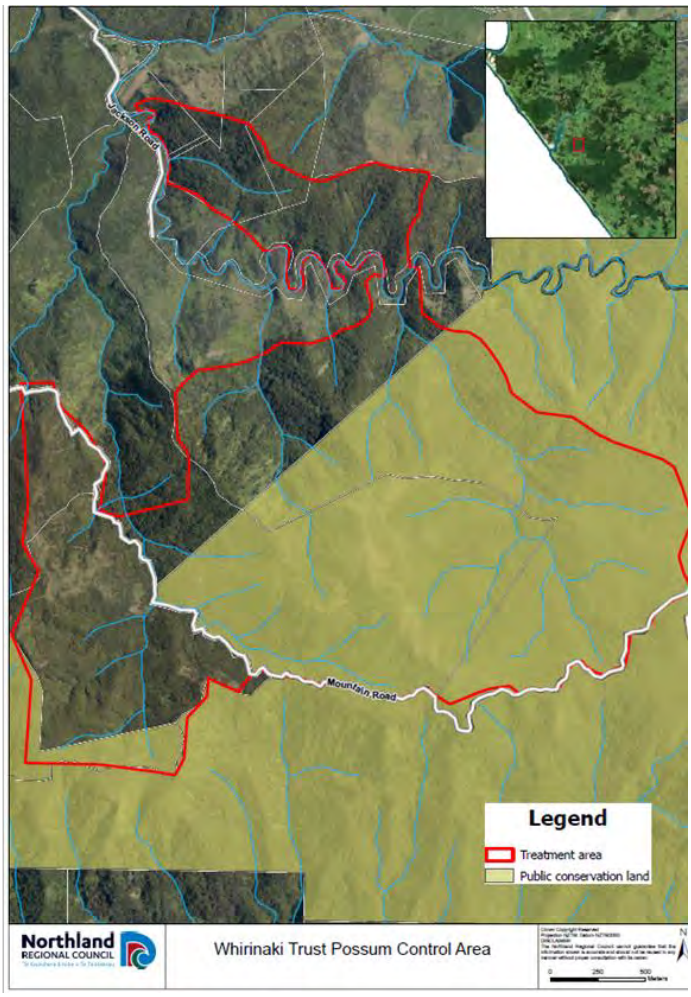
- **The Opara-Wharekawa peninsula** is home to a remnant population of Northland brown kiwi, one of the last functioning kiwi populations on the Hokianga harbour. Mustelid trapping has been occurring at the end of the peninsula by the residents of the Opara Ecological Estate subdivision and this has provided important protection to kiwi within that area. However, kiwi are also present outside of the subdivision area and residents of the wider Opara-Wharekawa peninsula are passionate about establishing a trapping network and maintaining good dog control so that kiwi are protected across the landscape so that their numbers can increase.

Expansion of Te Toa Whenua Possum control

In mid-2021 Te Roroa were successful at getting Kaimahi for Nature funding (complemented by Tiakina Nga Manu funding) to expand ground-based sustained possum control over a further 1200 hectares of native forest both within public conservation lands and within Te Roroa Whatu Ora Trust land. NRC supported this by funding the toxin required in the expanded area and equipment to set up bait stations on private land. The 1200ha extension connects Te Toa Whenua CPCA with other NRC funded CPCA's that are also doing sustained possum control (Native Forest Restoration Trust, Waipoua Forest Trust and Maunganui Bluff) creating a combined area of over 4,000ha. Much of this extended bait station network has now been established and is being operated in conjunction with the original Te Toa Whenua CPCA area.

Whirinaki Toiora Trust

Whirinaki Trust successfully secured Jobs for Nature funding for their Mahi A Tengatenga project to support the ecological restoration of the Whirinaki awa by carrying out long-term eradication of pest plants and sustained control of pest animals as well as water quality monitoring. Additional funding from NRC contributed pest control products that has complemented the work they are doing where funding shortfalls occurred. Specifically, through Western Northland funding, NRC funded equipment to enable five kaimahi to conduct possum control using leghold traps and toxins across the treatment area. The team are trapping all major ridges, spurs and all local known internal track systems using Victor No. 1 leghold traps followed up with systematic laying of cyanide baits in either romark bait stations (paste form) or disposable bait bags (feratox).



Kaitiaki Kiwi Waipoua trapping

Kaitiaki Kiwi Waipoua Inc. have a mustelid trapping network that covers approximately 8000ha of Māori-owned, private and public conservation land. This trapping network overlaps with the project areas of Te Toa Whenua, Waipoua Forest Trust and Native Forest Restoration Trust CPCA's which is indicative of the collaborative nature of the group. In 2021-22 they caught 105 stoats, 16 weasels and one ferret (plus over 1500 rats!). NRC funded baseline monitoring in 2021/2022 using kiwi listening devices at five locations on different traplines in the forest where no listening had previously been carried out. This has provided the group with some good information and confirmed that kiwi numbers are higher deeper in the bush within their trapping network with very low numbers in the bush closer to the Waipoua River. Kaitiaki Kiwi have also strongly supported a DOC-led aerial toxin operation as it will not only provide overall forest health outcomes but also remove any trap-shy stoats through secondary poisoning which will lead to an increase in kiwi recruitment.

Waipoua HVA discussions

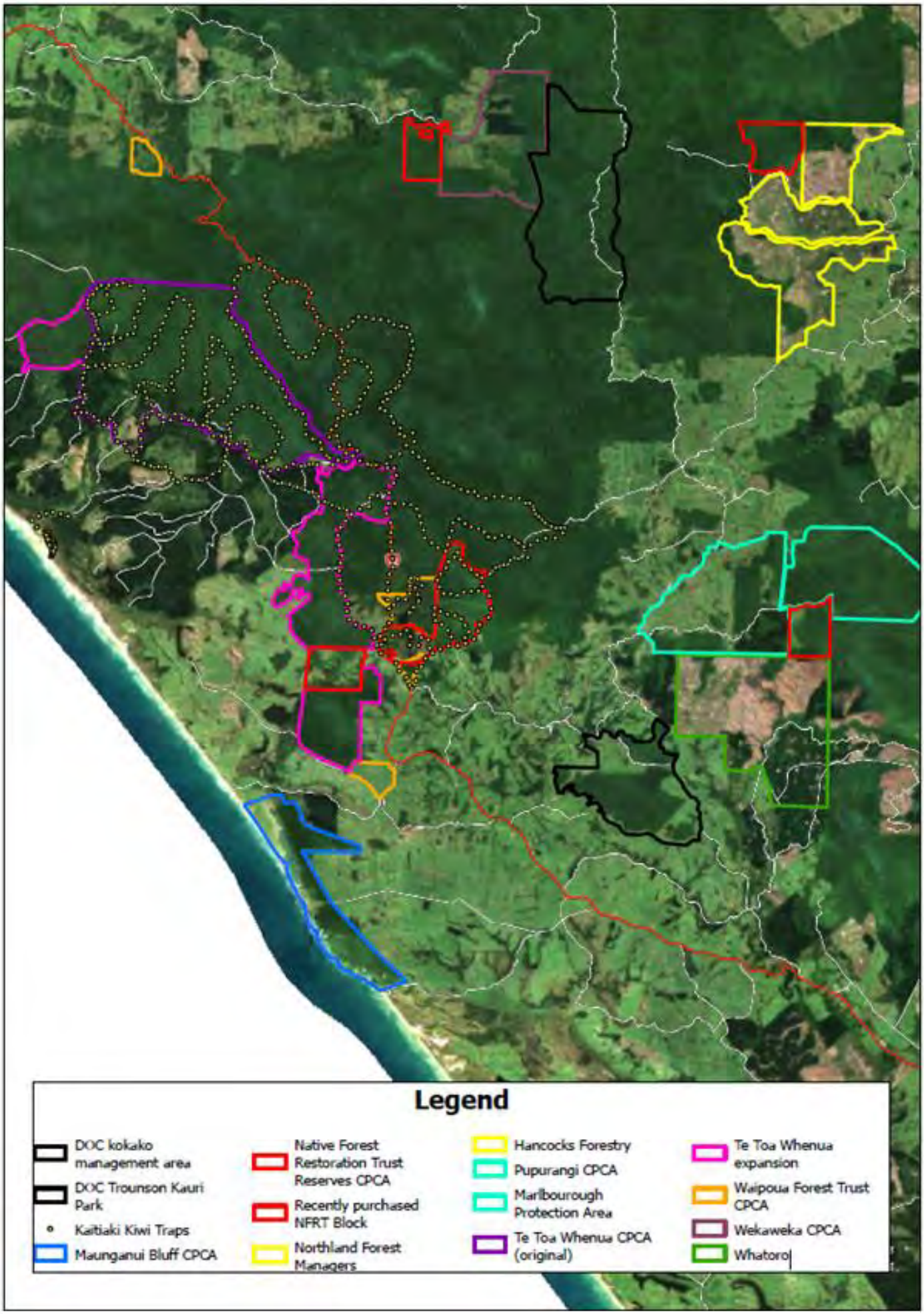
There are currently seven CPCA's that are operating in the general Waipoua area. (Refer to image/map overleaf)

- Kaitiaki Kiwi CPCA
- Maunganui Bluff CPCA
- Te Toa Whenua CPCA
- Pupurangi CPCA
- Wekaweka CPCA
- Native Forest Restoration Trust (NFRT) CPCA
- Waipoua Forest Trust (WFT) CPCA

The focus of these CPCA's is largely stoat and cat control for kiwi protection (Kaitiaki Kiwi, Pupurangi, Wekaweka), possum (and rat) control for forest health improvement (Te Toa Whenua, Maunganui Bluff, Pupurangi, Native Forest Restoration Trust, Waipoua Forest Trust, Wekaweka) and weed control in the upper Waipoua River catchment (WFT plus Te Toa Whenua also have external funding for weed control in the lower catchment). As well as the CPCA's there are also significant areas on public conservation land under intensive management by the Department of Conservation for kokako protection and this all creates a relatively impressive network of pest control projects.

Discussions around formalising an HVA around the Waipoua area have started with Te Roroa and the groups that have CPCA's with NRC in the wider area as well as other key stakeholders that are also doing pest control work (e.g. DOC, Forestry) or have aspirations for increased pest control (e.g. Waimamaku community). An HVA will consolidate the strong collaborations between these projects in this area and support further pest management projects in Western Northland.

Courtney Davis (Te Toa Whenua project coordinator) filling a bait station with feratox on one of the Te Toa Whenua bait station lines.



Above: Current active (red) and historic (green) deer management sites in 2021-2022.

Tiakina Whangarei

Tiakina Whangārei is a community-led urban initiative helping people connect with their environment through conservation activities, while supporting existing mahi, to protect and enhance Whangārei's native biodiversity.

Despite Covid-19 disruptions, the project still saw more traps being deployed within the community, an increased online following, and the start of mahi within the Parihaka reserves, which is supported through Whangārei District Council Long Term Plan funding.

In addition, a new 'predator free' community group, Predator Free Parihaka, was established and the Predator Free Onerahi group continues to increase the amount of pest control in that community. In May, a successful teachers' professional development workshop was held where teachers from eight Whangārei-based and eight wider Northland-based schools/ECEs were introduced to the pest management principles and practices.

Social media outreach	
Page visits	1,588
Post reach	94,788
New page "likes"	367
Total page "likes"	1,029

Tiakina Whangārei engagement	
Public events	6
Facebook posts per month	4+
Print articles	4
Tiakina newsletters	2
Urban schools engaged	10

Tiakina Whangārei Trap NZ data	
Traps distributed	368
TrapNZ registrations	385
Traps uploaded to Trap NZ	145
Pests removed	767

Several surveys were also conducted during the year including:

- Predator surveys: In partnership with NorthTec, a Department of Conservation one night tracking tunnel survey was conducted to detect and estimate the relative abundance of rodents across 17 urban and forest sites in September-October. Rodent detections and abundance were generally high in areas containing suitable habitat and no pest management; however, where management is in place, low rat abundance was observed.

- Urban bird surveys: With support from Birds New Zealand, bird surveys were conducted across the city and adjacent forest fragments in June. Generally, exotic birds dominate urban bird communities while native species are more common in the forested sites. At forest-urban boundaries, the distribution of natives to exotics was more even, indicating that pest control in these areas may result in greater visitation rates of natives to urban areas.

Below: Urban communities doing their bit for conservation across Whangarei.

Performance Measure	Result	Details

Community engagement – events and activities

Total number of engagement events and other social media interactions is maintained or is greater than the previous year.

Not achieved

Refer Appendix for more details

	2019-20	2020-21	2021-22
Field Days / A&P Shows	5	2	0
Community events	10	4	18
School visits and workshops	9	8	0
Enviroschools workshops	7	7	4
Pest workshops and contractor training	27	28	7
Kiwi releases and activities	15	10	0
Controlled substances licence courses	7	5	4
Total	**80**	**64**	**33**

A number of engagement activities the pest animal's team would normally attend, or host, were cancelled because of Covid-19 restrictions and alert level uncertainty.

Predator Free Whangārei

Ka rere te kūkupa e kawe ana ngā kākano mō āpōpō

Tihei wa mauri ora ki te wheiao ki te ao mārama

The possum eradication project in Whangārei Heads, part of Predator Free Whangārei, is one of only twenty large landscape scale projects happening around Aotearoa New Zealand. The goal is to have over 9,000 hectares of the peninsula free of possums by 2025. This project builds on decades of successful conservation efforts by existing community groups, such as Backyard Kiwi, Bream Head Conservation Trust and the many landcare groups that are part of Whangārei Heads Landcare Forum.

After the challenges of COVID-19, and time needed over the first two years to build a capable team, in April this year the project achieved a milestone by going 'live' with the eradication devices from Bream Head / Te Whara and the Taurikura Ridge area. This means the traps are active and bait stations are filled with toxins. The project now has five full-time field staff, a technical lead, a tikanga field advisor, a communications co-ordinator, and a project manager. Some of the achievements to date include:

Landowner Agreements – Yes	Landowner Agreement – no	Hectares with Landowner Agreements	Bait stations set live	Traps set live	Trail cameras set active	Hectares live with devices
203	4	4,515	255	242	88	1,809

Thanks to the pest control efforts of existing conservation groups, possum numbers were already relatively low in the first two working block areas. Once our initial knock down work is completed the next step is to assess whether or not possums have been eradicated in these areas. This will be done by activation of a lean detection network involving auto-reporting leghold traps and trail cameras. Any last possums will then be specifically targeted, and the defence phase of the programme will commence. The programme will then roll out across a new area of the Whangārei Heads.

An exciting part of the project is using new technologies. The team are using auto-reporting celium nodes to send a signal via solar-panelled hubs whenever a leg hold trap is activated. Auto resetting traps are being used that can run for over six months without the need to rest or rebait. This makes accessing difficult and dangerous terrain so much safer.

Mana whenua, hapū and iwi have a long-standing interest in the whenua of Whangārei and the kaupapa of Predator Free 2050 is evolving to include their input and involvement. Navigating the many sacred maunga of the area with support of kaumatua is important and the programme is now involving mana whenua and uri in design and delivery.

Interest in our Predator Free mahi from the community has been very high with our e-newsletter and website being popular. Exciting initiatives are also underway with Parua Bay and Whangarei Heads Primary School's with the Predator Free team helping to promote environmental stewardship with the kids.

Aside from the possum eradication project, a mustelid suppression programme is underway, working with Kiwi Coast.

Predator Free Whangārei also supports Tiakina Whangārei which operates in the urban area and is also working to help enhance rat suppression in the project area.

Predator Free Whangārei recognises that whanau, hapū, iwi are key partners for this project. The project hopes to better engage with mana whenua and be kaitiaki together.

Visit the website and subscribe to the e-newsletters to stay up to date: www.predatorfreewhangarei.nz

Pēwhairangi Whānui- Bay of Islands

Hei whakahoki i te mauri ki te ngahere o te rohe o Pēwhairangi Whānui

Pēwhairangi Whānui (Bay of Islands) is steeped in history, is rich in biodiversity and is one of Aotearoa's most iconic places. Predator Free 2050 resources will support eradication on the three Peninsulas of Mataroa (Purerua), Kororāreka / Russell, and Rakaumangamanga.

Hapū and community groups from each peninsula area are in the process of developing eradication strategies specific to each peninsula, focusing on eradicating predators over the next 10 years, in a staged and managed approach

Russell/Kororareka

The Russell Landcare Trust is the project lead and is partnering with mana whenua, hapori (community), kaunihera (council) and DOC to create an eco-sanctuary free of introduced mammalian predators, where indigenous biodiversity can thrive, and additional species reintroductions can occur. The project involves shifting the existing long-term suppression efforts towards achieving zero density of the target pests across the entire Peninsula, establishing the basis for wider eradication in the future once further effective eradication tools become available and the surrounding landscape also becomes predator free.

The Russell PF2050 project aims to eradicate rodents and possums in a staged approach, starting on a 400ha peninsula within the Russell Peninsula, expanding this effort over the rest of the Russell peninsula over the next 10 years,

Cape Brett/Rakaumangamanga

Lead by Te Rawhiti 3B2 Ahu Whenua Trust, this project is a collaborative hapu driven project with the initial goal of eradicating possums from the Rakaumangamanga peninsula, and future aspirations for the removal of all other introduced mammalian pest including mustelids (Stoats, Weasels, Ferrets), Rats, feral pigs and feral cats, with the aim of returning the voices of our native taonga species back to our forests.

The project builds on years of dedicated pest control work that has been undertaken on Rakaumangamanga and surrounding areas.

Mataroa (Purerua)

Pest Free Mataroa (Purerua) is a collaborative project involving Kiwi Coast Trust, Ngāti Rēhia and Ngāti Torēhina to remove stoats, possums, and feral cats from the Purerua Peninsula to protect kiwi, Pāteke and other at-risk species. Predator Free 2050 will enhance this existing work.

The goal is to remove predators from the Mataroa (Purerua) Peninsula to allow biodiversity to flourish and to protect taonga species. This will help achieve the long-term vision, for the Mataroa (Purerua) Peninsula to become a healthy biodiverse ecosystem that will provide a legacy for New Zealander. The Project will provide local employment as this is a community-run and community-driven project and therefore will benefit the area on an economic, ecological, and social aspect

7. Kauri Protection

13

New sites sampled

265 since 2018

24

Kaitiaki engaged through iwi/hapu collaborations

10

Kauri Protection workshops

20 since 2020

168

Soil samples taken and analysed

879 since late 2018

2

New high risk properties

60 high risk properties contained

200

Hygiene kits distributed

1150 since 2018

6

School visits / events

54 since 2018

11

Hygiene stations installed

45 since 2019

260

Students educated about kauri dieback

2,000 since 2019

Programme objectives and aims

Sustained controlled diseases are those that are widespread throughout Northland. This section relates to the management of *Phytophthora agathidicida* (kauri dieback) disease in Northland. *P. agathidicida* is managed by a multi-agency collaborative partnership between tāngata whenua, Biosecurity New Zealand, Department of Conservation, Auckland Council and the Northland, Waikato, and Bay of Plenty regional councils.

Objectives

- For the duration of the Pest Plan, prevent the spread of P. agathidicida to reduce impacts on biodiversity, cultural and economic values in Northland.
- Ensure coordination with other government agencies and the Department of Conservation to achieve the Pest and Operational Plan objectives.

Aims

- To maintain a complete record of the distribution and severity of P. agathidicida in Northland.
- To increase public knowledge and skills and encourage people to take action to help reduce the spread of P. agathidicida.

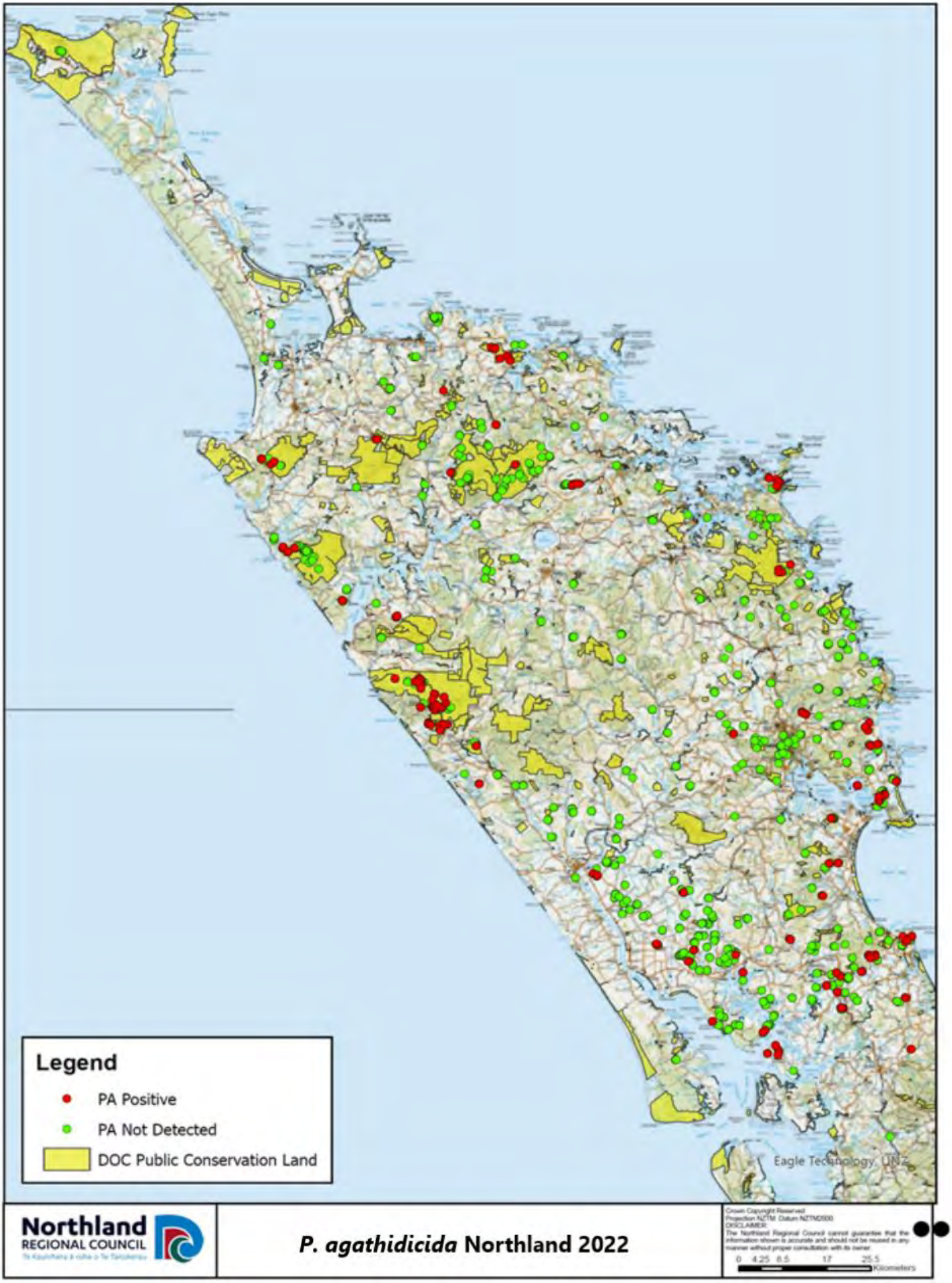
  To ensure that measures taken under the Pest Plan are complementary to inter-regional and national approaches to kauri protection.

Programme objectives and aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Soil sampling
100% of remaining aerial survey sites on private land will be sampled and a minimum of 50% will have management plans.</td><td>Achieved in part</td><td>
<table>
<tr><th>Sample site</th><th>Since 2018</th><th>2021-22</th><th>Total</th></tr>
<tr><td>Aerial surveillance</td><td>267</td><td>-</td><td>267</td></tr>
<tr><td>Requests/follow ups</td><td>48</td><td>16</td><td>64</td></tr>
</table>
identified 2021-2022 = 2
Overleaf is a map of Northland sample site locations. Positive sites</td></tr>
<tr><td colspan="3">The remaining 42 sites identified in the 2017-2018 aerial survey are landowners who have either denied access, or who were unable to be contacted during the year despite repeated attempts. Future compliance actions in respect of these sites will be directed by the new national plan.</td></tr>
<tr><td>Management plans
as above.</td><td>Achieved in part</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>Total</th></tr>
<tr><td>High risk properties</td><td>15</td><td>3</td><td>2</td><td>60</td></tr>
<tr><td>Plans prepared</td><td>33</td><td>8</td><td>2</td><td>55</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Plan preparation for high-risk properties has been prioritised and is proceeding as quickly as is possible within constraints of staff availability. Some sites are on Māori land with multiple landowners and further work is required to engage with the multiple landowners to develop a plan.</td></tr>
</table>

Mitigation advice

Landowners with sites that have tested negative or deemed to be low risk for P. agathidicida are supplied with a mitigation advice plan. This landowner support is undertaken outside of the Pest Plan and is considered a valuable additional measure to help prevent the spread of P. agathidicida. Since 2018, 144 mitigation advices have been issued.


Legend
PA Positive
PA Not Detected
DOC Public Conservation Land
Eagle Technology, ©NZ
Northland
REGIONAL COUNCIL
P. agathidicida Northland 2022
Crown Copyright Reserved
Projection NZTM Datum NZTM2000
DISCLAIMER:
The Northland Regional Council cannot guarantee that the information shown is accurate and should not be reused in any manner without proper consultation with its owner.
0 4.25 8.5 17 25.5
Kilometers

Performance Measure	Result	Details
Incident response times All incidents are recorded, and a response plan developed and implemented within 20 working days	**Not achieved**	2019-20 2020-21 2021-22 Incidents reported 16 15 18 All incidents were responded to, and a plan formulated within 20 days, but plans could not always be implemented due to covid and other factors.
This performance indicator is difficult for the team to achieve because: • *P. agathadicida* sampling cannot be performed in wet conditions and testing takes two months to complete. • A full response is not always practical or necessary within 20 days.		
***P. agathadicida* distribution** Maintain a record of distribution of *P. agathidicida* disease across Northland.	**Achieved**	Data has been recorded on both national and council databases. Sampling data is recorded in ARCGIS online and viewed through a P. agathidicida viewer
Hygiene stations A minimum of 5 hygiene stations installed to improve track hygiene in 2020-2021.	**Achieved**	2019-20 2020-21 2021-22 Stations installed 7 10 11
In addition to the 10 hygiene stations installed in Northland, a further 3 stations were sold to the Department of Conservation (Kauri Coast) and 4 in total sold to Waikato Regional Council (WRC).		

Hygiene stations are an important part of helping ensure visitors to our kauri arrive (and leave) with clean footwear. This year the Biosecurity kauri protection team gave out 11 hygiene stations across Northland. The barrel and grate stations come in two sizes for tracks with varying volumes of traffic.

Hygiene stations 2020-2021	
New hygiene stations provided	**11**
Replacement guns for existing stations	**30**
Sterigene concentrate provided	**60 L**
Construction jobs Whangārei Men's Shed	**15**
Construction jobs Waipū Menzshed	**15**
Mountain bike cleaning station	**1**
Hygiene stations sold to other agencies	**7**
Upgrades to existing stations	**4**

Kauri protection Track Upgrade Project

Council put in a successful bid to the Provincial Growth Fund for $2M to upgrade sections of the Te Araroa trail and other public tracks on private land in Northland to better protect kauri. The project final agreement was signed off just before Christmas 2020.

The two project contractors Kaikohe-based, Johnson Contractors Ltd and Whangarei-based, Right Track Limited, have a combined team of 20 staff working on the 21 month project, which includes a series of seven track upgrades to the national standard for mitigating P. agathidicida, including boardwalks, box steps and resurfacing.

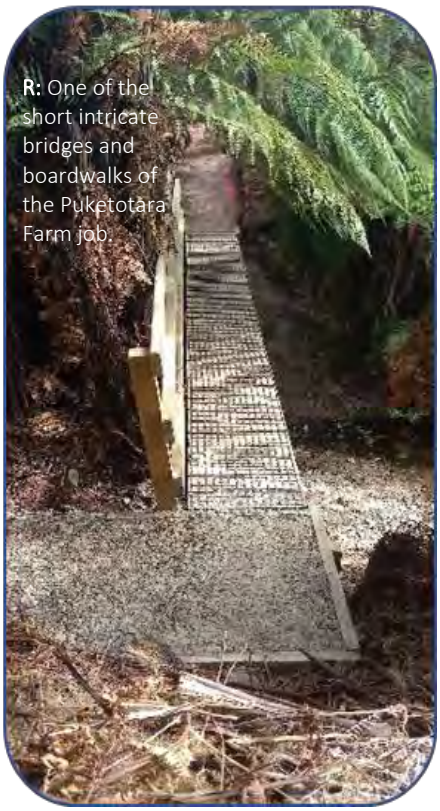
At the time of writing, five out of the seven jobs have been completed, including the more recently completed Upper Kerikeri River Track. A joint agency opening was organised in April 2022 to celebrate the completion of this track. Thus far across all five completed tracks 175 meters of boardwalk, 60 flights of boxed steps have been constructed, 100 meters of geoweb and over 4000 meters of aggregate have been laid. The target figure at the beginning of the project was for 13.89 kilometres of track to be upgraded and this target has been exceeded with more than 14kms of track completed.

KDTM Project	
Track upgraded	1300
Jobs completed	5
Flights of box steps	60
Boardwalk	175m
Geoweb mat	100m
Aggregate resurfacing	4000m
Local staff employed	16

Attendees from Ngati rehia, MPI, DOC, MBIE, NRC councillors and staff met to celebrate the reopening of the Upper Kerikeri River Track after its upgrade in early 2022.

L: Matua Hone Martin and the Te Uri O Hau Environs team on the pre start karakia at Paparoa Bush Walk. Local Lions members also in attendance

M: The winding boardwalk through the Paparoa Pa site.



R: One of the short intricate bridges and boardwalks of the Puketotara Farm job.

Performance Measure	Result	Details			
Community engagement – events and collateral Deliver a minimum of 10 public engagement events annually.	**Achieved**	*Refer Appendix for more details*	**2019-20**	**2020-21**	**2021-22**
		Field Days / A&P Shows	2	0	0 [7]
		Community events (includes sponsorships)	6	3	0
		School visits	13	24	6
		Stakeholder activities	11	9	12
		Kauri protection workshops	1	8	11
		Pig hunting competitions	10	2	4
		Total events	**43**	**46**	**33**
		Collateral distributed – hygiene kits	500	200	200
		Collateral distributed – Visitor's flyer	-	3,000	0
		Collateral distributed – All flyers	-	-	500
		Collateral distributed – Waitangi flyer	-	-	50,000

Kauri Protection Flyers

These flyers are full of key information on how to Protect Kauri and are created for specific forest user groups. We have expanded the list to include Mountain Bike Riders and Horse Riders.

This year the team contributed to improving awareness and advocacy for those visiting the Waitangi Treaty Grounds by donating 50,000 specific Visitors to Northland flyers with Waitangi branding.

Hygiene Kits

An essential tool to help protect kauri, approximately 200 hygiene kits were distributed to the community in 2020-2021.

[7] Events were cancelled by Covid-19.

Clean Card Kauri Protection Workshops

Northland communities include a variety of forest users and people who interact with our forest environment. Whether it be on two legs or four wheels, from hikers to hunters and everything in between, the forest is an integral part of Northland communities, and it is important that our communities can continue this relationship without causing harm to kauri.
In 2020 the kauri protection team created the "Clean Card" workshops which aim to upskill Northland communities on how they can protect kauri whilst still being able to undertake their chosen forest activity.

Target audience

Anyone who spends time in kauri forests or around kauri. This includes mountain bikers, hunters, trappers, contractors, and hikers.

Where

The workshops have been delivered at a wide range of venues across Northland from community halls to marae.

What the workshops involve

These free workshops provide a detailed, informative, and interactive session on kauri protection. Designed to upskill attendees in the areas of identifying P. agathadicida, understanding hygiene, and how best to prepare for activities undertaken around kauri, the workshops run for about 3 hours and are made up of a power point and "hands on" interactive displays.

Feedback

The team completed **ten** workshops in 2021-2022 and have received positive feedback. Survey results from 78 participants during the year showed **88%** found the course very useful.

Below: *Recipients of a Clean Card workshop held in Whangarei during 21-21 included representatives of Patuharekeke*

Performance Measure	Result	Details
Fencing External funding was sourced and spent on protecting Kauri from P. agathidicida by fencing off forest blocks on private land	**Achieved**	2021-22 Number of properties fenced: 3 Distance of fencing installed (m): 2850 Size of forest protected (ha): 30
Various challenges were faced in organising these jobs including COVID and a lack of available contractors.		

Kauri protection monthly updates

The Kauri Protection Team's monthly update continues to be delivered to a variety of partners and stakeholders across all of Kauri lands. The update provides recipients the opportunity to learn about all the work that is carried out in the Kauri Protection space at NRC. There are now 75 recipients of the monthly update from iwi/hapu, community groups, other councils, DOC and scientists and researchers.

8. Freshwater Pests

Riha wai māori

Exclusion freshwater pests

Key points of the exclusion freshwater pest programme

- Enforcement of rules relating to exclusion freshwater pests.
- Eradication of exclusion freshwater pests found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National pest plant accord). This performance measure is reported in ***Section 6.4 Sustained control plants*.**

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
Identify new sites of freshwater exclusion pests through passive and active surveillance by council staff, the public, or through regional surveillance.</td><td>Achieved</td><td><table><tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr><tr><td>Confirmed incursions</td><td>0</td><td>0</td><td>0</td></tr></table></td></tr>
<tr><td>Exclusion incident investigation
Initial investigations for all reported sightings and/or discoveries of exclusion species undertaken within 5 working days.</td><td>Not achieved</td><td>Initial response to the exclusion species report received took longer than five days. The report was confirmed as rudd.</td></tr>
<tr><td>Exclusion Incident response
A response plan developed and implemented for any new incursion of an exclusion species within 20 working days of confirmation of species.</td><td>Not applicable</td><td>Report confirmed as rudd within 2 weeks, no response plan required.</td></tr>
<tr><td colspan="3">Orfe
There was one report of pest fish that the member of the public thought could have been rudd or orfe. Based on the description of the fish and the location at a site with a known rudd population it was concluded that the fish sighted was rudd.

Follow up work was also undertaken on a known koi carp management site in a farm dam that was previously identified as a potential historic orfe release site. Previous netting effort had not shown any definitive evidence of orfe presence nor ruled it out, and as a result Northland Regional Council (NRC) and the Department of Conservation (DOC) conducted a netting operation and eDNA sampling in Feb 2022 to provide more information for a determination. From water and fish fin clip samples collected within the dam, genetic evidence indicated that all fish sampled were koi carp. However, opinion from DOC experts suggest these fish are morphological different to koi carp and further netting work is planned to extract larger mature adults for further examination. The lack of an eDNA difference may be due to koi and orfe hybridising, limiting genetic distinction.</td></tr>
</table>

Eradication freshwater pests

Key points of the eradication freshwater pest programme

- Enforcement of rules relating to eradication freshwater pests.
- Eradication of listed eradication freshwater species found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National Pest Plant Accord). This performance measure is reported in ***Section 6.4 Sustained control plants*.**

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
Identify new sites of freshwater eradication pests through passive and active surveillance by council staff, the public, or through regional surveillance.</td><td>Achieved</td><td>
<table>
<tr><th>New sites identified</th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Red-eared slider turtle</td><td>5 (3)</td><td>9 (9)</td><td>12 (12)</td></tr>
<tr><td>Salvinia</td><td>3 (2)</td><td></td><td>-</td></tr>
<tr><td>Eastern water dragon</td><td>-</td><td></td><td>1</td></tr>
<tr><td>Snake-necked turtle</td><td>3 (2)</td><td></td><td>-</td></tr>
</table>
Unbracketed figures are the total confirmed new sites identified in the year. Bracketed figures are the subset of the new sites arising from public reports.
</td></tr>
<tr><td colspan="3">
Red-eared slider turtle (2021-2022)
Red eared slider turtle reports from the public totalled 16 across Northland. Reports ranged from as far north as Houhora, with the southern extent being Mangawhai. 12 were confirmed as being new locations.

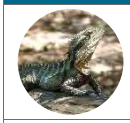
Of the 16 reports, five were turtles that were captured/handed in and rehomed with owners who had secure enclosures, and one was euthanised. One of these turtles handed in by the public came from a known active management site where there has previously been multiple reports.

Two other reported sightings were related to other existing management sites, and the remaining seven reported sighting locations were at new locations, and these have been added to the management site database for sites requiring search and control work in future, as capacity allows.

Eastern water dragon
An eastern water dragon was sighted and then captured and handed in to NRC by a landowner off Cove Rd, Mangawhai.

Salvinia
Two reports of the National Interest Pest Response species salvinia were confirmed and then past on to the Ministry Primary Industries for control and subsequent monitoring.
</td></tr>
<tr><td>Incident investigation and response
Initial investigations for all reported sightings and/or discoveries of eradication species undertaken within
10 working days and control actions completed within 20 days.</td><td>Achieved in part</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Incidents reported</td><td>14</td><td>11</td><td>19</td></tr>
</table>
119 reports of freshwater eradication species were responded to in 2021-2022. One of those reports took longer than the target time for initial response to requestors. Sixteen of these reports related to red eared sliders and there is currently not sufficient capacity to instigate control actions for all reported sightings.
</td></tr>
<tr><td colspan="3">Resources and staff capacity for freshwater work continue to be a barrier to resolving new reports of eradication species and managing existing sites (currently one staff member), particularly for the increasing number of red-eared slider reports and management sites. Turtles that are established in the wild are extremely wary and need focussed intensive control efforts (timed for suitable conditions) to be successful.</td></tr>
</table>

Performance Measure	Result	Details
Best practice management 100% of NRC freshwater pest plants management sites visited on scheduled best practice rotation (based on biological characteristics of each species and defined in the species programme record in the Council's IRIS database).	**Achieved in part**	Refer species specific details below.

Eradication freshwater pest management site visits 2021-2022			
Eradication species		Results	Details
	Eastern water dragon	**Not applicable**	No active management sites.
	Eel grass	**Not applicable**	No active management sites.
	Nardoo	Achieved	One monitoring status site confirmed to still be free of nardoo.
	Red-eared slider turtle	Not achieved	There are now 16 management sites where turtles are considered likely to be present based on sightings and reports, and 4 sights classified as 'undetermined' because of the unverified nature of the reports or the detail provided. Four of these sites classified as 'Present' are in a related river system (the Hātea river and one of its tributaries) and may be interconnected. No trapping or surveillance work was undertaken at any of the sites due to limited capacity. As there is no current successful best practice for turtle capture in Northland, the methods require further development. Conventional basking traps are subject to vandalism or theft at public sites with the only successful capture using this approach to date requiring a three month set and regular monitoring before the turtle was captured. This is highly impractical for a management approach. Alternative approaches or modifications to existing basking traps will be made to improve catch efficiency of turtles in the 2022-23 year.
	Salvinia	**Not applicable**	Sites are managed by the Ministry for Primary Industries.
	Senegal tea	Not achieved	Annual inspection not undertaken for the one active site
	Snake-necked turtle	**Not applicable**	No active management sites.
	Water hyacinth	**Not applicable**	Sites are managed by the Ministry for Primary Industries.

Eradication freshwater pest management site summary					
Eradication freshwater pest		Adult count			Details
		2019-20	2020-21	2021-22	
	Eastern water dragon	0	0	1	No active or monitoring status management sites. One eastern water dragon was captured and handed in to NRC by a landowner off Cove Rd, Mangawhai (Nov 2022).
	Eel grass	0	0	0	No active or monitoring status management sites.
	Nardoo	0	0	0	One monitoring site. This aquatic pest plant is approaching eradicated status.
	Red-eared slider turtle	5	5	16	16 existing active management sites where a turtle is believed to be resident in the wild but could not be captured, and 4 undetermined sites The count is currently based on one adult turtle per site classified as 'present', but one site potentially had more than one turtle present (yet to be confirmed).
	Senegal tea	0	2	2	One active management site.
	Snake-necked turtle	0	0	0	No active or monitoring status management sites. One red-eared slider turtle report was ambiguous and could potentially be a snake-necked turtle but is currently being treated as a red-eared slider management site.

Performance Measure	Result	Details
Red-eared slider distribution Develop database and map tool for managing turtle sightings and reliable turtle surveillance and capture techniques.	Achieved in part	The new database structure developed in 2021-2022 has been maintained and updated. It divides management sites into the categories below: **Eradicated:** Sites where control effort has successfully eradicated a known population or individual, or the original site locations of instances where turtles have been caught and handed in by the public. This ensures we have a complete record of previous infestation sites and a record of the frequency of pet escapes/turtles being found with uncertain origin. **Present:** Sites where turtles have been confirmed as present by staff surveillance or by good quality public reports/photo evidence. These should ideally be the target of control operations, where capacity allows **Undetermined:** Reported sites where it is not clear if a turtle is still present/active at a reported site of because of the nature of the original report (it may be unverified, or second-hand, or lacking in detail). Further surveillance work or reports from the public are required to confirm presence/absence at these sites. **Not detectable:** Where intensive surveillance work has been carried out and has not resulted in any evidence of a turtle being present (ie the initial report not reliable or was a different species ie. not a red-eared slider). The mapping tool for this database still needs to be refined.

Progressive containment freshwater pests

Key points of the programme

- Enforcement of rules relating to progressive control freshwater pests.
- Eradication or reduction of infestations of progressive containment freshwater pest may be attempted with council in conjunction with Crown agencies and stakeholders where practical.

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Incident investigation and response
Initial investigations for all reported sightings and/or discoveries of Progressive Containment species undertaken within 10 working days and decisions documented within 20 working days.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2019-20</th><th>2020-21</th><th>2021-22</th></tr>
<tr><td>Public reports</td><td>13</td><td>6</td><td>2</td></tr>
</table>
2 reports of freshwater progressive containment species were responded to in 2021-2022. For both of these reports initial response time targets were met. Actual netting and surveillance operations took or will take longer to initiate because of the resource required and seasonal restrictions.
</td></tr>
<tr><td colspan="3">Incident investigation details

There were 2 reports of freshwater progressive containment species.

One was responded to at Lake Shag, a dune lake on the Pouto peninsula, where the indication of a potential koi carp incursion was a concern to Te Roroa iwi (kaitiaki of the lake) resulting in a small-scale netting operation and eDNA sampling to attempt to determine presence. No koi carp or other pest fish were captured by nets, and eDNA results proved inconclusive. Further sampling is planned for 2022-2023. It is considered likely that the original sighting of the fish carcass on the lake shoreline was probably goldfish. Further netting work is planned for 2022-2023 to confirm this.

The second, more recent, report of a koi carp washed up on the shoreline in the Mangonui-Taipa area is currently being investigated and will be reported on in the new year. While koi carp are not regarded as marine residents, there are several draining catchments (inside and outside containment zones) within the Taipa/Mangonui watershed that are possible source areas from where the koi carp may have originated from. These potential source areas will be evaluated in relation to current records in the database and a follow up plan formulated to investigate in 2022-2023.</td></tr>
<tr><td>Maintain distribution record
Maintain an updated distribution record of progressive containment pest fish species.</td><td>Achieved</td><td>The pest fish database for all three Progressive Containment species has been updated to reflect the status and management actions undertaken this year for existing sites and new sites. It divides management sites into the categories below

Present: Sites where the species has been confirmed as being present to a high degree of certainty.

Undetermined: Sites created in response to incursion reports that still require surveillance effort to confirm presence (or absence/not detectable at that site).

Not Detectable: Sites where intensive surveillance has been undertaken in response to reports, but the pest species has not been detected and we have a high level of certainty that they are not present at that site.

Eradicated: Sites where koi have been confirmed and have been subsequently eradicated (having met post-eradication monitoring surveillance effort minimums).</td></tr>
<tr><td>Management and eradication actions
Training, surveillance, control, and eradication actions attempted for progressive containment pest fish species will be reported annually.</td><td>Not achieved</td><td>Refer to species specific status and management summaries below.</td></tr>
</table>

Performance Measure	Result	Details
Both the confirmation of reported sites of pest fish, and management actions at known sites is extremely challenging and resource heavy work, because of the intensity and scale of netting required to produce definitive evidence. There is also a seasonal limitation to when this work can be conducted because of water temperature impacts of fish activity. Capacity is still limited to one dedicated pest fish specialist role, and this role works in partnership with other teams to help resource this work. The pest fish specialist has also been working closely with the Department of Conservation, and their key freshwater field officer, to prioritise and deliver netting operations.		

Winged fyke net set in Awanui River (Kaitaia)

Management and eradication actions in 2021 2022

Annual reporting on the status and number of new sites of all Progressive Containment freshwater pests, and the training, surveillance, control, and eradication actions attempted in 2021 2022 are summarised below for each of the three Progressive Containment species.

Koi carp

Outside the containment area

The summer season fieldwork prioritised undertaking surveillance netting and eDNA sampling where applicable at the 'Undetermined' status management sites. The driver of this surveillance work is to provide robust evidence to either confirm presence at the sites, or to reach a high certainty that the reported species is not present and no future work is required. Sites where prioritised based on risk and biodiversity value. This work was made possible through an ongoing partnership with Department of Conservation and fieldwork assistance from the Check Clean Dry advocate. Similarly, additional surveillance work was completed as part of a Pestfish Training Workshop (Feb – Mar 2022), across two of our management sites coordinated by the Department of Conservation (DOC) and the Northland Regional Council.

Confirmed sites outside the containment area (2 sites)

Location	Type of site	Date confirmed	Activity undertaken 2021-2022
Ōmāmari	Dune lake/ wetland	2012	Despite being a high priority site, no management work was undertaken this year. This was due to ongoing access constraints and delays imposed by the landowner of the lake. A further attempt with the landowner will be made to negotiate sampling access to the lake, if that fails, then access will be sought through the use of a Warranted Officer under the RPMP via the Biosecurity Act 1993. This work will be delivered in 2022-2023.
Kaingaroa – Mangatete River	River system	September 2020	A netting operation (including eDNA analyses) of the Mangatete River in Apr 2022 was carried out in partnership with DOC staff. No koi carp were captured in either gill or fyke nets set within the Mangatete River, which is consistent with eDNA evidence also showing no koi carp. However, water levels in the river during summer were considerably low, and fish movement would have been limited, possibly obscuring our sampling efforts. As this is a confirmed koi carp site, further surveillance in winter/spring is planned when water levels are higher, and fish are able to move throughout the system more easily.

Potential sites outside the containment area to be confirmed (10 sites)

Location	Type of site	Activity undertaken 2021-2022
Tangowahine, Awakino river	**River system**	No work undertaken in 2021-2022 . The site was last visited as part of the May 2021 surveillance work. A variety of native fish, one catfish, and multiple baby goldfish were caught. eDNA sample results were positive for goldfish. The site could possibly be considered a goldfish site (free of koi) but a further surveillance visit, and sampling would be beneficial.
Mangapai, Tauraroa river	**River system**	The site was netted as part of the Pestfish Training Workshop held in February 2022. This was coordinated in partnership with DOC and included a small number of DOC and council staff as well as kaitiaki rangers from Patuharakeke. Trainees were able to learn about setting and retrieving a range of different nets as well as carrying out eDNA sampling. No koi carp were captured, although some fish were unrecognisable as a result of eel predation. Further netting will be required at this site.
Lake Taharoa, Kai iwi	**Dune lake**	Drone surveillance was carried out in the lake by a contractor to determine if koi carp moving along the shallow margins of the lake could be detected. No koi were observed by the drone, but the approach is promising, and further trial work using 3D printed koi carp models placed around the shallow lake margins to improve drone pilot detection is planned.
Parapara stream, Taipā	**Stream**	The site was visited in April (2022) and a range of netting methods (gill and fyke nets) as well as eDNA sampling was carried out to determine if koi carp were present. No koi were captured by gill, fyke or trammel nets or detected by eDNA. However, detection of goldfish by eDNA and field observations of goldfish on the day of sampling suggest landowners may have misidentified koi carp for goldfish. A final netting operation in an un-surveyed section of the Parapara River is planned and if no koi are detected the status of the site will be changed to 'Not detectable'
Ruawai	**Drainage canal**	Surveillance was carried out in winter when more water was in the canals ; fyke nets were set ~300m apart from the main tidal floodgate which was open at the time of sampling. No koi carp were captured in any of the fyke nets, but some estuarine fish were taken (mullet) indicating estuarine species movement into the drainage channel via the floodgate. The drainage channels typically shallow up the further away from the floodgate you go and in summer the water levels in this drainage system are significantly lower (as was observed in Feb 2022 inspection) than in winter. Fish movement within the drains in summer is therefore very limited along with access to suitable habitat. This may in turn prove to be a limiting factor for koi carp persistence overtime if fish are trapped within the drainage system during summer. Further surveillance during winter flooding conditions is planned and assessment of drainage water levels in summer will also be required
Arapohue	**Drainage canals**	The site was visited in Feb (2022) as a recce for later netting in winter when water levels are higher. As with the Ruawai drainage canal, this may be a limiting factor for koi carp persistence overtime if fish are trapped within the drainage system during summer. Surveillance netting work is planned for Sept 2022 when water levels in the drain are sufficient for netting.
Ngāraratunua	**Pond**	This site was confirmed as being goldfish and has been moved from 'Undetermined' status to 'Not detectable' and does not require further assessment or management.
Maungatāpere	**Dam**	No work undertaken in 2021-2022 and considered a low priority for investigation. Previous netting by the Department of Conservation has only caught goldfish.
Makaka Creek, Te Kōpuru,	**Creek**	No surveillance was undertaken at this site is 2021-2022. This site is an older 2015 report that found during traceback activities, but with very limited information. Further investigation is required.

Inside the containment area

New reports of sightings and new sites within containment areas continue to be received, however, without capacity to provide more advocacy, awareness and support to locals and landowners, these populations represent an ongoing threat for further range expansion. There would also be value in further delimiting the progressive containment zones if resources allowed.

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Perch

Outside the containment area

Confirmed sites outside the containment area (none)

Potential sites outside the containment area (2 sites)

Location	Type of site	Activity undertaken 2021-2022
Wairua river, Pīpīwai,	**River**	No surveillance was undertaken in 2021-2022. The site is scheduled for summer surveillance work in partnership with DOC for Apr 2023.
Mareretu	**Pond and stream**	No surveillance was undertaken in 2021-2022. The site was added based on a reference found in 2014 NIWA report. Surveillance will be carried out in 2022-2023 summer surveillance work streams.

Inside the containment area

There are only a limited number of sites known from within the three containment areas, and these are relatively discrete sites. Progress could be made on managing the risk posed by these sites, however, without capacity to provide more advocacy, awareness and support to locals and landowners, these populations represent an ongoing threat for further range expansion.

Tench

Outside the containment area

Confirmed sites outside the containment area (1 site)

Location	Type of site	Date confirmed	Activity undertaken 2021-2022
Lake Kapoai, Te Kopuru	**Dune lake**	**2022**	Biodiversity funding provided through the Freshwater Improvement Fund was utilised in 2021-2022 to deliver a tench removal operation using trammel and fyke nets, primarily to assess the size composition and spatial structure of tench populations in the lake in view of identifying effective management approaches. The lake is a fully closed system meaning tench are reliant on self-recruiting stocks to persist. Over the 2 days of netting, 117 tench were removed. The spatial composition of juvenile and adult tench from this operation and past operations show juvenile nursery habitats are at the southern end of the lake. Further removal work is planned with the arrival of specialised fishing nets and mesh sizes to enable targeted removal of adult spawning stocks which will further dampen recruitment. This will also provide information around the timing of spawning (gonad assessments) which alongside identifying spawning locations will be key to determining possible management approaches for tench in the lake.

Potential sites outside the containment area (1 site)

Location	Type of site	Activity undertaken 2021-2022
Arapohue	**Pond**	No surveillance undertaken in 2021-2022. The site was added after a reference was found in the Smith Diaries (a summary of historic release activities undertaken by Stewart Smith). Traceback investigation has identified this site, but Google Earth image review indicates the pond has dried out and refilled multiple times over the years, so it is unlikely the fish have survived. Whilst the site is a low priority for follow up, an investigation in 2023 to confirm its status will be carried out.

Inside the containment area

The progressive containment zone for tench is centred around the Waitangi River infestation that is not considered feasible to manage with current technology and resources.

Trammel net set in the Awanui river

Tench captured in Lake Kapoai

Sustained control freshwater pests

Key points of the sustained control freshwater pest programme

- Enforcement of rules relating to sustained control freshwater pests.

Progress in achieving aims

Performance Measure	Result	Details
Request response time Response to requests from the public on sustained controlled pests will be responded to within 20 working days.	**Achieved in part**	2019-20: Public requests 20; 2020-21: 5; 2021-22: 10 The council database reporting system is not currently able to report on request response times and requires modification to capture response data (rather than close date) for this performance measure

Community engagement

Performance Measure	Result	Details
Community engagement - events Total number of engagement activities conducted to increase awareness of freshwater pests is maintained, or greater than the previous year.	**Not achieved**	*Refer Appendix for more details*

	2019-20	2020-21	2021-22
Field Days / A&P Shows	2	1	0
Community events / waka ama	7	8	-
School visits and workshops	3	4	-
Stakeholder activities	-	3	1
Pest workshops	5	6	1
Total	**17**	**22**	**2**

NRC were involved in delivering a pestfish training workshop in collaboration with the Department of Conservation (DOC) to undertake one week of training in freshwater pest fish and pest plants for staff and kaitiaki rangers from Patuharakeke. Trainees were able to learn about setting and retrieving a range of different nets as well as carrying out eDNA sampling.

Additional engagement activities involved working alongside Ngai Takoto kaitiaki rangers delivering grass carp removal operations in Lake Heather (Kaitaia) as part of their FIF Funded project. Other planned community engagement events (Field Days/A&P Show, Waka Ama) and workshops or School events were cancelled as a result of COVID-19 restrictions, and will be revisited in 2022-2023.

The Check Clean Dry awareness campaign is run under the Freshwater programme and is summarised separately on next page.

Check Clean Dry (CCD)

Check Clean Dry (CCD) is a freshwater pest awareness campaign led and funded by the Ministry for Primary Industries. The campaign is aimed at preventing the spread of freshwater pests between waterways. In Northland, the campaign is managed and implemented by the council and includes employment of a full time CCD advocate in the summer months, as well as input from other staff and contractors. These staff conduct advocacy and surveys at freshwater sites and at events.

Collateral material (educational information and merchandise) is distributed at freshwater events also to the relevant businesses, clubs and freshwater users throughout the region.

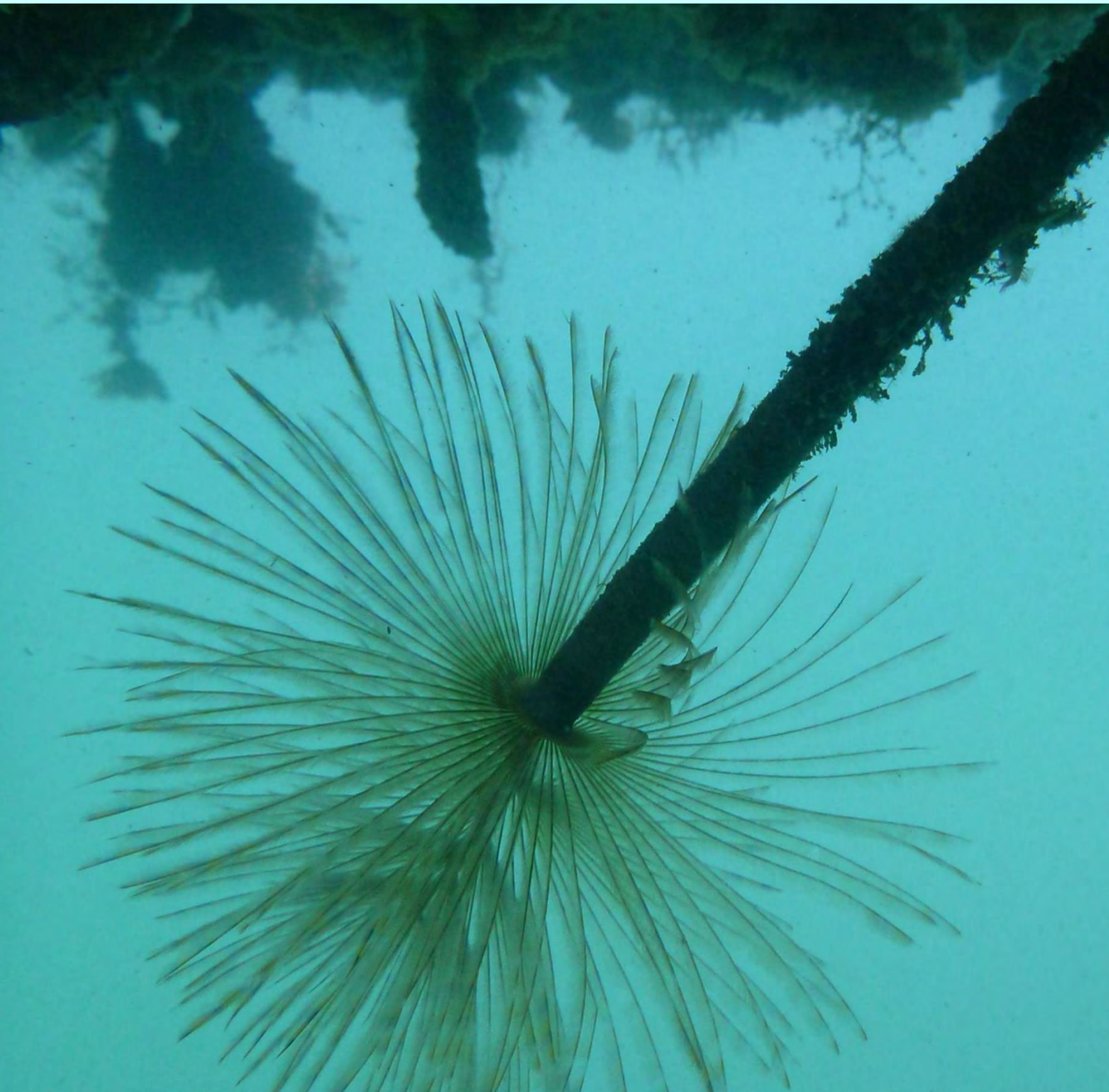
Check, Clean, Dry Advocacy

2021-2022

Check, Clean, Dry Events 2020-2021	Location	Date
Ngā Whiringa Hoe Horo a Rohe o Te Tai Tokerau - TTPCA Regional Sprint Trials 2021	Lake Ngatu	18 Dec 2021
Pearl of the North Lake Series 2022	Lake Manuwai - Kerikeri	08 Jan 2022
Te Rarawa Noho Taiao education day	Lake Waimimiha South, Ahipara	11 Jan 2022
Ōtiria\Moerewa spill way Wananga	Ōtiria Marae, Moerewa	25-27 Jan 2022
Kaitaia Saturday Markets	Kaitaia	02 Apr 2022
Parihaka Trail Run	Whangārei falls, Whangārei	27 Mar 2022
Kai Iwi Lakes Open Day	Lake Taharoa	19 Mar 2022

9. Marine Pests and Pathways

Riha tai me te huarahi ki mua



Background of the Marine Pathway Management Plan

Over the life of the Marine Pathway Management Plan council has the following aims:

- To increase the number of vessel owners or persons in charge of vessels complying with the pathways plan rules
- To increase the awareness of the risk hull fouling poses to marine pest spread
- To see a reduction in the rate of spread of established marine pests within Northland
- To help marine stakeholders, coastal marine area occupiers, vessel owners and the public to gain knowledge and skills to help reduce the impacts and spread of sustained control marine pests.

From 2010 council has had a species-led approach to managing marine pests. However, identifying current and potential marine pests for Northland is difficult, so rather than relying solely on the species-led approach, the council has also begun addressing the universal vector of spread. Mediterranean fanworm (*Sabella spallanzanii*) is one of many species that has entered the region via hull biofouling. Taking a proactive approach and enouraging cleaner hulls through a Marine Pathway Management Plan will result in fewer vessels carrying marine pests, such as Mediteraranean fanworm, and other biofouling into the region and reduce the risk of new marine pest incursions.

Marine pathway		
Hull fouling: Level of Fouling 2 (LOF2) 'Light fouling' allowed, which means no more than small patches (up to 100 mm in diameter) of visible fouling, totalling less than 5% of the hull and niche areas.		
Marine pests		
Asian paddle crab Australian droplet tunicate Japanese mantis shrimp	Mediterranean fan worm Pyura sea squirt Styela sea squirt	Undaria seaweed

Programme implementation 2021-2022

Programme implentation in 2021-2022 included:

The hull surveillance programme continued as per previous years with levels of fouling recorded and any vessel carrying a named marine pest in a location where that pest is not established placed under a Notice of Direction to have the vessel cleaned. Dive contractors were directed to perform in-water removals where possible on vessels with low levels of fouling to immediately mitigate risk.

Wherever possible, staff informed owners of their vessels level of fouling threshold, reducing the risk of vessels moving between designated places in breach of the Marine Pathway rules. Simultaneously, existing communication and engagement programmes have continued to assist vessel owners and stakeholders with ensuring compliance.

Where Notices of Direction were issued to the owners of vessels found with listed marine pests, these enforcement notices were tracked in IRIS (council's incident logging database) and regular contact was made with vessel owners to ensure they had met the requirements of the notice.

Progress in achieving aims

Vessel compliance to the Marine Pathways Management Plan

Performance Measure	Result	Details
Hull survey The vessel hull surveillance programme will inspect a minimum of 2,000 vessel hulls annually.	**Achieved**	2019-20: Hulls surveyed 2,048; 2020-21: 2,144; 2021-22: 2,060
2,060 hulls were assessed, representing between 50 – 60 % of the vessels that pose a risk for the spread of marine pests in Northland.		
Vessel compliance reporting Compliance with the marine pest and pathway plan is recorded and trends over the duration of the plan are analysed.	**Achieved**	Overall compliance: 2019-20 47.5%; 2020-21 44.6%; 2021-22 51.3 Incidents: 2019-20 145; 2020-21 169; 2021-22 194
Hull surveillance and vessel compliance data is reported monthly in the Chief Executive's report to council. Approximately 51.3% of the vessels inspected met the required biofouling threshold (these are vessels that would be compliant with the Marine Pathway Management Programme rules if the vessel moved between designated areas). This year continued Covid related lockdowns and travel restrictions meant that a larger proportion of the fleet were stationary for longer periods of time than usual when inspected, leading to higher fouling levels. Therefore, as the surveillance programme predominantly inspects stationary vessels it is not an accurate proxy of true compliance. Encouragingly, surveillance efforts this year over the Christmas period, when restrictions were lifted and vessel movements increased, revealed a higher level of compliance (~65%), with divers reporting that vessels on anchor were very clean and relatively free of biofouling. Education around being 'clean before you go' continues so vessel owners are aware that their vessel needs to be compliant when they move.		

Introduction and spread of marine pests in Northland

Performance Measure	Result	Details
New marine pests Introductions of new marine pests to Northland are recorded and trends over the duration of the plan are analysed.	**Achieved**	New Pests Reported: 2019-20; 2020-21; 2021-22 From hull surveillance: 1; 0; 0 From external monitoring: 2; 0; 1
The eastern Australian flatback mangrove goby (*Mugilogobius platynotus*) was recorded for the first time in a saltmarsh wetland adjacent to Ngunguru River, Northland.		
Range extensions within Northland The spread of established pests to new designated areas within Northland are recorded and trends over the duration of the plan analysed.	**Achieved**	2019-20; 2020-21; 2021-22 Range Extension Reports: 6; 1; 2
Public reports –Whangaroa Mediterranean fanworm (*Sabella spallanzanii*) was detected on an oyster farm in Whangaroa during equipment maintenance checks. This prompted a comprehensive survey of the structures, sea floor and vessels within the Whangaroa harbour (See more below). During the NIWA Ōpua winter marine biosecurity survey, the ascidian *Ciona savignyi* was detected for the first time.		

Strengthening national marine partnerships

The Top of the North Marine Biosecurity Partnership (TON) is an alliance between the northernmost regional councils in Aotearoa New Zealand (Northland, Auckland, Waikato, Bay of Plenty, Hawkes Bay and Gisborne), the Department of Conservation and Biosecurity NZ. The partnership has been active in promoting an awareness campaign 'Clean Below? Good to go', supporting national marine biosecurity research and aligning policy and operational procedures.

A key project for the collaboration has been the development of a Pathway Management Plan under the Biosecurity Act – the '**Clean Hull Plan**'. One key criterion for success is that the plan acts as a model for a national approach – that is, it can be expanded to include the remainder of the country in due course as other regions are ready to be brought on board.

This year has seen an exciting development with Central Government committing $5.56M over the next four years to advance a Clean Hull programme as a pilot in the Top of the North regions, which captures 70% of New Zealand's vessel fleet. Drafting the proposed plan, including the required Biosecurity Act documentation, and a multi-agency management agreement setting out roles and responsibilities for governance and implementation is ready for public consultation. Early testing with elected members, mana whenua, and key stakeholders has shown strong support for the plan and formal public consultation is expected in 2022.

TON Partnership engagement 2021-2022	
Newsletter subscribers	1,005
Facebook – total page likes	546
Facebook – reach	161,198
Instagram reach	36,590
Website unique visits	18,619
Google ads and video impressions	>2,870,000
Google ad clicks	16,769
Google video views	166,446
YouTube Videos Views	166,000

24 incidents are recorded as not having been closed within 5 working days in the year. However, all incidents were risk assessed upon receipt, and a response implemented based on likely harm to the receiving environment. The reporting system requires modification to capture response data (rather than close date) for this performance measure.

Performance Measure	Result	Details			
Incidence response All significant incidents are recorded, and a response plan is developed and implemented within 5 working days.	Response time data not valid		2019-20	2020-21	2021-22
		Incident response recorded as > 5 working days	58	32	24

Incursion responses 2021-2022

Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

With support from Biosecurity New Zealand, council has funded several responses to marine pest incursions during 2021-2022.

Tutukākā Harbour

Five years after Mediterranean fanworm was last found in Tutukākā, the bay has officially been delcared 'fanworm free". After fanworm was first detected in 2015 on an infected vessel, Northland Regional Council rapidly conducted a dive survey that revealed early signs of an infestation at Tutukākā Marina. Biosecurity New Zealand and NRC were swift to develop a joint response that included a programme of dive surveillance, not only of boats and marina structures but also of the seabed, due to acquiring further information that fanworm larvae can attach to even the smallest shells or pebbles.

If elimination efforts had not been undertaken, the fanworm population would have increased significantly with potentially damaging impacts on Poor Knights Islands and other high value areas.

Ōpua Harbour

This year has seen divers conduct several different search and destroy surveys in and around the Ōpua basin. Divers have successfully combed the sea floor covering the whole marina footprint, including all marine and surrounding artificial structures and moore blocks within the Ōpua basin. While this massive effort did result in a moderate number of Mediterranean fanworm being detected and removed it was very encouraging that the majority of the individuals removed were immature and had not attained a size considered to be reproductively viable (~%68 juveniles). Additionally, histological analysis on a subset of the remaining individuals revealed that the timing of our diving operations corresponded with critical reproductive timing of this species, meaning they were removed prior to spawning.

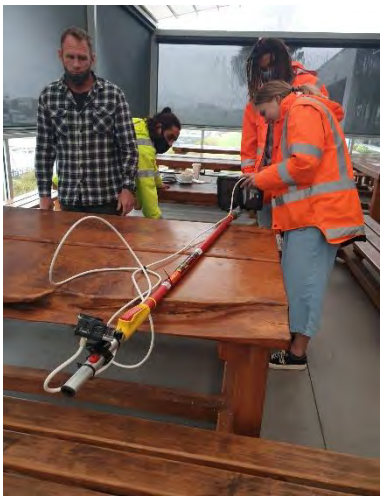
Community engagement

Performance Measure	Result	Details
Community engagement – events and activities A minimum of two engagement activities are conducted annually to facilitate an increased awareness of the risk hull fouling poses to the spread of marine pests.	Achieved	

Refer Appendix for more details	2019-20	2020-21	2021-2022
Boat shows and community events	1 [19]	4 [20]	9
School visits / workshops	2	5	6
Stakeholder activities	6	3	1
Marine pest workshops	4	3	2
Total	13	15	18

Hull Surveillance Partnerships

As part of their partnership with Northland Regional Council, kaitiaki from Patuharakeke Te Iwi Trust have begun to initiate their own huill surveillance monitoring within the Marsden Cove Marina that lies in their rohe moana. Kaitiaki will use a modified underwater pole camera to inspect vessels without getting into the water. Recently arrived vessels will be targeted as this marina is a port of first arrival for international vessels and has high volumes of domestic travel. This technology will aid in increased detection for marine pests and will provide signifcant protection to Patuharakeke's rohe moana with postive flow-on effects to the rest of Northland's marine environment.



Patuharakeke kaitiaki learning how to use the pole camera.

Experiencing Marine Reserves and NRC Partnership

The Marine Biosecurity team ran four engagement events with Experiencing Marine Reserves (EMR) between December 2021 and March 2022 as part of their annual summer snorkel series in Northland. The partnership between council and EMR is working on developing an ongoing collaboration in the marine biosecurity space, engaging young people who are passionate about the ocean to keep an eye out for any invasive marine pests when they are in the water. EMR is a national programme that aims to educate people about the importance of our marine environment by experiencing it up close and personal. NRC is one of multiple funders which help support the mahi of EMR in Northland.

Prior to the summer snorkel events, EMR volunteers attended a formal pest identification workshop at council so they could assist participants in looking for marine pests.

The summer snorkel events provided a great opportunity for staff to educate the public about the work NRC does in the marine biosecurity space throughout Northland and how they can get involved in protecting our marine environment.

The days were held at Long Bay in Oneroa and Maunganui (Deep Water Cove) as well as two at the Reotahi Marine Reserve in Whangārei Heads - locations identified to be of interest to the marine biosecurity program as they are high value areas at risk of marine pest incursions.

Altogether, these events connected with more than 230 participants who went away with new knowledge to share about marine pests. Both NRC and EMR agreed that this was a highly successful partnership and hope to continue working together in the future at these great community events.

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Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau