Annual Report

on the Biosecurity Operational Plan

He Pūrongo Mahi Haumaru Koiora

2023-24

Northland REGIONAL COUNCIL

Te Kaunihera ā rohe o Te Taitokerau

Foreword

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

Kia ora koutou, we hope you will enjoy reading this year's annual report - we are very proud of the many biosecurity services we have provided Northlanders over the last year and the outstanding contributions made by our communities. Our aim is to deliver positive leadership with our regional biosecurity partners and be a trusted partner of central government.

We are a council that prides itself on being proactive in the face of an increasing number of new pests and diseases which may affect our culture and regional economy and to be successful we rely heavily on the support of our communities, Iwi and hapū, and those who are engaged in safeguarding our environment.

Therefore, we take this opportunity to acknowledge the growing network of committed and capable Iwi, hapū, and community groups who are invested in weed and pest control and who are also being proactive, and preventing pests like freshwater gold clam, being transferred into Taitokerau. We have also seen amazing results with the wild deer eradication plan because of a united vision to protect the health of our forests - all these efforts are helping to build biosecurity awareness.

We also share the grave concerns of hapū and the community over the new marine invader Caulerpa. It is one of the world's most aggressive marine pests and the marine environment at Te Rāwhiti and wider Bay of Islands remains severely threatened. Our council has joined with Ministry for Primary Industries and local hapū to lead out a response and develop new tools to combat its spread in the eastern Bay of Islands. Preventing the further spread of Caulerpa will be one of the greatest challenges the region has ever faced, and it will rely on everyone playing their part, particularly vessel owners, to prevent this marine hitchhiker from spreading further.

Our Northland – together we thrive

Jonathan Gibbard, Otāhūhū Rangapū - CEO
Northland Regional Council

Jack Craw - Chair
Biosecurity and Biodiversity Working Party

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1. Introduction
Timatanga kōrero

Background

The Northland Regional Council (council) is the management agency responsible for developing and implementing the Northland Regional Pest and Marine Pathway Management Plan 2017-27 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.

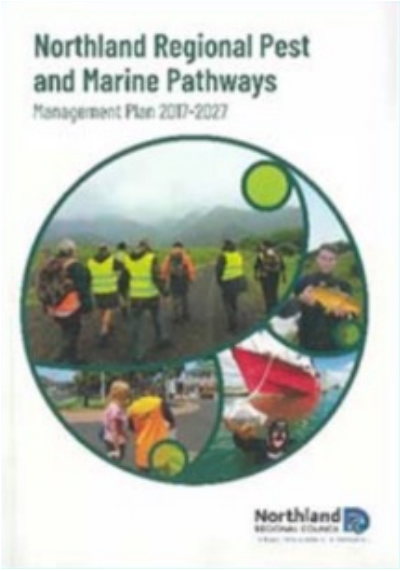
An Operational Plan is prepared and reviewed annually as a requirement of the Biosecurity Act 1993 (section 100B). It details the Biosecurity activities that will be undertaken throughout Northland, outlining the management or eradication of specific organisms and/or marine pest pathways.

Doing so will:

- minimise the actual or potential adverse or unintended effects associated with these organisms and/or pathways, and,
- maximise the effectiveness of individual actions in managing pests or pathways through a regionally coordinated approach.

The Annual Report 2023-24 shows 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 2023-24, the Northland Regional Pest and Marine Pathway Plan 2017-27 and referenced as an integrated part of the Northland Regional Council Long Term Plan 2024-34

Associated Documentation



NRPMP Management Plan 2017-27

Te Mahere Roa | Long Term Plan 2024-34 (nrc.govt.nz)

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

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

Pest Type	Exclusion Species	Eradication Species	Progressive Containment
Plants	Asiatic knotweed Chinese knotweed Climbing spindle berry Giant hogweed Giant knotweed Holly-leaved senecio Houttuynia Noogoora bur Old man's beard Phragmites Purple loosestrife Sea Spurge Velvetleaf	Akebia Balloon vine Bat-wing passionflower Cape tulip Cathedral bells Chilean rhubarb Evergreen buckthorn Field horsetail Firethorn Gypsywort Lesser knotweed Mexican feather grass Mickey mouse plant Monkey musk Nassella tussock Nutgrass Royal fern Spartina species including: *Spartina alterniflora,Spartina anglica, Spartina townsendii* Wilding kiwifruit Yellow flag iris	African feather Grass Lantana (all varieties) Manchurian wild rice Mile-a-minute Pultenaea
Animals	Bearded dragon Big headed ant Blotched blue tongued skink Common blue tongued skink Indian ring-necked parakeet Rainbow lorikeet Rook Sulphur crested cockatoo Wallaby (all *Macropus, Petrogale* and *Wallabia* species)	Feral deer including all species and hybrids of: Cervus Dama Odocoileus	
Fresh water	Entire marshwort Orfe Water poppy	Eastern water dragon Eel grass Nardoo Red-eared slider turtle Salvinia Senegal Tea Snake-necked turtle Water hyacinth	Koicarp Perch Tench

Pest Type	Sustained Control	Banned from Sale and Distribution
Plants	Bathurst bur Brazillian Pepper tree Gorse Gravel Groundsel Phoenix palm Privet (*Ligustrum*) including: *L. lucidum* (tree privet) *L. sinense* (Chinese privet) *L. ovalifolium* (privet) *L. vulgare* (common privet) Queen of the night Rhus tree Wild ginger including: Yellow ginger Kahili ginger Wilding conifers including: *Pinus contorta* Douglas fir Maritime pine Radiata pine Woolly nightshade	Agapanthus Black-eyed Susan Broom Brush wattle Buddleia Camphor laurel Cape honey flower Prickly moses incl: Cape ivy Century plant Coastal banksia Cotoneaster incl: *C. glaucophyllus* *C. franchetii* Eleagnus Elephant's ear English ivy German ivy Hakea Himalayan honeysuckle Jasmine Kangaroo acacia Lily of the valley vine Oxylobium Paperbark poplar Periwinkle *Acacia verticillata subsp. cephalantha* *A. v. subsp. ruscifolia* Sexton's bride Sharp rush Sycamore Sydney golden wattle Taiwan cherry Velvet groundsel Furcraea Greater bindweed Hakea Himalayan fairy grass
Animals	Argentine ant Darwin's ant Feral and stray cats Rodents incl: Norway rat Ship rat Mustelids incl: Ferret Stoat Weasel Possum Rabbit Feral goat Feral pig	
Diseases	Kauri dieback	
Fresh water	Brown bullhead catfish Rudd	
Marine	Asian paddle crab Australian droplet tunicate Japanese mantis shrimp Mediterranean fanworm Pyura sea squirt Styela sea squirt Undaria seaweed	

3. Financial Summary
Whakarāpopoto ā pūtea

Council's Long Term Plan 2021- 2031 provides the necessary funding (via rates and user charges) for the operational and planning activities associated with biosecurity and pest management carried out by Northland Regional Council. Additional external funding grants have also been allocated to supplement council investment in pest management

Funding was received from the following external agencies:

Ministry for Primary Industries:

Manchurian wild rice control	$217,558
Wilding pine removal	$212,227
Kauri protection	$1,018,009
Marine incursions	$3,618,577
Biosecurity incursions	$20,000

Department of Conservation:

Wild deer programme Northland	$1,171,733

Whangārei District Council:

Urban pest control	$50,000

In addition, $1,774,173 of external funding was drawn down for Predator Free PF2050.

Biosecurity Activities 2023-24	Budget (revised)	Actual	Variance
Expenditure	$12,063,082	$16,417,452	$4,354,370
Revenue	$15,023,174	$19,106,958	-$4,083,784
Operational deficit(-)/surplus	**-$2,960,092**	**-$2,689,506**	**$270,586**

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** 29 collaborations in 23/24 up 4 from the previous year	At the end of June 2024, 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 – wilding conifers – Pest Fish • Te Orewai Te Horo Trust- Wilding conifers • Pātaua Tiaki Whenua Project Community Pest Control Area • 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- Pest Fish Mahi Tahi • Ngāti Torēhina; Ngāti Rehia; Patukeha; Ngāti Kuta - PF2050 • Ngati Tirairaka o Ngati Hine – Restoration of Motatau Maunga and Kauri protection • Ngapuhi – Kauri protection • Te Rāwhiti 3B2 Ahu Whenua Trust. – PF2050 and Kauri protection – Marine biosecurity • Te Rarawa – Kauri protection • Ngāti Torehina ki Mātaka • Te Waiariki – Marine biosecurity • Te Whanau a Rangiwhaaku • Te Kapotai • Ngāti Kororā • Ngāti Takapari • Ngāti Rehia • Te Parawhau • Te Uri o Hikihiki • Ngai Takoto • Te Roroa; Te Kuihi – gold clam • Te Whānau Moana me Te Rorohuri -Marine biosecutiy • Te Rūnanga Nui o Te Aupōuri - Partnerships • Te Whanau Whero – Rahui Tapu/Marine protected areas ** We acknowledge the important relationships and collaborations held with Uri within Te Tai Tokerau: • Aki Tai Here Conservation Team – Pest Plants and PF2050
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.

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 **119,847** visits to the Pest Control Hub homepage between 1 July 2023 and 30 June 2024, in comparison with 93,018 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**	• 34 posts related to Biosecurity published • 157,306 impressions • 16,743 engagements • 10.6% engagement rate (per impression) 2,360 post link clicks

Impressions: *The number of times your content was displayed to users.*

Engagements: *Reactions, comments, shares, saves and post link clicks.*

Engagement rate: *This indicates how engaged people are with your brand.*

Post link clicks: *The number of times users clicked on links from your posts.*

Most popular Facebook posts

Metrics explained

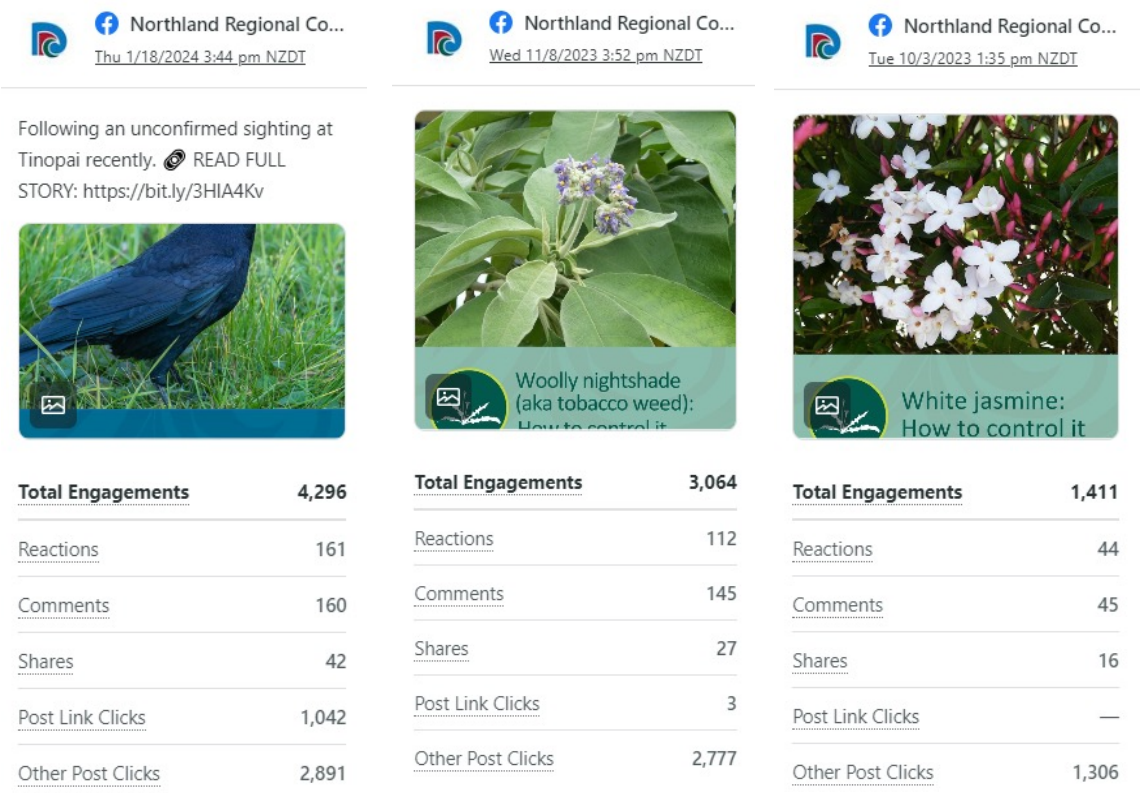
The industry standards for good engagement rates is between 1% - 5%

The industry average equals between 3% - 5%

The number of times users engaged with your content as a percentage of impressions was 10.6% for 2023-24

This indicates how engaged people are with your brand.

Date/Month/Year	Post	Metric 1 Engagement / Total Fans
18 January 2024	Rook sighting media release	17.3%
11 August 2023	Woolly nightshade info post	16.7%
3 October 2023	White jasmine info post	11.3%



5. Pest Plants
Riha otaota

4
Exclusion species incursions

72
eradication plant incident reports

15
Biofund projects with a pest plant component

1,000
Public enquiries

72
Nurseries/ retailers inspected

7,270
Weed Action volunteer hours

119,847
Pest control hub total page views

For all pest species

1000+
Eradication site inspections

164
Weed workshops participants

1,477 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 5.4 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 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>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Confirmed incursions</td><td>1</td><td>0</td><td>4</td></tr></table></td></tr>
<tr><td colspan="3">Houttuynia
One new site (4m^2 patch) was identified during routine nursery inspections in 2023-24; it was found growing as a weed (rather than as a cultivated plant) in an unused glasshouse. A subsequent inspection found a single a potted Houttuynia plant in another part of the property, unrelated to the nursery operation.

Sea spurge
Three sites (consisting of a number of sub-sites) of sea spurge were identified in Northland during 2023-24. The first incursion was found by NRC staff when undertaking surveillance on the Poutō peninsula. This site is comprised of five different locations within a 165m stretch of coast (15 plants). The second site on Te Oneroa-a-Tōhe/90 Mile Beach was reported by a member of the public, located near Waipapakauri and 6 plants were found at this site. Wider survey around this infestation located a second site approximately 700m further north, comprised of a number of scattered locations with 17 plants.</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reported sightings and/or discoveries of exclusion species undertaken within 5 working days.
• An initial response plan developed and implemented for any new incursion of an exclusion species within 20 working days of confirmation of species.</td><td>Achieved</td><td>See details below for new incursion response and management of existing sites</td></tr>
<tr><td colspan="3">Sea spurge (Euphorbia paralias)
Site 1: Poutō peninsula
In late November 2023 a sea spurge site was found on the Poutō peninsula by NRC officers and initial control of all plants was undertaken on the day of discovery. A secondary search was undertaken within 5 days. In total 15 plants of mixed ages were removed from 5 different locations within 165m length of coastline.

The discovery was immediately reported to the Ministry for Primary industries which is the lead agency for sea spurge management, under the National Long-term Management Programme. MPI manage this programme with support from the Department of Conservation and Regional Councils to deliver the control and surveillance work.

Following discussions with MPI and DOC, the ongoing inspection and control of the Poutō site was delegated to DOC staff in the Kauri Coast office, funded through the International Visitor Levy. DOC staff have continued to undertake the inspections and control work at least every four months, with 44 seedlings removed at the second inspection and no plants found at the third inspection. The Department will also be responsible for completing the annual best practice surveillance 15km north and south of the known site.</td></tr>
</table>

Sea spurge (*Euphorbia paralias*)
Site 2 : Waipapakauri
In mid-June 2024 a second location of the coastal weed sea spurge, *Euphorbia Paralias*, was reported by a member of the public on Te Oneroa-a-Tōhe/90 Mile Beach north of Waipapakauri. The site was inspected promptly, and 5 plants were found and physically removed. A second location was found located approximately 700m further north, and a further 17 plants were removed from this second location. In addition to the search of the immediate infestation area, an additional 15km of the beach was searched, focusing on the higher risk areas (stream mouths/surge areas where flotsam is regularly deposited).

As the second discovery occurred late in the 2023-24 year the subsequent response actions fall into the 2024 2025 period so will not be reported on here. An additional small site was also confirmed in in Ahipara in early July. A proposal has been submitted to MPI for Council to deliver the ongoing control and surveillance for the Waipapakauri and Ahipara sites, and to undertake some wider surveillance work. A response was yet to be received at the time of writing. Staff will continue to inspect and control the known sites in the interim to ensure no seeding occurs and undertake survey at high-risk sites.

Houttuynia *(Houttuynia cordata)*
The new site was identified in September 2023 and a sample was sent to the herbarium and confirmed as being houttuynia. In discussion with the nursery owner it was clear that this plant was not being offered for sale nor was this area used for potting up other plants. The site was sprayed by the nursery owner. A subsequent inspection found a potted houttuynia plant in another part of the property unrelated to the nursery operation which was removed and destroyed; this plant is believed to have been the source of the infestation in the disused glasshouse. No houttuynia has been found in the glasshouse during the two subsequent inspections.

Ongoing searches continued at the two existing houttuynia management sites with three inspections conducted for each of the sites. At the first site (discovered October 2019), no plants were found at any of the three inspections, meaning no plants have been detected here since May 2021. At the second management site (discovered 2017), no plants were found at any of the inspection visits. This is the first year no plants have been found after 7 years of intensive inspections, with March 2023 being the last record of a seedling being detected at this site.

Climbing spindleberry *(Celastrus orbiculatus)*
Annual inspection was undertaken at the only known management site. There has been no regrowth or seedlings observed since the initial vine was controlled. A targeted social media post was run for the landowners in the vicinity of the known site; the only reports received in response to this were for species other than climbing spindleberry.

A historic herbarium record in Kerikeri from 1999 was also found and the likely site this related to was inspected. Nothing was found.

Velvetleaf surveillance site *(Abutilon theophrasti)*
Annual surveillance of the property that received fodder beet seed from a batch infected with velvetleaf seed in 2016 was undertaken. No plants have ever been observed at this site.

Asiatic knotweed *(Fallopia japonica)*
One report of a potential site of Asiatic knotweed was received and investigated and found to be madeira vine *(Anredera cordifolia).*

Noogoora burr *(Xanthium strumarium)*
One report of a potential site of Noogoora burr was received and investigated and found to be thorn apple *(Datura stramonium).*

Phragmites *(Phragmites australis)*
One report of a potential site of Phragmites was received and investigated and found to be a flowering giant reed *(Arundo donax).*

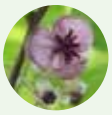
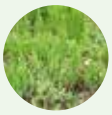
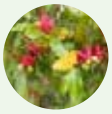
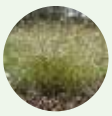
5.2 Eradication Plants

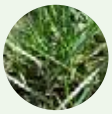
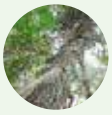
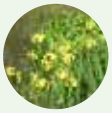
Key points of the eradication pest plant programme

- 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 5.4 Sustained control plants.***

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>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.</td><td>Achieved</td><td>
<table>
<tr><th>New sites identified</th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Bat-wing passionflower</td><td>40 (10)</td><td>85 (12)</td><td>76</td></tr>
<tr><td>Cathedral bells</td><td>-</td><td>3 (3)</td><td>2</td></tr>
<tr><td>Mickey mouse plant</td><td>160 (4)</td><td>57 (9)</td><td>134 (9)</td></tr>
<tr><td>Yellow flag iris</td><td>9</td><td>3 (1)</td><td>11(2)</td></tr>
<tr><td>Evergreen buckthorn</td><td>-</td><td>1</td><td>1</td></tr>
<tr><td>Spartina</td><td>2 (1)</td><td>1 (1)</td><td>-</td></tr>
<tr><td>Mexican feathergrass</td><td>4</td><td></td><td>-</td></tr>
<tr><td>Wilding kiwifruit</td><td>-</td><td>1</td><td>4 (1)</td></tr>
<tr><td>Firethorn</td><td>5 (1)</td><td>7(3)</td><td>24 (1)</td></tr>
<tr><td>Akebia</td><td>-</td><td>3</td><td>4</td></tr>
<tr><td>Royal fern</td><td>-</td><td>7</td><td>3</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">The effectiveness of eradication work is predicated on having a high certainty that most infestation sites are known. Where programmes may not be well delimited or where new incursions have been identified, proactive surveillance is the best way to achieve this. In 2023-24 significant effort was put into extended searches to delimit infestation areas, as this data is critical to achieving programme objectives. New sites were also found through public reports, monitoring iNaturalist reports and incidental discoveries by staff. For two of our programmes, Mickey mouse plant and bat-wing passionflower, these increases were substantial, and of concern for the viability of these programmes, given the pattern for the last few years.

Resourcing surveillance work remains challenging within the current constraints, as it sometimes requires prioritising this work over inspection and control work of known sites, however it is essential to ensure undetected sites are not continuing to spread and increase the infestation area. For some of our larger programmes proactive search/surveillance was prioritised over inspections of known sites to improve the data for assessing the viability of current programmes and/or their objectives.</td></tr>
</table>

Eradication species		Identification of new management sites
	**Akebia**	Four new sites were identified by staff in 2023-24, found during inspections for other plants or extended searches around known sites. Three of these are more substantial in size and/or more difficult to control due to site constraints. The infestation area for one of the known sites has also increased with vines found dispersed through an 8,000m^2 following an extended search.
	**Bat-wing passionflower**	76 new management sites were added to the programme in 2023-24. Many of these were from range extensions around known infestations and a significant proportion are from splitting larger management sites into smaller units. The large infestation in the Hokianga is yet to be delimited. New funding was sought for this work and will be available in 2024-25. The scale and complexity of this programme has been increasing year on year as extended search work has been completed and will be reviewed as part of the Regional Pest Management Plan review process.
	**Cathedral bells**	Two new sites found by staff, unrelated to current known sites.
	**Evergreen buckthorn**	One new site identified by staff in the Tutukaka infestation area.
	**Field horsetail**	No new sites.
	**Firethorn**	Twenty-four new firethorn sites were confirmed, primarily from extended search in existing infestation areas and incidental observations by staff. Several known sites were also expanded through extended searches. One site was identified from a public report.
	**Mickey mouse plant**	134 new sites were identified in 2023-24, nine of which were from public reports. The remainder were identified by staff, either from extended search, particularly in the mid-north area, or from incidental observations. The scale of this programme has been increasing year on year as extended search work has been completed and will be reviewed as part of the Regional Pest Management Plan review process.
	**Nassella tussock**	No new sites detected. One public report of nassella tussock was found to be Australian sedge.
	**Nutgrass**	No new sites detected. Six public reports were investigated and found to be the common umbrella sedge *Cyperus eragrostis*.

	**Royal Fern**	Following last years review of historic herbarium records, historic DOC records, biodiversity reports and new iNaturalist reports, which identified another seven probable sites and seven potential site, efforts have focused on prioritising, confirming and delimiting these new sites to assess if eradication is feasible and the resources that would be required for this. Being a wetland species, the habitats a very difficult to survey, and many of the potential sites are very remote. Because the spores are wind dispersed the areas to delimit are also very large. Biosecurity staff are working alongside Biodiversity staff and Department of Conservation staff to progress this work. In 2023-24, five sites were delimited or partially delimited, with drone surveys being undertaken at two of these. Confirmation and delimiting of sites will be continued in the 2024-25 year. In addition to these sites and potential sites identified in 2022-23, another 3 confirmed sites were identified in 2023-24 and these have been added to the planning/prioritisation process for delimitation work, which will inform future management decisions. One report from the public confirmed as the native water fern.
	**Spartina species**	No new sites detected. One new management site was created from splitting an existing record for better data management. One public report investigated and confirmed no infestation present. Staff also undertook extended searches within known infestation areas in the Hokianga, Whangaroa harbour and at two Bay of Islands sites and confirmed new infestation points in these areas. Six known sites with difficult access in the Kaipara were drone surveyed. Infestations were mapped in three of these sites and the other three sites appeared clear of plants.
	**Wilding kiwifruit**	Four new sites identified by staff, and one through a public report.
	**Yellow flag iris**	11 news site were identified, primarily from extended search near existing infestation areas and incidental observations by staff. Two of the sites identified were from public reports.

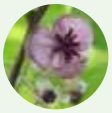
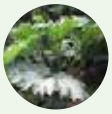
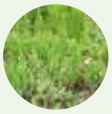
Performance Measure	Result	Details
Incident investigation and response Initial investigations for all reported sightings and/or discoveries of eradication species undertaken within 10 working days and control actions completed within 20 days.	**Not achieved**	<table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>**Incidents reported**</td><td>22</td><td>64</td><td>72</td></tr></table> Of the 72 incident reports, not all initial investigations were undertaken within 10 working days or control actions completed within 20 working days. The database is unable to report on the number.
Due to capacity, the workload posed by the existing known management sites, and the distance of some reports from where staff are based, it is still challenging to be able to complete inspections and control actions for all reports within the target period, especially for the Mickey mouse and bat-wing passionflower programmes (see later discussion under Progress toward eradication). For efficiency's sake, depending on the risk posed by a site, staff will combine incident inspections and control with other scheduled control work rather than make an individual trip to the site of a report.		

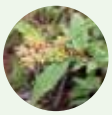
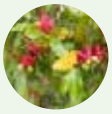
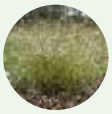
Performance Measure	Result	Details
Best practice management All management sites visited on scheduled best practice rotation *(based on biological characteristics of each species and defined in the species programme record in the council's IRIS database).*	**Achieved in part**	Refer species details below.

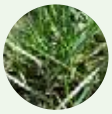
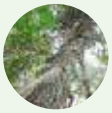
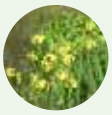
The frequency of inspection and control for management sites of eradication species is dependent on the species ecology and the site status. Each species has a target inspection schedule that would reduce the risk of plants reaching maturity between inspections based on the growth rate and likelihood of plants being missed in the previous inspection.

While staff and contractor capacity for pest plant work has been increased significantly since the adoption of the Regional Pest and Marine Pathways Plan in 2017, the detection of new sites and increase in the scale of a number of the eradication species programmes has outpaced this growth in capacity. This means it is not currently possible to meet the best practice targets for all management sites, while also completing surveillance work, and delivering other pest plant programmes and community partnership initiatives.

The continued increase in the scale and complexity of the two largest eradication species programmes, bat-wing passionflower and Mickey Mouse plant, has meant that these programmes currently consume a significant proportion of the available resources.

Eradication plant management site visits 2023 - 2024			
Eradication plant		**Results**	**Details**
	**Akebia**	**Not achieved**	Best practice was not achieved as six of the nine sites received only a single inspection and treatment rather than the best practice biannual control (two inspections per year). Biannual control undertaken at the other three sites.
	**Balloon vine**	**Achieved**	The target annual inspection and control activity was undertaken for each of the two existing large-scale balloon vine management sites.
	**Bat-wing passionflower**	**Not achieved**	Best practice (triannual inspection / 4-monthly inspection rotation) was not achieved for any sites. The majority of sites received only one inspection/search. See details under 'Progress toward Eradication' below.
	**Cape tulip**	**Not applicable**	Managed by Ministry for Primary Industries.
	**Cathedral bells**	**Achieved**	Best practice (biannual inspection of active sites, annual inspection of monitored sites) was achieved for all sites.
	**Chilean rhubarb**	**Not achieved**	The annual inspection of the large Chilean rhubarb infestation area, which spans multiple large rural properties, was due in late 2023-24 but was not undertaken. This will be undertaken early in 2024-25.
	**Evergreen buckthorn**	**Not achieved**	Best practice (annual inspection of active sites) was only achieved for 46% of sites
	**Field horsetail**	**Achieved**	The target of biannual inspection and control (two inspections per year) was achieved.
	**Firethorn**	**Achieved**	Best practice (annual inspection of active sites) was achieved for all sites.
	**Gypsywort**	**Not achieved**	Investigations were undertaken for potential drone spraying of the floating mats of vegetation that can't be accessed by boat. The selective herbicide approved for use over water by the EPA that would be necessary for this work to reduce non-target damage/prevent lake de-oxygenation was found to be no longer in production, with no suitable alternative. Some older stock was able to be sourced from other another region and this will be tested for efficiency in 2024-25. Alternate management approaches will also be investigated.

Eradication plant		Results	Details
	**Lesser knotweed**	**Achieved**	The best practice triannual inspection and control was undertaken (four monthly inspection rotation).
	**Mexican feather grass**	**Achieved**	Best practice annual inspection was achieved for 100% of sites.
	**Mickey mouse plant**	**Not achieved**	Best practice of biennial inspection and control for active sites and 4-yearly inspection of monitoring sites was only met for 30% of the 948 sites know at the start of the year. The increasing scale of this programme over the last few years as a result of extended survey meant that inspection, control work and extended survey has had to be prioritised to areas of the programme where the species is less widespread to help inform decisions on future management and the programmes objectives.
	**Monkey musk**	**Not achieved**	Two of the three active sites received only one inspection and treatment visit rather than the best practice biannual inspection (two inspections per year). Both of these sites had only a few juvenile or seedling plants present. The larger more active site received biannual control.
	**Nassella tussock**	**Achieved**	The single active property received its annual inspection. No additional long term monitoring sites were searched. Long term monitoring sites are large scale sites on long-term reinspection timeframes because the monitoring period to confirm eradicated is 20 years after last live plants detected); a selection of these is being inspected every year as staff resources allow.
	**Nutgrass**	**Achieved**	Best practice of biannual inspection and control achieved. Two inspections were undertaken at the single known management site. No live foliage found.
	**Royal fern**	**Not achieved**	Due to the number and scale of probable sites and potential sites identified during the records review in 2022-23, effort focused on confirming and delimiting these new sites to assess if eradication is feasible, and the resources that would be required for this. This will help inform decisions on future management and the programmes objectives. Surveying is very resource intensive; being a wetland species, the habitats a very difficult to survey, and many of the potential sites a very remote. The species dispersal mechanism of wind dispersed spores mean the areas to delimit are also very large. One existing site received control but the full extent of the site could not be treated. Three more recently identified sites received delimitation and control, and two sites were drone surveyed. One further potential site was partially surveyed and no royal fern was found. DOC were unable to complete their annual autumn control of the Otaikarangi site they manage.

Eradication plant		Results	Details
	**Spartina species**	**Not achieved**	Best practice (annual inspection of active sites, biennial inspection for monitoring sites was achieved for only 25% of sites. Staff capacity and the inaccessibility of the required aquatic strand training remain the largest barriers for this programme, compounded by limited suitable tide and weather windows. No sites in the Rangaunu Harbour or Pārengarenga Harbour, previously managed by the Department of Conservation, were controlled as consultation with local iwi and hapū still needs to be completed for these harbours.
	**Wilding kiwifruit**	**-**	No previous control sites were able to be prioritised for follow up within existing resources. The risk of regrowth at these previously treated sites is low as a single control visit is usually sufficient to permanently control isolated infestations.
	**Yellow flag iris**	**Achieved**	Best practice (annual inspection and control of active sites, biennial inspection of monitoring sites) was achieved for all of sites.

Modified performance measure	Result	Details
Progress towards eradication Annual decrease in number of adult plants observed or the infestation area at existing management sites.	**Modified measure**	Refer species details in table 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:

- Overall site number (existing and new sites)
- 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 GIS-based data management system and mobile data collection tools are in place, with mandatory fields and units for each species, data processing is still highly manual and data collected is still variable, 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.

Despite not being able to undertake best practice inspection frequency for a number of species programmes, there was still good progress made on many of the smaller programmes, with many sites at zero density and progressing well toward eradication status.

For some of the larger programmes, the continued pattern of new site detections has seen the scale of these programmes increase significantly since their initiation. The overall infestation area and number of adult plants has continued to increase for these programmes, which may make eradication a less realistic target. This will be taking into account when all of the eradication species programmes are assessed as part of the Regional Pest Management Plan review that is now underway.

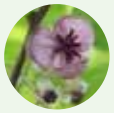
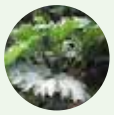
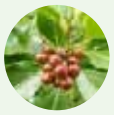
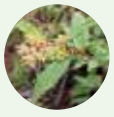
- Overall, the majority of known akebia sites are under good control, and while mature foliage was found during inspections, the plants would not have been able to flower and seed. Regrowth rates were significant at some sites, especially those where control is difficult because of non-target vegetation obscuring vines and rooting points. Because akebia is difficult to kill, especially when it has limited foliage, regular best practice biannual control is needed to achieve faster progress toward eradication, rather than the annual control that was undertaken for most sites. The infestation area for one of the known sites was increased with vines found dispersed through an 8,000m^2 area following an extended search. Four new sites were identified by staff in 2023-24. Three of these are more substantial in size and/or will be difficult to control due to the nature of the sites.
- For the two large balloon vine management sites, two adult plants, twelve juveniles, and forty seedlings were found at one, and one adult plant, one juvenile, two seedlings were found at the other.
- The cathedral bells programme has two sites in monitoring status that are nearing eradication status, two sites where no live foliage was found, and two existing sites where live foliage was found, one of which had three adult vines present. Two sites previously in monitoring status were updated to eradicated status, and one was removed from the programme as a probable misidentification. Two new isolated infestations unrelated to existing known infestations were found by staff in 2023-24 and initial control was undertaken, one of which is already under good control.
- No new emergence of field horsetail at the one management site during this monitoring period. This species is known to have a long tail to eradication so regular ongoing monitoring will continue.
- For the one known gypsywort site, investigations were undertaken for potential drone spraying of the floating mats of vegetation that can't be accessed by boat. The selective herbicide approved for use over water by the EPA that would be necessary for this work to reduce non-target damage/prevent lake de-oxygenation was found to be no longer available with no suitable alternative. Some older stock was able to be sourced from other another region and this will be tested for efficiency in 2024-25. Alternate management approaches will also be investigated.
- The required triannual control for the one known lesser knotweed site was undertaken by an approved KiwiRail contractor, with no live foliage detected at the most recent inspection.
- No adult plants were found at any of the Mexican feathergrass sites, and only two sites had any live plants detected. Two sites with an active status were updated to monitoring status, having met the criteria for time since plants were detected. One historic site still on record with insufficient location information. Overall number of sites in table below reduced due to one site declared eradicated last year.
- In the monkey musk programme, of the three sites two sites had only a few juvenile or seedling plants present. The larger more active site was reduced significantly following biennial treatment with an infestation area of only 10m^2 at the most recent visit. Note: The overall number of sites in table below reduced due to site declared eradicated last year.
- The one active site of Nassella had only one very small juvenile plant detected during the 2023 inspection. All other sites are in long-term monitoring (20 years to determine eradicated). Note: The overall number of sites in table below reduced due to two sites declared eradicated last year.
- No regrowth/seedlings found at the nutgrass infestation site in either of the two inspections this year, the second year running the site has been free of live foliage.
- The firethorn programme has grown significantly over the last two years. Twenty-four new firethorn sites were confirmed in 2023-24, primarily due to additional capacity for pest plant work in the mid north area allowing for extended search work in existing infestation areas, and incidental observations by staff. Several known sites were also expanded through extended searches. The large number of adult plants recorded (97 plants) at existing sites was primarily attributed to four sites after extended search work. While the programme is now considerably larger, the relatively slow growth rate to maturity and highly variable seedling survival are still features in the programmes favour, making eradication more achievable with consistent control and surveillance effort.

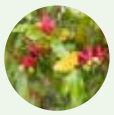
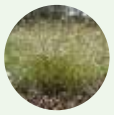
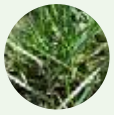
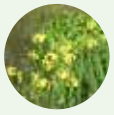
- For the spartina programme, resourcing the number of inspections/treatments and meeting the associated regulatory requirements for the use of herbicide in the in the Coastal Marine Area remains a challenge. This is related to capacity constraints combined with the underlying limitation on suitable treatments days imposed by tides, weather conditions and access issues. The regulatory restrictions around seasons also impacts the length of the control season and currently the required qualification for this work is not readily available for new staff/contractors. On the positive side, the vegetative dispersal mechanism of spartina does mean that spread to new sites is low, so consistent control can achieve eradication, and sites that have received consistent control at zero density or very low density.

  Overall, this year the infestation area increased, due to extended searches within existing large infestation areas in the Hokianga, Whangaroa harbour and two Bay of Islands sites, which was possible due to increased pest plant staff resource in the mid-north area.

  Drone survey was also used relatively successfully in 2023-24 to search difficult to access sites which greatly improved the efficiency of search work for some hard to access sites. A trial of drone-based spraying was also scheduled. However, had to be notified and postponed multiple times due to suitable weather not coinciding with the suitable tide dates. If effective, drone treatment could massively improve the efficiency of treatment for many sites so will be trialled in 2024 2025.
- Consistent control at all yellow flag sites saw a decrease in overall infestation area and 43% of sites had no live foliage present and another five sites were declared eradicated after having met the criteria following this year's inspections. However, 11 new sites were identified, three of which were larger sites (over 250m^2).
- Following last years review of historic herbarium records, historic DOC records, biodiversity reports and new iNaturalist reports, which identified seven probable sites and seven potential sites, and three further sites identified this year, the royal fern progamme is under review. Due to the number and scale of these sites, effort is being focused on confirming and delimiting these new sites to assess if eradication is feasible, and the resources that would be required for this. This will help inform decisions on future management and the programmes objectives, as part of the Regional Pest Management Plan review that is now underway. Surveying (and future control) for royal fern is very resource intensive; being a wetland species, the habitats a very difficult to survey and undertake control work in, and many of the potential sites a very remote. The species dispersal mechanism of wind dispersed spores mean the areas to delimit are also very large.
- As in previous years, the Mickey Mouse programme has seen continued increases in management site number and adult plants related to extended search work and incidental discoveries/reports, with 134 new sites added to the existing management site count of 948. While most sites are not large, the number of localities and sites makes it very intensive to resource. In addition to inspection of the known sites, equally significant is the surrounding area (primarily high-density residential dwellings) that need to be searched, given that the species is bird dispersed, to ensure all sites are detected and the programme is well delimited. This year's inspection, control work and extended survey was prioritised to areas of the programme where the species is less widespread, to help inform decisions on future management and the programmes objectives. Note count data for adult plants is not given in the table below because it was not available due to the nature of the database entries and a large proportion of the sites not having been inspected.
- The bat-wing passionflower programme has also continued to grow in size and complexity, making an eradication target less realistic for this species given its' bird dispersal mechanism, and its growth rate to maturity. In addition, being a highly shade tolerant species means that many of the sites occur in densely forested areas that are extremely labour intensive to search. It was not possible to meet the best practice requirements for this programme which would require over 1300 inspections per annum, many of which are for large, forested sites where a team is required to grid search, often in very challenging terrain. The majority of sites received only one inspection and a high proportion had adult plants present, and will likely have adult plants present at the next inspection, given the reduced inspection frequency. The increased number of localities where populations occur has also increased the logistics and resources required, with nine distinct infestation areas. Given this, this programme will be reviewed as part of the Regional Pest Management Plan review that is now underway.

  The capacity, capability and cost effectiveness of contractors, and the required travel to infestation centres also presents a major barrier for this work despite efforts to build additional contract capacity. The current manual work planning, data recording, data entry and data analysis is extremely time consuming and inefficient and adds significantly to workload. A replacement database with mobile spatial data capture and real time reporting capabilities should be rolled out mid-way through 2024 2025. In the interim two separate systems are in use, meaning summarised count and maturity data for this year is not readily available for the bat-wing passionflower programme.

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**	2021-22	7	0	0	-			43.75m^2	-
		2022-23	7	3	2 (29%)	3 (100%)			93.5m^2	52m^2
		2023-24	10	4	6 (60%)	4 (100%)			185.25m^2	705m^2
	**Balloon vine**	2021-22	2 (large)	0	1 (50%)	-			3.5m^2	-
		2022-23	2 (large)	0	1 (50%)	-			4m^2	-
		2023-24	2 (large)	0	2 (100%)	-			3.25m^2	-
	**Bat-wing passionflower**	2021-22	307	40	29 (9%)	19 (48%)	121	39		
		2022-23	347	85	>44 (10%)	^ Included in existing site data	424	^ Included in existing site data		
		2023-24	432	76	Data not available	Data not available	Data not available	Data not available		
	**Cathedral bells**	2021-22	6	0	1 (17%)				750m^2	-
		2022-23	6	3	1 (17%)	3(100%)			20.5m^2	440m^2
		2023-24	6	2	1 (17%)	2 (100%)			50m^2	150m^2
	**Chilean rhubarb**	2021-22	1 (large)	0	1 (large)	-	26	-		
		2022-23	1 (large)	0	1 (large)	-	49	*		
		2023-24	1 (large)	0	1 (large)	-	49	*		
	**Evergreen buckthorn**	2021-22	51	0	10 (20%)	-	40			
		2022-23	51	1	20 (39%)	0%	55			
		2023-24	52	1	8	1 (100%)	49	1		
	**Field horsetail**	2021-22	1	0	0	-	-	-		
		2022-23	1	0	0	-	-	-		
		2023-24	1	0	0	-	-	-		
	**Firethorn**	2021-22	7	5	2 (29%)	5 (100%)	53	9		
		2022-23	12	7	5 (42%)	6 (86%)	27	25		
		2023-24	18	24	11 (61%)	23 (96%)	97	139		
	**Lesser knotweed**	2021-22	1	0	1	-			22 m^2	-
		2022-23	1	0	1	-			50m^2	-
		2023-24	1	0	1	-			0m^2	-
	**Mexican feather grass**	2021-22	5	4	1 (20%)	4 (100%)	2	41		
		2022-23	8	0	0 (0%)	-	0	0		
		2023-24	7	0	0 (0%)	-	0	0		

	**Mickey mouse plant**	2021-22	695	160	112 (16%)	54 (34%)	276	124		
		2022-23	855	57	180 (20%)	^ Included in existing site data	369	^ Included in existing site data		
		2023-24	948	134	>233 (25%)	^ Included in existing site data	584	^ Included in existing site data		
	**Monkey musk**	2021-22	4	0	2 (50%)	-			295m^2	-
		2022-23	4	0	1 (33%)	-			80m^2	-
		2023-24	3	0	1 (33%)	-			10m^2	-
	**Nassella tussock**	2021-22	34	0	1 (2.9%)	-	6	-		
		2022-23	34	0	0 (0%)	-	0	-		
		2023-24	32	0	0 (0%)	-	0	-		
	**Nutgrass**	2021-22	1	0	0	-	-	-	1 m^2	
		2022-23	1	0	0	-	-	-	0 m^2	-
		2023-24	1	0	0	-	-	-	0 m^2	-
	**Royal fern**	2021-22	3	0	1 (33%)	-	50	-		
		2022-23	3	7#	3(100%)	7#	120	0#		
		2023-24	10	3	9 (90%)	3(100%)*	Count data not available	Count data not available		
	**Spartina**	2021-22	116	2	n/a	n/a			102150m^2+	2320m^2
		2022-23	118	1	n/a	n/a			102150m^2+	1m^2
		2023-24	120	0	n/a	n/a			155120m^2+	0m^2
	**Yellow flag iris**	2021-22	48	9	13 (27%)	9 (100%)			539m^2	69m^2
		2022-23	60	3	7 (11.67%)	3 (100%)			869m^2	19m^2
		2023-24	56	11	14 (25%)	11 (100%)			537m^2	2084m^2

^ Limitations in the database reporting functions meant that figures for new sites could not be separated out from existing sites for these large programmes
> Figures given for most recent inspection not annual inspection total.
 # 6 probable new sites included in these figures yet to be physically confirmed/surveyed
** 5 Potential sites yet to be confirmed not included in these figures*
+This is an approximate estimate only; Data is incomplete due to areas not under management not having been inspected to best practice and/or infestation area has not been consistently entered or 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.

PERFORMANCE MEASURE	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 2023-24 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 and a summary of the programme is reported here.

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>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.</td><td>Achieved</td><td>
<table>
<tr><th>New sites identified</th><th>2021-22</th><th>2022-23</th><th>2023 24</th></tr>
<tr><td>African feather grass</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Pultenaea</td><td>0</td><td>1</td><td>1 (1)</td></tr>
<tr><td>Mile-a-minute</td><td>24</td><td>5 (1)</td><td>6 (2)</td></tr>
<tr><td>Lantana</td><td>3</td><td>3(1)</td><td>6 (2)</td></tr>
</table>
</td></tr>
<tr><td>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.</td><td>Not achieved</td><td>
<table>
<tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Incidents reported</td><td>2</td><td>5</td><td>13</td></tr>
</table>
</td></tr>
</table>

In 2023-24, 18 new sites were identified in the eradication zones of the progressive containment species programmes, originating primarily from incidental discoveries by staff and public reports.

Due to the large number of programmes being undertaken by the pest plants team for Exclusion and Eradication species, Sustained control rule enforcement and community partnership work, some of the identified proactive surveillance work was not prioritised in 2023-24. This surveillance work would be beneficial in ensuring sites are not going undetected.

African feather grass
No new infestations identified. No further delimiting work was undertaken north or south of the area already searched for the Poutō dune site, as control work at the known site utilised existing resources. Extended search work on properties adjacent to roadside infestation areas (outside of the containment area) also remains a priority for surveillance, as resources allow, the current priority being to bring the large-scale dune infestation under control.

Lantana
Six new small scale lantana sites were identified and controlled (two through public reports), and the landowners made aware of requirement for follow up control. To be more effective the programme would benefit from additional surveillance time to proactively find new sites and to follow up on previous sites/ enforcements but there is no current capacity for this work.

Mile-a-minute
A total of six new sites were identified, four by Council officers and two through public reports. Two other public reports were found to be species other than mile-a-minute and one site was confirmed as mile-a-minute but was located inside the containment area.

Pultenaea
One new site was identified through survey around the large site identified last year. A delimitation search on this property found a large number of adult plants in scattered though a number of bush/scrub areas.

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.

The frequency of inspection and control for management sites of Progressive Containment species at Council managed sites 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.

The capacity constraints detailed in the section above meant that best practice inspection and control work was not able to be achieved for two of the programmes. The upcoming Regional Pest Management Plan review will be taking this into consideration when assessing existing programmes, their objectives and capacity.

Progressive containment plant management site visits 2023 - 2024

Pest plant		Results	Details
	**African feather grass**	**Not achieved**	The two isolated sites in the far north received annual inspection (none found). In the Poutō peninsula annual search and control of all active sites was undertaken (search and control of all priority roadside sites) but lower priority roads were not searched due to funding constraints. The large-scale dune site received intensive control but again the full extent was not treated due to funding constraints.
	**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. New sites are identified, and control enforced or control undertaken with permission, but inspection of previous sites for continued compliance had largely been put on hold because of capacity issues, progressive containment being a lower priority than the eradication work. Seven sites received follow up inspection and/or control.
	**Mile-a-minute**	**Achieved**	Best practice (annual inspection and control for active sites) was completed for all sixty-four management sites.
	**Pultenaea**	**Achieved**	Best practice (annual inspection and control for active sites) was undertaken for all nine sites.

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

This performance measure is used to determine if current management practices at Council managed sites 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:

- Overall site number (existing and new sites)
- 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 GIS-based data management system and mobile data collection tools are in place, with mandatory fields and units for each species, data processing is still highly manual and data collected is still variable, 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.

African Feather grass

The two isolated sites in the far north received annual inspection, and were found to be clear of plants. One of these sites is close to being able to be declared eradicated. The other far north site is located within a cemetery and the area is mown regularly making control and detection difficult so remains at an active status. The Poutō dune infestation remains challenging to treat due to its' scale, remote location and difficult access. Contractors accessed the beach using LUVs through forestry and undertook intensive control. However, the full extent of the area was unable to be searched and controlled within available budget. Additional survey of the dune slacks further north and south of this infestation would also be beneficial given the highly exposed nature of the infestation, and survey in the adjacent forestry might also be beneficial, but resources for this work are limited. Roadside search focused on the active sites and adult plants were found at eleven locations. Extended search work on properties adjacent to these roadside infestation areas (outside of the containment area) remains a priority for surveillance, as resources allow, the current priority being to bring the large-scale dune infestation under control.

Two roadside sites within the containment area were also controlled. Wider engagement with landowners is still needed to identify and delimit sites within the containment area to then to progress management plans with landowners. A management plan was developed with one landowner and control implemented for one property.

Mile-a-minute

Most sites are progressing well toward eradication, with a reduction recorded in overall infestation area and presence of mature foliage. Thirty-two of the sixty-four sites had no live foliage present when inspected this year, and four further sites were declared eradicated.

The infestation area found at Baylys beach in 2022 remains the largest site, but this has been significantly reduced after control during 2023-24. The infestation area for this site (the area physically occupied, not extent), is now down to 100m^2, from an initial infestation area of over 4,000m^2, with only juvenile foliage/ regrowth found at the last inspection.

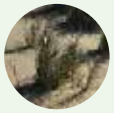
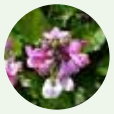
Six new sites were identified in the eradication zone, totalling 110m^2 of new infestation area. Five of the six sites were less than 25m^2. The one larger site was 70m^2.

Pultenaea

Consistent annual search and control of the known infestation areas in the eradication zone has seen reduction in the total number of plants and adult plants at the majority of existing sites. Even though plants that could potentially be considered adult plants are being found in these inspections, the annual search and control work is timed to occur before seed set so the majority of adult plants found would not have been able to set seed. The newer, larger sites still have a higher proportion of adult plants and a wider more complex habitat that requires grid search work in bush/scrub making detection of every seedling/plant during an inspection more challenging.

Lantana

Rather than being eradication, the target for Lantana is zero-density outside of progressive containment zones (where lantana is already widespread), achieved through enforcement rather than Council led service delivery. In 2023-24 there was still insufficient resources to commit to surveillance and follow up inspections of previous enforcements. Staff find that the enforcement approach is inefficient for small scale infestations, as the time taken to locate owners to undertake the multi-step enforcement process usually outstrips control the control effort required for small garden infestations. Where landowners are home/easily contactable, staff can undertake control with landowner permission, but this isn't possible in a large number of cases. The rule requiring landowners to create a management plan for larger infestations is also somewhat vague and difficult to enforce. The rules for this species will be reviewed during the Regional Pest and Marine Pathways Plan review, underway now.

Pest 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	2021 -22	27	0	8 (30%)	1 (100%)			6720 m^2	3,925m^2
		2022-23	27	0	12(44%)	-			10,645m^2	-
		2023-24	27	0	11(44%)	-			11,000m^2	-
	Mile-a-minute	2021-22	45	24	10(22%)	7(29%)			372m^2	539m^2
		2022-23	63	5	19 (30%)	5(100%)			1396m^2	141m^2
		2023-24	64	6	9 (14%)	3(50%)			393m^2	110m^2
	Pultenaea	2021-22	8	0	4 (50%)	-	26	-		
		2022-23	8	1	4 (50%)	1(100%)	341	701		
		2023-24	9	1	5 (55%)	1(100%)	78	880		

Manchurian wild rice

The Manchurian wild rice control programme is carried out in partnership with the Ministry for Primary Industries (MPI) as part of the National Interest Pest Response Programme (NIPR). An annual report is produced as part of the funding agreement and is summarized below for 2023-24 season.

Work outside of the Progressive Containment (Intransigent) zone

The Manchurian wild rice programme in Northland is focused on the control and eventual eradication of all sites outside of the core high-density river infestation areas known as the 'Intransigent Zone' or Progressive Containment zone.

This years' programme was highly constrained by the late announcement of programme budget by the Ministry for Primary Industries and the unexpected funding reduction, being only 52% of the baseline funding compared to previous years. The late announcement 5 months into the working year combined with the reduced budget meant most sites did not receive a spring treatment control round, defaulting to only one round of control in autumn. Best practice for Manchurian wild rice control is two treatments per year, as this has been shown to be necessary to exhaust the extremely hardy rhizomes and efficiently progress infestation sites toward eradication. The delayed and reduced treatment frequency in 2023-24 will result in considerable recovery of Manchurian wild rice plants at sites where real gains in reducing the size of the infestation have been achieved through consistent control. The effects of this can already be seen in this year's data below, and is expected to have a flow on effect on infestation size and vigour in the 2024-25 spring data.

Progress toward eradication of sites outside of the Intransigent zone can be seen in the change in classification status. The programme uses the "Treatment, Interim, Monitored, Eradicated" (T.I.M.E) classification system specified by MPI, where Treatment sites have live growth at the last visit, Interim sites have no live growth at the most recent visit, Monitored sites have had no live growth for four consecutive years, and sites designated as Eradicated have had no live growth for 10 consecutive years. Changes in classification during the 2023-24 year are summarised in the table below.

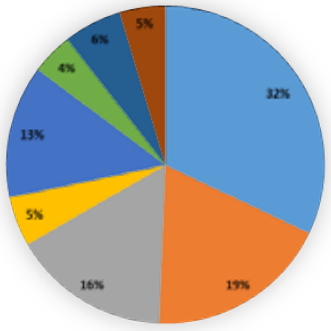
Manchurian wild rice treatment site classification changes

Positive change	2020-21	2021-22	2022-23	2023-24
Treatment to Interim	20	14	15	6
Treatment to Monitored	8	3	7	2
Interim to Monitored	6	5	0	2
Monitored to Eradicated	1	6	5	0
Negative change	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Interim to Treatment	1	7	12	9
Monitored to Interim	2	1	1	-

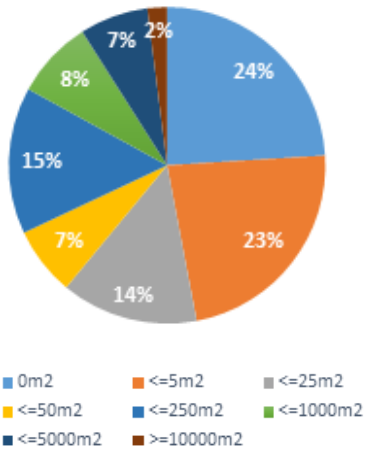
Overall, there has been a small but positive trend of classification status changes of Manchurian wild rice, with 10 sites moving positively compared to 9 negative changes in status. However, the trend for changes between the Treatment and Interim category are negative, with 6 Treatment sites updated to an Interim classification and 9 Interim sites reverted to a Treatment classification.

Progress toward eradication can also be inferred from the infestation area size categories as shown in the graphs below for both the 2022-23 year and 2023-24 year.

Management sites by infestation area as of June 2023
(excluding eradicated classification sites)



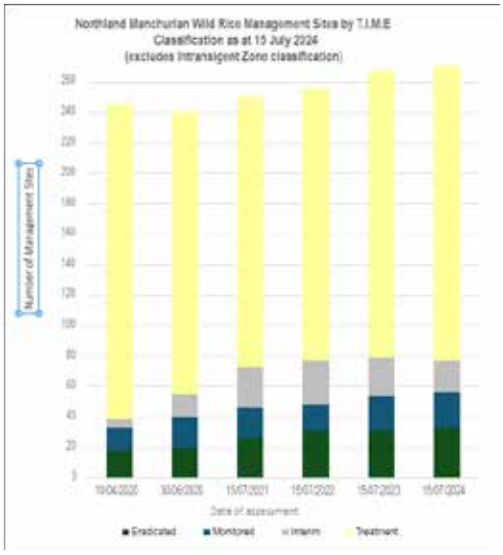
Management sites by infestation area as of June 2024
(excluding eradicated classification sites)



When comparing data from this year against the 2022-23 year you can see that 24% of sites had no growth found at their last visit compared to 32% of sites last year. More sites in the 2023-24 year were recorded as having infestations of 5m2 or less. There was also an overall increase in the proportion of sites with infestations over 50m2 infestation.

Some of this was expected due to the very favourable growing conditions of the 2022-23 year resulting in more vigorous rhizome activation and growth, followed by favourable conditions in 2023-24. However, without the spring treatment at most sites the growth in both foliage and rhizome density and vigour would have been able to continue unchecked. This meant that a large proportion of sites had increased in density and size when inspected in autumn this year.

The impact of the funding reductions and reduced treatment frequency would have been more pronounced, but the Council was able to temporarily absorb some of the additional costs, with staff delivering more control and landowner liaison to reduce the impact on the funded contractor hours. This was done on the basis of the funding reduction being temporary, and the desire to minimise the regression in the progress that has been made on site density and size. It would not be sustainable for the 2024-25 year as it impacts the available capacity for other programmes the Council is responsible for.



The graph above gives an overview of the total number and relative proportions of management sites by the 'T.I.M.E' classification status.

When comparing T.I.M.E sites over the years it is apparent that the consistent inspection and control is successful in moving sites into the Monitored and Eradicated category. This is a slow transition because of the long time periods before rhizomes have been exhausted and for repeated inspections to have met the high threshold for transition to the Eradicated category (after 10 years with no live growth observed). It demonstrates that the programme is effective when best practice is applied consistently.

After previously good progress in the increase in the proportion of sites in an Interim status, the programme saw a plateau and now a slight decline in the number of sites in that interim category. This is due to the combination of the exceptionally wet year of 2022-23, which was extremely favourable for triggering growth of dormant Manchurian wild rice rhizomes, and the delays and reduced treatment in treatment in 2023-24 as detailed above.

The number of management sites has increased to 277, with 8 new sites confirmed and 3 management sites being split to improve data and management at these sites. Four of the new sites are believed to be the result of rhizome movement during the extreme flood events during the 2022-23 year.

Overall, similar trends are likely to persist into the new year given that the sites have had less control last year than previous years and will have had an extended growth period between treatments. It is hoped that programme funding is confirmed early in 2023-24 and will revert to the previous baseline funding to minimise the impact of the 2022-23 year. The programme is now at a critical stage, with 72% of known sites now having an infestation area of between 0 and 50m2, where consistent control achieves the greatest return on investment and can eradicate these sites.

A patch of Rice grass 5 months after treatment

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, by providing advice and information on best practice techniques and some herbicide.
NRC was able to supply, support and provide herbicide to 16 landowners undertaking ongoing control and 3 new landowners commenced control in 2023-24.

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[4].
- 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 controlled pests will be responded to within 20 working days.</td><td>Response time data not available</td><td>
<table>
<tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Number of sustained control pest plant requests (advice and incidents)</td><td>1,098</td><td>767</td><td>1,000</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)
18 requests for enforcement of sustained control pest plant rules were received. Of these 15 were responded to and initial actions undertaken 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.</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>Waka Kotahi NZ Transport Agency, Kaipara District Council, Whangarei District Council and the Far North District Council have not developed five year weed management plans as required under rule Rule 6.4.2.2 of the Regional Pest And Marine Pathways Management Plan.
KiwiRail has a draft plan that has yet to be finalised.</td></tr>
</table>

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

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td colspan="3">As was the case in 2022-23, despite multiple attempts to engage with the now disbanded Northern Transport Alliance and District Council representatives to progress the issue of weed management in the road corridor and the requirement to develop five year weed management plans, there has been very limited response.

In light of this, a letter was written from the Chair of the Northland Regional Council to the Mayors of all District Councils, highlighting the Council's concerns about the failure to meet the requirement for five-year weed management plans, and the reactive approach being taken to weed management in the absence of that plan. This letter received no response.

Waka Kotahi NZ Transport Agency representatives met with staff again, and indicated they would begin work on the renewal of their previous expired plan, but it has not been progressed since these discussions.

Based on the ongoing lack of response and progress it is apparent that the issue of weed management continues to struggle to gain traction, in terms of focus and funding, against the competing priorities for roading authorities. As part of the Regional Pest Management Plan review that is now underway, Council officers will be considering the inclusion of rules that will enable an enforcement-based approach when required, rather than the more pragmatic and strategic approach in the current plan. The current rules were designed to enable roading authorities to plan and prioritise weed control actions based on a number of criteria, rather than being based only on the enforcement of species specific rules. However, without engagement from the roading authorities and buy-in to this approach a more directive approach may be required.

KiwiRail has developed a draft plan, that is being adjusted to include some additional requirements.</td></tr>
<tr><td>Best practice guide

Best practice guide developed for all road and rail authorities</td><td>Achieved</td><td>A guide for road and rail authorities for developing the Five-year Weed Management Plans required under rule 6.4.2.2 in the Northland Regional Pest and Marine Pathways Management Plan 2017-27, was developed and sent to all road and rail authorities in 2022-23. It was re-sent in 2023-24 as an attachment to the letter sent to Mayors of all District Councils.</td></tr>
<tr><td>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.</td><td>Achieved</td><td><table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Nurseries inspected</td><td>44.9%</td><td>64.4%</td><td>100%</td></tr></table>Several sources are regularly checked for new plant sales outlets. New outlets discovered are checked and added to the database.</td></tr>
</table>

Plant retail outlet compliance

All known plant sales outlets (72) were inspected in 2023-24. Three of these were new outlets of smaller growers. One large outlet had closed. An up-to-date species list of banned plants is provided on all visits. For outlets that are unfamiliar with the list of species that are regionally banned from sale & propagation, further education along with a pictorial handout is provided.

National Pest Plant accord species nationally banned from sale, distribution and propagation:

One nursery was found to have two tuber ladder fern plants for sale. Removed and destroyed.

Five selaginella plants were removed and destroyed from a small market seller.

As detailed in the Exclusion Plants section, a houttuynia infestation was found growing as a weed in a disused glasshouse during a nursery inspection. The plant was not being offered for sale. The infestation has been controlled and this is now an eradication management site for this plant.

One large grower had pampas as a pot contaminant and was advised to remove the seed source and ensure all contaminant plants were removed before sale. The contaminated plants were old stock and were destroyed.

Regionally banned plants.

It is necessary for plant outlets that buy in plants from other areas to be aware of the restrictions in Northland when ordering as these plants are often offered for sale by wholesale nurseries in other regions where the species are allowed to be sold.

One large plant retail outlet had three fairy crassula for sale. Rather than being ordered specially by the retailer these were sent as part of a generic selection of plants for dry environments from an out of region supplier. They were returned to the supplier. This plant outlet was also advised to control selaginella and green goddess arum lilies growing on site. These species were not offered for sale.

One nursery had a rhus plant removed and destroyed.

One nursery was requested to remove the potted display plant of an English ivy.

A further nursery was propagating a number (50) English Ivy plants for sale outside of Northland where the species is not banned from sale. They were advised they would be required to apply for an exemption to be able to propagate the plants and not to sell any unless an exemption is granted. The seller has requested an exemption, but this has not yet been issued.

TradeMe

Trade Me was monitored through saved searches for species banned from sale and propagation focused on higher risk species and regionally banned species that are more commonly sold, such as agapanthus. No listings for species banned from sale in the Northland region were identified. This is a significant improvement on previous years, and suggests the repeated approaches to Trade Me to have listings for species that are regionally banned removed, and information provided to sellers, has reduced the occurrence of these species being offered for sale in our region.

Performance Measure	Result	Details
Request response time 15% of all operating commercial quarries are inspected annually to determine compliance with Rule 6.4.5, Rule 6.4.7, and Rule 6.4.15"	**Not achieved**	Quarry inspections were delayed in 2023-24 to align with the start of the consent compliance teams annual inspection rounds in July 2024. The Compliance officers have been provided training on the relevant Regional Pest Management Plan rules and any instances of potential non-compliance will be tasked to a biosecurity officer for follow up. This reduces the need for two different Council departments to undertake separate inspections and means a greater proportion of quarries will be inspected each year for compliance with pest plant rules.

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. This is done primarily through support and advice for individuals and small groups, and Biofunds, Community Pest Control Agreements, and the High Value Area programme.

The cases studies over page highlight the work during the 2023-24 year by three pest plant focussed groups that are supported through the Council's High Value Area programme.

Partnership activity	Details			
Council supported programmes – Biofund Biofunds approved for the community.	**Biofunds**	**2021-22**	**2022-23**	**2023-24**
	With pest plant component	7	17	15
	Total biofunds granted	88	77	71
Council supported programmes – High Value Areas Summary of the engagement work undertaken by the High Value Area Pest Plant groups.	**Community group engagement**	**2021-22**	**2022-23**	**2023-24**
	Volunteer (and education events combined up until 23-24)	78	344	239
	Educational events			17
	Awareness campaigns / media articles	24	11	23
	Recorded volunteer hours	9,541	9,340	7,270
	Landowner site visits, advice, and materials	124	148	150
	Social media posts	94	147	110

CASE STUDY

Weed Action – Native Habitat Restoration Trust

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

The Weed Action Native Habitat Restoration Trust (WANHRT or 'Weed Action') is a community-based organisation that has been operating on the Whangārei Heads peninsula since 2015, with support from the Northland Regional Council. The group is focused on protecting and restoring native ecosystems by removing invasive weeds and preventing the spread. Weed Action do this through several channels; Raising awareness in the community, removing barriers to action, supporting and encouraging volunteer action; working together with tangata whenua, and working with different agencies and advocating for action and resources. 2023-24 was another busy and successful year for the group.

Key activities and highlights for the year included:

- WANHRT has been able to secure new grant funding from several new sources, greatly expanding the weed control work able to be undertaken in reserves and other priority areas being protected from weed invasion. This funding enabled more contract work on top of the volunteer hours committed by the community, focusing on tackling larger scale problems and highly invaded areas. WANHRT were successful in applications to the funders/ grants below;
  - Foundation North, for a partnership project with tangata whenua and Aki Tai Here, a local conservation team who uri to the Whangārei Heads ($222, 917). Secured in 2022-23 but utilised in 2023-24.
  - The Department of Conservation, for threatened species protection on Manaia ($36,708)
  - Whangārei District Council to support the moth plant campaign ($3,500)
  - Volunteers committed a total of 5109 hours, at a value of $153,277 (@ $30/hr).
- 6 pop-up trailer events giving out advice and herbicides at community events or community hubs.
- Monthly Weed Action newsletters completed to inform the community of the work taking place, the support available and the opportunities to get involved. These complemented the weed of month campaign and weekly posts on social media.
- A 'Stop the pods campaign, including a control competition launched in December, aimed at directing people's control efforts to the flowering season to prevent pod formation. A month- long moth plant pod amnesty bin initiative was also run.
- Three workshops led by Weed Action for the wider community, and a herbicide management workshop for key individuals and groups more heavily involved in control work in the Whangārei Heads area.
- Submissions and presentations at the Whangārei District Council and Northland Regional Council Long Term plans.
- The commencement of the 'Pilot Project' collaboration, founded by Foundation North. This project aims to develop local mātauranga informed collaborations for habitat restoration throughout Whangārei Heads. Consultation with whānau, iwi and hapū of the area was undertaken, along with surveying and scoping to inform discussion and site selection. Hundreds of hours of skilled habitat restoration work took place over 20 sites in the 2023-24 year.
- Mahi Tahi for Manaia; held over two days, the Mahi Tahi for Manaia collaborative event saw over 60 people working together to remove invasive pest plants from the WDC administered former water board lands on the lower slopes of Manaia. These areas have historically been planted and then harvested for pines, followed by a wilding pine removal programme in 2020. The disturbed and open landscape left by this activity is a wonderland for invasive weeds, posing a source of further spread to the upper reaches of Manaia and into neighbouring private property. In total, 600 hours of weed control work was contributed by the participating organisations.

Weed Action Whangārei Heads 2023-24	
Volunteer events	59
Education events	5
Public engagement activities	12
Landowner engagements	116
Volunteer core members	30
Weed Action groups	6
Total volunteer hours	**5109**

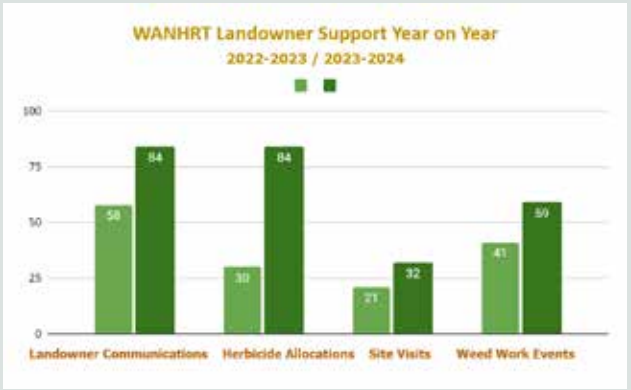
Display and herbicide allocation from the Weed Action trailer

The SWAT team tackle jasmine - before and after trimming

Weed Workshop participants

DOC 'volunteer Wednesday' team target mignonette vine at Darch Point

Mahi Tahi for Manaia; joint agency event



CASE STUDY

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

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

S.W.A.T are part of the Tutukaka Landcare Coalition. The aim of the Coalition is to restore balance and harmony to the natural biodiversity of the area by coordinating community efforts and resources to protect, conserve, and foster native fauna and flora through effective pest control. The S.W.A.T team is an operational team that focus on plant pests. It is made up of volunteers from within the community and a project leader to coordinate activities. The S.W.A.T. team goes out in the field every week to control plant pests and works to raise awareness in the community.

S.W.A.T. 2023-24	
Volunteer events	38
Public engagement activities	8
Educational events	10
Volunteer core members	15
Landowner engagements	23
Total volunteer hours	**605**

Key activities and highlights for the year include:

- Six core areas have benefitted from regular Wednesday S.W.A.T. events.
- Regular presence at the Tutukaka Twilight market, a weed workshop, and regular social media posts.
- Support and engagement from neighbours at William Parata Wellington reserve to remove moth plant on private land.
- Working with Parangauru Trust, Matapouri to help control woolly nightshade and wilding pines on their land.
- Hands on educational events with Ngunguru Primary School.
- Taiwan cherry survey undertaken in Ngunguru; Trees on public land were controlled, drilling and filling approximately 30 large seed source trees, and removing over 300 smaller plants. For those visible on private land a letter was delivered to the residence with recommended control techniques and an offer of assistance if required.
- Kauakerangi Bay - Te Maika School Beach weeding event. SWAT partnered with NRC and Dunescape Ltd to start removing pest plants from Ngunguru school beach and dunes as part of a planned restoration project by Dunescape. The dunes are in quite a degraded state, weeds targeted include wild gladioli, Ice plant, pampas, and other grass species.

SWAT stall set up at community event; Setup where Taiwan cherry is visible invading the adjacent forest

Kauakerangi Bay - Te Maika School Beach weeding event

Ginger control on the Tutukaka Tsunami track

School ginger weeding event

Dealing to wilding pines in Matapouri

Raising awareness and removing barriers to action

A huge Taiwan cherry about to be controlled, removing it as a seed source

CASE STUDY

Weed Action – Piroa Brynderwyns

https://weedactionpiroabrynderwyns.org.nz/

The Piroa Conservation Trust coordinates funding and resources for over 30 conservation groups actively working together to reinstate healthy ecosystems through predatory animal control, weed control, water care and revegetation across this high value area. About one third of the budget is allocated to weed control, one third to professional trapping in the difficult terrain, and one third to trapping resources, workshops and events. They also have a grant from the Ministry for Primary Industries for freshwater improvement work in their catchment.

Key activities and highlights for the year include:

- The establishment of a 'SWAT' team to work on significant areas of weeds. This group is now able to help with knock down control work in severely infested areas and priority locations.
- A new community shed has been established in Mangawhai to provide predator control and weed action resources and tools for that community. This complements the shed already established in Waipu.
- Two weed action workshops held – one in Mangawhai and one in Waipu. The Waipu event identified new volunteers to lead SWAT teams and local projects on the Waipu side.
- Several meetings with KDC around the significant work needed at the Mangawhai Community Park. Good progress has been made on acceptance of health and safety plans relevant to Weed Action and predator control groups.
- Two weed amnesty bins were run, hosted by a local business. These were very well utilised and encouraged weeding action by removing the barrier of disposal.
- The nursery has produced over 7000 plants this year, for their riparian restoration and to fill the gaps where weeds are removed and speed up the recovery of these areas.

Weed Action Piroa Brynderwyns 2023-24	
Volunteer events	142
Educational events	2
Public engagement initiatives	3
Weed Action groups	8
Volunteer members	60
Landowner engagements	11
Total volunteer hours (excluding planning, advocacy and reporting hours)	**1556**

Christine and Mike Silvester were the recipients of the Piroa Brynderwyns 'Weed Warrior' of the year, for beginning with a bit of boundary privet and ending with eliminating all privet 1 km from their house.

The SWAT team work on climbing asparagus in the Mangawhai activity zone and Queen of the night.

A new SWAT team has been busy this year targetting specific different areas around the HVA. This helps get a good knock down at the start of a project.

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	**Achieved**	

	2021-22	2022-23	2023-24
Field Days / A&P Shows	0	3	6
Community events	1	6	6
School visits /activities	0	2	8
Stakeholder activities	15	12	11
Public pest workshops	3	11	6
Total	**18**	**34**	**36**

During 2023-24 the biosecurity pest plants team have attended of hosted a number of different events and activities from school visits, small scale community events or larger public shows. The larger public events attended in 2023-24 included the Kerikeri Garden Safari, Kaitaia, Kaikohe, Bay of islands, Whangarei and Paparoa A&P Shows, and the Dargaville Field days. At these shows the displays and key messages were focused on reporting uncommon weeds, taking action on widespread weeds in your local community, and biosecurity hygiene on farms to reduce the risk of introducing and spreading weeds with farms.

The NRC pest plant displays at Dargville Field Days and at one of the gardens on the Kerikeri Garden Safari. There was a good number of people through this garden engaging with the display and staff.

Students taking a 'weedy walk' and then learning about the pest plants they have found.

Seven public weed workshops were held during 2023-24, spread around the region, with a total of 164 participants. It was really heartening to see the turn out in the smaller towns where workshops were held this year; 10 people attended in the small community of Waimamaku, all keen to learn and help make a difference on weeds in the Hokianga. A record 23 people also attended in Kaitaia indicating there is a strong interest in learning about weeds and how to control them in the far north. Smaller targeted workshops were also held for other groups/classes.

Performance Measure	Result	Details

A gathering for those engaged in weed and pest control in the High Value Areas was held in March to help those working in our High Value Area projects to share experiences and network. This was particularly valuable from a pest plant perspective as it allowed groups that have more pest plant focussed volunteers, activities and community awareness initiatives to share these ideas and learnings with others where pest animals are the main focus.

Above; Participants in the Whangarei workshop identifying distinguishing features of weeds species during the Whangarei weed workshop. Right; Participants learn to distinguish 3 very similar species; African club moss, Climbing asparagus and the native Waewaekoukou

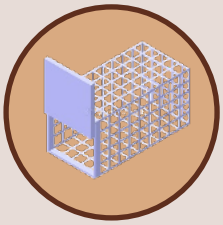
Above left: A great turnout for the small settlement of Waimamaku. Above right: Some of the 23 participants in the weed workshop in Kaitaia

6. Pest Animals
Riha rawaho

2,471
Customer requests

6,199
hectares of new CPCAs

71
Biofund projects
558 since 2017



Kiwi numbers have increased from
80→1,185
in Whangārei Heads
Since 2002

259
Kiwi Coast Community Groups actively managing
281,510 ha

KIWI COAST

846,219
Animals trapped across the Kiwi Coast since 2013

83,648
Pests trapped in High Value Areas

4,627
Pest control devices 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>Achieved</td><td><table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Field Days / A&P Shows/ Community Events</td><td>0</td><td>2</td><td>4</td></tr></table></td></tr>
<tr><td colspan="3">Rainbow lorikeet incursion
Due to a lack of suitable specialist contractors and the reallocation of Ministry for Primary Industries staff and resources to other significant responses (Cyclone, Caulerpa, and Freshwater Golden Clams), progress on response activities has stalled. There were ongoing reports of a small flock of rainbow lorikeets around Kaiwaka. A member of the public removed 9-10 birds with no further reports being made. Northland Regional Council and Auckland Council will continue monitoring for signs of a persisting population in the Kaiwaka area, particularly as spring approaches, when these parrots are typically drawn to fruit trees near residential areas.

Wallaby
There were eight reported sightings of wallabies in the 2023/24 year. Three were confirmed as other species (a possum, a hare, and a cat), four were unable to be confirmed despite surveillance activities via trail cameras with no further sightings. Finally, a dead wallaby was reported on the road just outside of Kawakawa. ID was confirmed via photographs sent to the investigator. Further surveillance was undertaken in the area, but no further evidence of any wallaby was found. It is thought that these dead wallabies were transported into the region by individuals hunting outside the area.</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>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Incident reports</td><td>4</td><td>3</td><td>21</td></tr></table></td></tr>
<tr><td>Incident investigation and response
Initial investigations for all reports undertaken within five 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.</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.

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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 response for eradication animals.

There are currently four species of deer known to be present in Northland; red deer (*Cervus elaphus scoticus*), fallow deer *(Dama dama*), 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 the Northland Wild Deer Response Programme 2023-2030 (a collaboration of stakeholders including the Department of Conservation, OSPRI[6], and Northland Regional Council, mana whenua, and other stakeholders).
- The programme has two broad goals:
  a. 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.
  b. 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 Operational Plan 2023-2030. 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

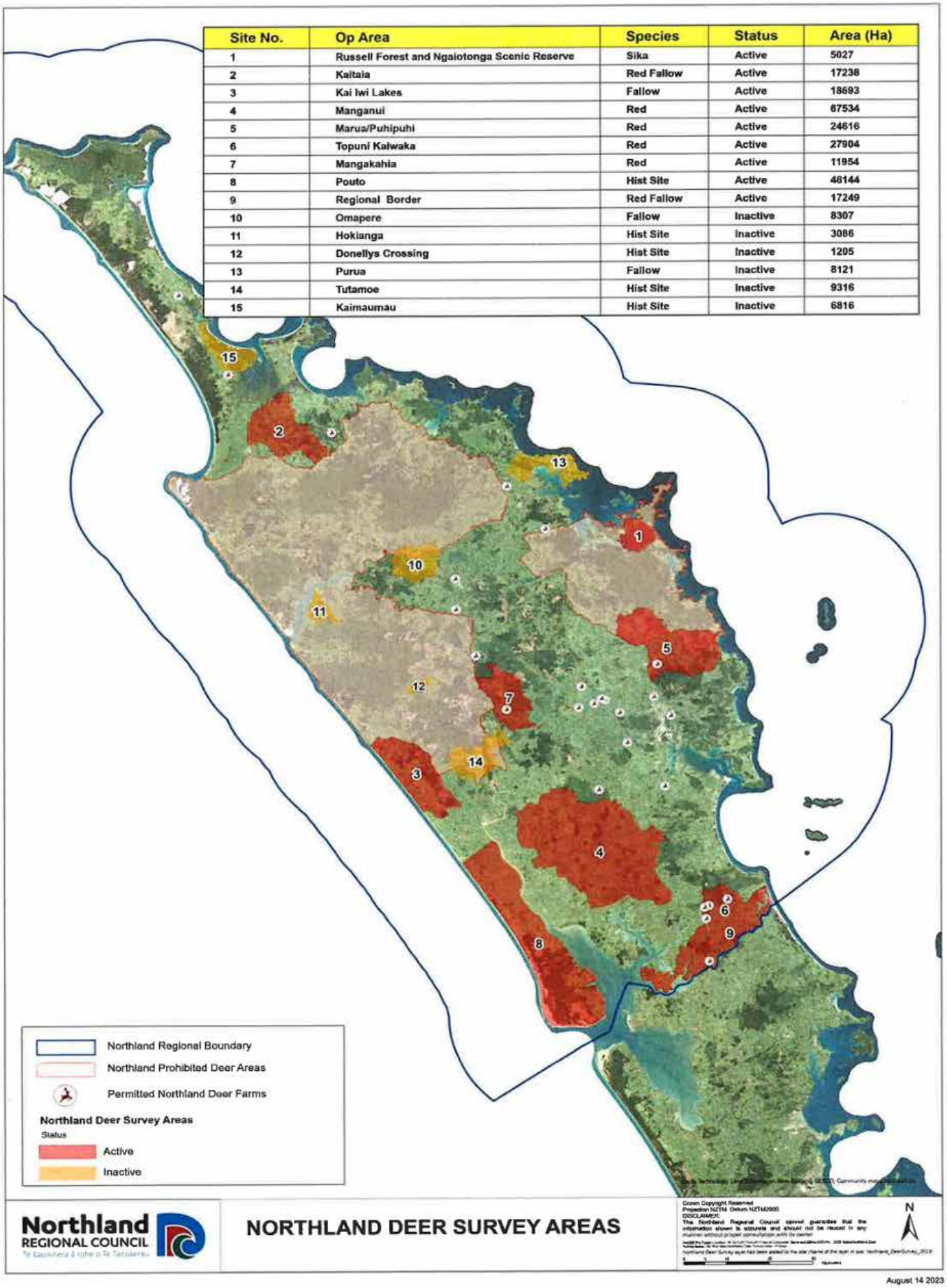
Performance Measure	Result	Details
Known deer populations are surveyed and mapped across Northland.	**Achieved**	TADS (Thermal Animal Detection Systems) have been completed on 7 sites. Contractor ground surveillance work is ongoing in a continual program mapping population indication or density
100% of deer incidents are responded to within 48 hours.	**Achieved**	NRC and DOC staff, or contractors, responded to all reported deer escapes, ensuring a response plan was in place for each incident.
"No wild Deer in Te Taitokerau" NRC and DOC design a joint advocacy campaign, involving other stakeholders as necessary (e.g.: iwi,hapu, Game Animal Council), to promote the Strategy Vision of "No wild populations of deer in Northland"	**Achieved in part**	A communications framework was developed; however, due to internal resource limitations and financial constraints, engagement efforts were concentrated on Russell Forest sika eradication project to support operational activities. A dedicated Communications and Engagement role is planned for appointment in the 2024/2025 financial year to expand outreach and further support the programme.
Best practice management NRC maintains at least annual contact with Northland deer farmers to support the industry in best practice. Reducing the farm deer escapes annually.	**Achieved in part**	In December 2023, DOC appointed a new Northern North Island Deer Coordinator. Together with NRC, they are developing a farm inspection schedule, prioritizing properties with previous deer escapes. The final inspections are expected to be completed during the 2024/2025 financial year.

Hunting with a Thermal Camera about to start.

Reporting Month	Total
Jul-2023	0
Aug-2023	0
Sept-2023	1
Oct-2023	1
Nov-2023	0
Dec-2023	0
Jan-2024	1
Feb-2024	2
Total	**5**

Thermal Camera showing escaped deer.

Site No.	Op Area	Species	Status	Area (Ha)
1	Russell Forest and Ngaiotonga Scenic Reserve	Sika	Active	5027
2	Kaitaia	Red Fallow	Active	17238
3	Kai Iwi Lakes	Fallow	Active	18693
4	Manganui	Red	Active	67534
5	Marua/Puhipuhi	Red	Active	24616
6	Topuni Kaiwaka	Red	Active	27904
7	Mangakahia	Red	Active	11954
8	Pouto	Hist Site	Active	46144
9	Regional Border	Red Fallow	Active	17249
10	Omapere	Fallow	Inactive	8307
11	Hokianga	Hist Site	Inactive	3086
12	Donellys Crossing	Hist Site	Inactive	1205
13	Purua	Fallow	Inactive	8121
14	Tutamoe	Hist Site	Inactive	9316
15	Kaimaumau	Hist Site	Inactive	6816



Above: Current active (red) and historic (green) deer management sites in 2024. This also shows deer farm locations and prohibited areas.

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 elimination and control projects that have been established in Northland in partnership with community, iwi and hapū, and other agencies. NRC is the fundholder for two Predator Free projects in Tai Tokerau, Whangārei and Pēwhairangi Whānui.

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

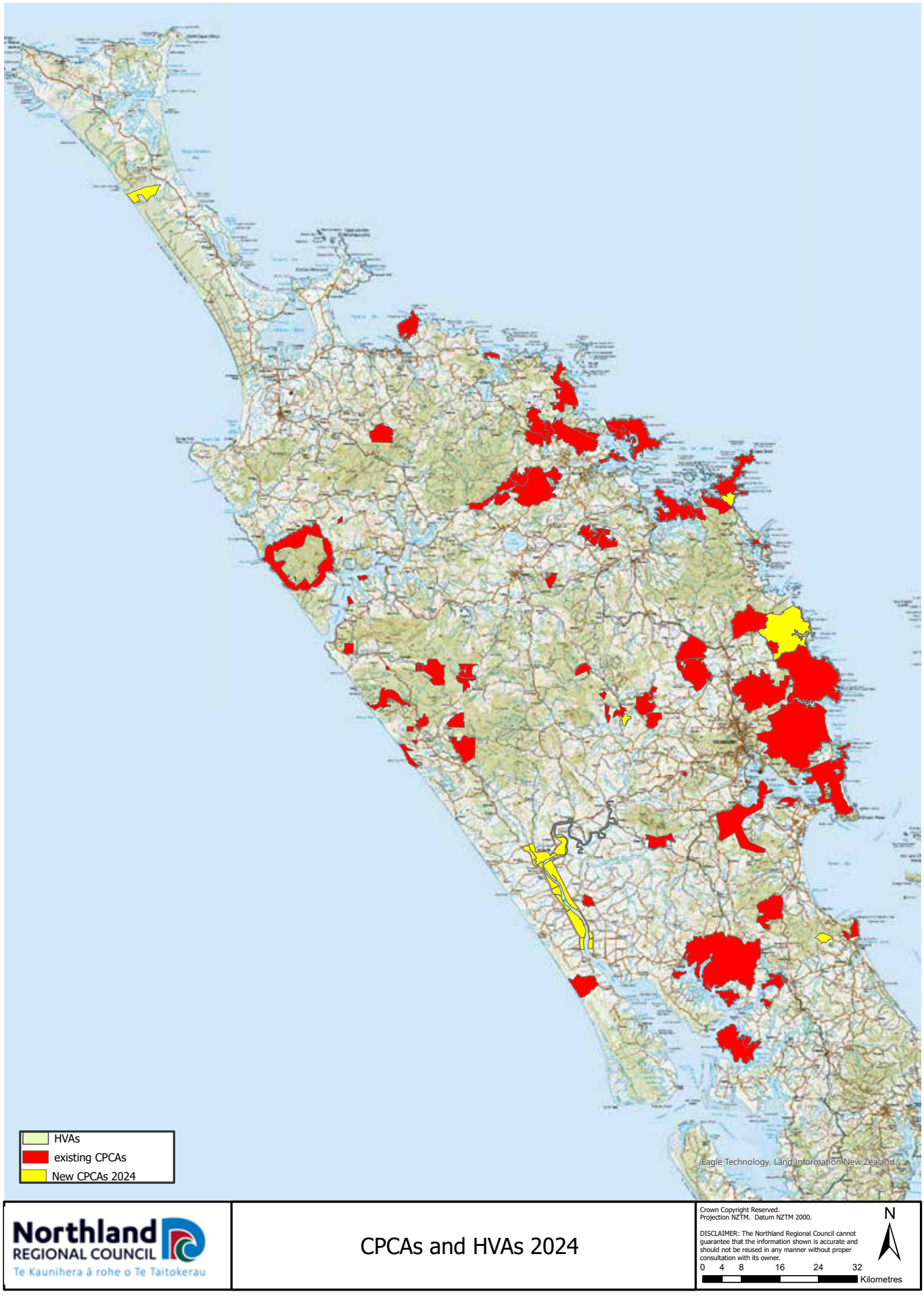
Performance Measure	Result	Details
Land area in CPCAs Increase in land under CPCA protection by 5,000 ha per annum.	**Achieved**	<table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>**New CPCAs (ha)**</td><td>7,345</td><td>1,568</td><td>8,693</td></tr></table> New and pre-existing CPCAs are shown in the map overleaf.

New CPCAs initiated during the year were:

After the severe weather events experienced during 2022-23, this reporting period saw the reinstatement or establishment of six CPCAs. The diversity of the management in new CPCAs is expanding with more weed-focused projects getting under way.

CPCA Name	Area (ha)
William Upton	1,000
Maranui Pultenaea	421
Manchurian Wild Rice	586
Whananaki	6,199
Mangakahia Willows	2
Te Tangi o Te Ata	485
Total area new CPCAs	**8,693**

Response to reports from public Reports on sustained control pests will be responded to within 20 working days.	**Response time data not available**	<table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>**Requests received**</td><td>2,865</td><td>2,020</td><td>2,471</td></tr></table>


HVAs
existing CPCAs
New CPCAs 2024
Eagle Technology, Land Information New Zealand
Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau
CPCAs and HVAs 2024
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Kilometres

CASE STUDY

Kiwi Coast Partnership – Northland Regional Council

The NRC – Kiwi Coast Partnership is now it the third year of the renewed five-year agreement and it continues actively support Northland community, hapū, and iwi-led projects to enhance regional conservation efforts.

There are currently 259 groups and projects are being supported by the Kiwi Coast. The collective area these groups are actively managing pests over increased from 251,300 ha in 2023 to 281,510 ha in 2024. A staggering 136,646 pests were trapped in 2024, which takes the total number over the 11 years that the Kiwi Coast has been in existence to 846,219; an average of 2,600 pests per week.

Monitoring across projects linked to the Kiwi Coast indicate that the large number of pests being removed is having positive impacts on native species. For example, in areas where there has been sustained long-term predator control, and good dog management, species such as kiwi and pāteke are stable or increasing (see Whangarei Heads HVA section).

Over the past 11 years, Kiwi Coast has engaged thousands of people through various meetings, events, workshops, and shows, reaching a total of 27,236 attendees. They have presented at community meetings, government departments, conferences, and scientific societies, and participated in regional and national forums. Public events for kiwi and pāteke releases have drawn large crowds, fostering understanding of pest control and the importance of dog control for kiwi survival. Additionally, Kiwi Coast has facilitated skill-sharing and connections through free hui and workshops, including the annual Northland Pest Control Workshops. In 2024, the Kiwi Coast ran or supported 28 skill building events, such as trapping workshops, professional trapper fieldtrips, and responsible dog ownership seminars.

Right: Kiwi Coast Far North coordinator, Lesley Baigent, demonstrates setting a DOC 200 stoat trap at the Kaitaia women's trapping workshop, December 2023.

Community events since 2013	
Skill building workshops	149
Kiwi event participants	27,236

Kiwi Coast Statistics (calendar year)	2019	2020	2021	2022	2023
Groups and entities linked the Kiwi Coast	159	187	210	225	259
Land in active pest management (ha)	198,000	224,760	241,000	251,300	281,510
Animal pests gone (since 2013)	396,634	492,458	591,584	708,536	846,219

Performance Measure	Result	Details
Council supported programmes Number of pest control devices issued, and number of pests trapped	**Achieved**	Over 4,600 pest control devices were distributed to landowners and community groups during 2023-24. This was lower that the number distributed in the previous reporting period, which was probably because severe weather events during 2021-22 limited the amount of pest control work the community was able to do; 2022-23 appeared to be a 'catch-up' year, meaning a higher number of devices being needed. Despite the lower number of devices being distributed, the number of pest species being trapped continues to increase (see above).

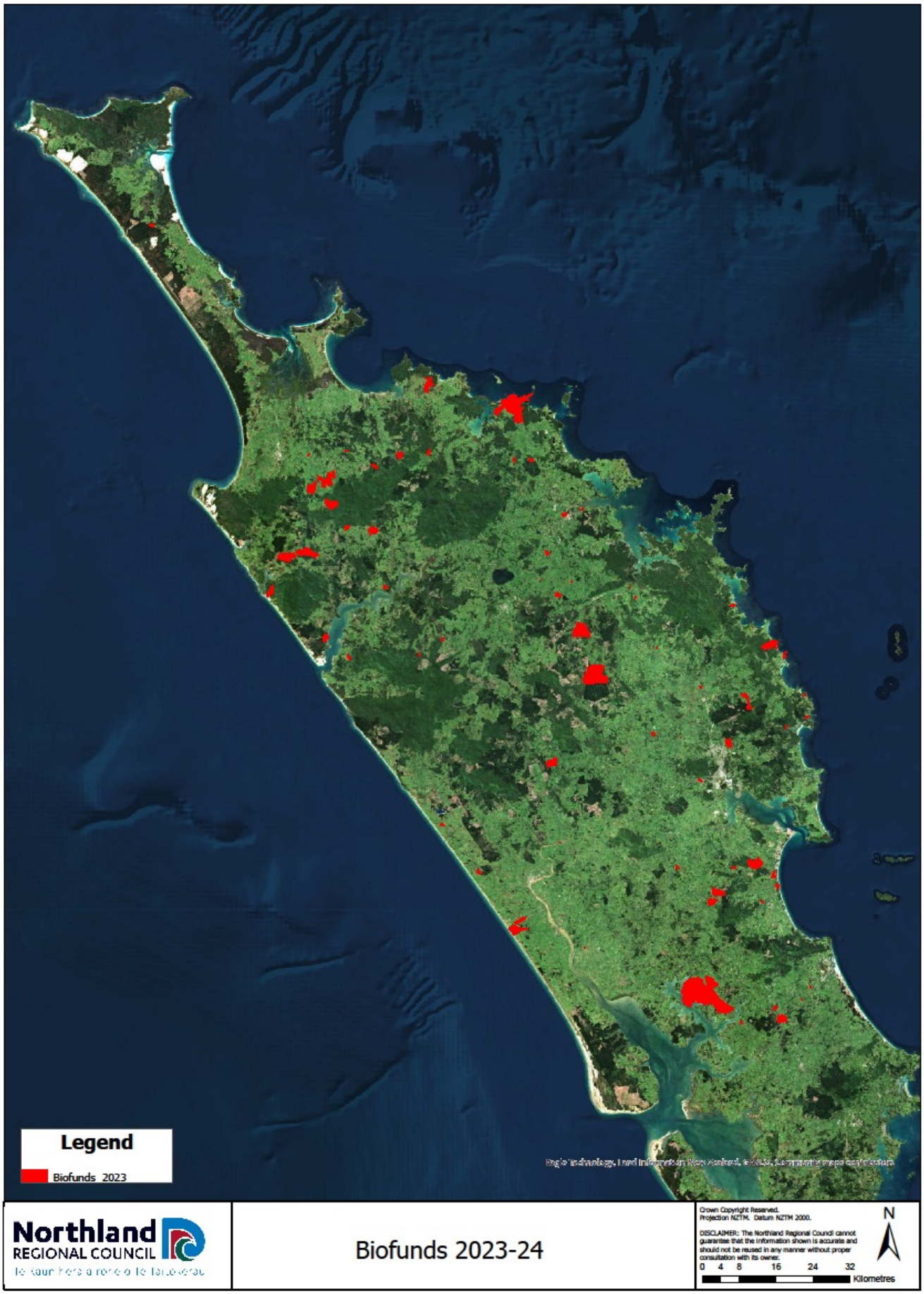
	Mustelids trapped			Total pests trapped		
High Value Area outputs	**2021-22**	**2022-23**	**2023-24**	**2021-22**	**2022-23**	**2023-24**
Mid-North	807	919	817	43,786	40,661	58,794
Tutukākā	195	212	260	3,788	2,361	3,231
Whangārei Heads	48	54	70	1,184	874	1,314
Piroa-Brynderwyn	252	282	352	3,751	3,541	4,599
Kiwi Link	152	195	250	9,509	8,086	11,957
Waipoua	N/A	N/A	391	N/A	N/A	3,753
Total	**1,454**	**1,662**	**2,140**	**62,018**	**55,523**	**83,648**

Council supported programmes – Biofund Number of new Biofund grants approved.	**Achieved**		**2021-22**	**2022-23**	**2023-24**
		Biofund projects	88	71	71

BIOFUND 2023 - 2024

71 community projects were granted funding for pest control

Right: Biofund management site at Otangaroa. Here, landowners, Mandy and Ben, are helping to assess what pest control devices are needed to protect their native flora and fauna.


Legend
Biofunds 2023
Northland
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0 4 8 16 24 32
Kilometres
N

Performance Measure	Result	Details
Possum Index Monitoring Contractors specifically engaged by council for possum control will meet a target of 5% residual trap catch index or 15% wax tag index in council led operations. Council supported programmes undertaking possum control are achieving agreed targets set in community pest control area agreements.	**Not Applicable** **Partially Completed**	There were no NRC funded performance-based contracts for possum knockdowns in 2023-24; however, possum monitoring has been completed in some of the projects where sustained possum control was carried out using the Waxtag Index (WTI) or Residual Trap Catch (RTC) methods. For example: Possum monitoring operation using WaxTags was completed in the Te Toa Whenua pest control management area around the Waipoua Lookout tower/Settlement Road during March 2024-May2024. These lines returned an 8% WTI which was down from almost 80% in February 2024. At Manganui Bluff, there were pulses of cyanide in May and December 2023, and March 2024. A RTC was completed in April 2024 and the result was 11.3%. Annual possum monitoring was not conducted in the eradication zone on the Purerua peninsula within the Mid North High Value Area as possum catches and sign were very low and it was thought that resources could be used in other mahi; however, across the c. 4,600 ha which buffers the peninsula returned a mean WTI of 15.6% in February 2024. Finally, possum monitoring across the Te Arai CPCA in July 2023 returned a mean WTI of 5%.

CASE STUDY

Enviroschools

Enviroschool students with NCEA credit	
2021-22	91
2022-23	175
2023-24	134
Since 2011	1,377

The Enviroschools Project Pest Control Programme continues to be a huge success, opening-up real opportunities for students, including educational qualifications (NCEA unit standards), career pathways and the potential to make a living from possum fur. The team tutored at three courses held throughout Taitokerau, each consisting of a two-day skills workshop and an assessment day. Overall, 134 Enviroschools senior secondary students took part.

The programme began with Project Possum in 2011, expanded to include Project Mustelid in 2016, and added Project Rodent in 2017. These three initiatives were unified into Project Pest Control the following year, achieving significant success in pest management.

The Northland Regional Council (NRC) spearheads this comprehensive programme, with support from Can Train NZ, local industry, and Te Whatu Ora. Students are educated on the biology and impact of animal pests, learning humane methods for trapping and killing them, as well as techniques for skinning possums and plucking their fur by hand and machine.

During the two-day skills course, tutors emphasize best practices by starting with the life cycle of the pests, highlighting the importance of treating these living creatures with respect and humane care. Humane leg-hold traps are used to capture possums, and students are instructed on how to set these traps to minimize discomfort for the animals while ensuring they are placed out of 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 evaluated on their skills and explore various biosecurity career paths.

NRC Biosecurity Officer demonstrating best practice pest management to secondary students.

High Value Areas

High Value Areas (HVAs) are geographic areas across Northland where high biodiversity and recreational values are matched with strong community interest in pest control. The Northland Regional Council currently supports six community-led HVA projects, which now includes the Waipoua HVA that started in 2023-24. These six projects cover a combined area of approximately 150,000 ha with pest management being conducted in suitable habitat within the boundaries of each project. After the severe weather events of the previous financial year, 2023-24 was a lot calmer which allowed the groups to repair networks and get back to core business. Below are summaries of the animal control work that was conducted across the six community-led HVAs; highlights from the weed mahi done by in these projects has been reported in the previous chapter. Excellent work has been achieved over the past year, and some impressive statistics are presented. Pleasingly, the sustained high-quality integrated pest control continues to have positive impacts on kiwi and other native species with population increases being detected in many of the species being monitored across the projects.

HVA DAY

Inaugural High Value Areas Day brings projects together

The HVA programme has been in existence since 2018 and while there is a lot of great collaboration between some of the projects, it was apparent that many were often working within silos. Accordingly, an HVA Day was held in Whangarei in March to bring together the governance groups and key stakeholders from each of the community-led HVA projects so that connections could be made or reestablished, celebrate successes, and to create a forum to discuss shared challenges so that potential solutions could be found.

It was also an opportunity for Northland Regional Councillors to interact with many of the conservation leaders in Northland and hear about some of the excellent community-led work that is being supported by the NRC.

What began apparent was that while the goals and visions were very similar between projects, the ways that each of the groups operate were often very different and tailored to what works best for each community. It was also incredibly inspirational seeing the passion each of the groups has for the work being done in their areas and it was not difficult to see why these projects are achieving excellent conservation outcomes.

NRC Chair, Geoff Crawford, opening the HVA Day.

Piroa – Brynderwyns

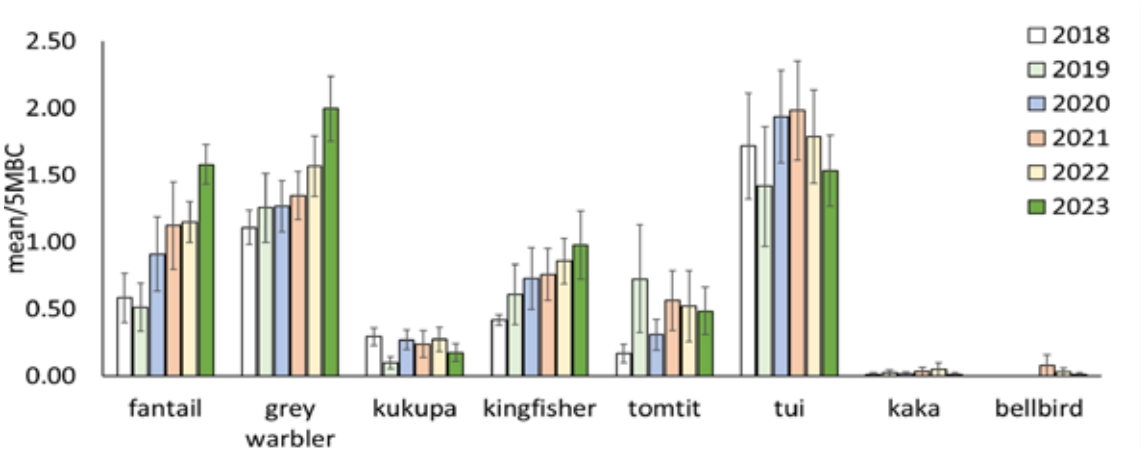
The Piroa – Brynderwyn HVA covers approximately 23,500 ha of area between Waipu, Kaiwaka and Mangawhai. While animal and plant pest activities are the main priorities, other significant workstreams are also apart of this project's business as usual. These include delivering educational programs in local schools, securing additional external funding to support catchment groups to improve water quality and biodiversity in riparian habitats, providing training opportunities through weed and animal pest workshops (six were held in the reporting period), and regular volunteer engagement and celebration events such as the annual Trapper of the Year awards, and monthly volunteer dinner events.

In addition to the regular trapping lines that were serviced during the year, additional infrastructure was installed to extend and fill in gaps within the network. Some of these new trap lines were established in areas indicated during monitoring as being kiwi hotspots. Most of the new lines were installed on the southern side of Piroa – Brynderwyns where several community trapping groups were formed or reinstated. Several bait station operations were also completed during the reporting period. These were done across both public (Brynderwyns Scenic Reserve, Bream Tail Scenic Reserve, and Robert Hastie Scenic Reserve; 540 ha total), and approximately 1,500 ha of surrounding private land using toxin that targets rodents and possums, but has a secondary impact that also that kills mustelids.

The trapping and toxin operations appears to be having a positive effect on native species across the project area. For example, the kiwi presence/absence survey that was conducted during the reporting period showed that birds were detected in several areas, such as The Sanctuary and Langs Beach Estate, where they were not during the inaugural 2022-23 survey. Also, more kiwi calls were detected in the Bream Tail Farm sites during the latest survey, and encouragingly duetting kiwi were recorded on the Automated Listening Devices, which indicates that breeding pairs were present in those areas. This means that kiwi in the Piroa – Brynderwyns are now confirmed from SH1 in the west, across to Bream Tail Farm on the East Coast. In distance terms this means kiwi have spread 6kms east, 6 kms west, 3.5 kms north and 2.5 kms south of their Marunui release site.

Monitoring of key forest birds using the five-minute bird count protocol is in its second year of surveying. Again, encouraging trends were observed. For example, increases in tomiti/miromiro, fantail/piwakawaka, kukupa, grey warble/rironiro, tui, and kingfisher/kotare were all detected. Finally, in the annual 2023 bittern survey it was found that Mangawhai and the surrounding area (Ruakākā-Pākiri) seem to be a significant stronghold for bittern – with 24 males identified.

Above: locations where kiwi were detected across the Piroa Brynderwyns HVA during surveys.



Above: the mean abundance (±SE) of key bird species across Kiwi Link sites (2018-2023) ('5MBC' = five-minute bird count).

Above: a map showing the Kiwi Link HVA project area and landcare groups within the project. The red dots indicate the current distribution of mustelid traps.

Kiwi Link

The Kiwi Link HVA project area sits between Pataua North in the south and Ngunguru Ford in the north, and extends east to Mt Tiger Forest; an area that has increased to approximately 15,000 ha in size and includes 11 groups and projects within it.

Kiwi Link HVA funding was prioritised to ensure that professional predator trappers were resourced to complete all mustelid trapping rounds for each group; however, the significant amount of in kind volunteer contribution coupled with this project's ability to secure additional sources of funding has enabled an integrated pest management project, which actively controls a suite of both animal and plant pests, to develop.

In addition to the large number of pest animals that were captured in traps , a coordinated pulse of secondary toxin was deployed in 400 bait stations across the Whareora Landcare, Owhiwa Landcare, and Taheke Landcare projects, while other secondary toxin operations were completed at Pataua North Landcare, Whanui, and a privately owned block within the Owhiwa area. Secondary toxin operations' are needed to target stoats that have learnt to avoid traps, and these coordinated pulses (which have not been done in the area for a few years) will have had a positive benefit across the entire 15,000 ha of the Kiwi Link project area.

The large amount of pest management appears to be having positive impacts on native species, as monitoring of key forest birds indicate that most are continuing to increase in population size. Furthermore, bat surveys were repeated across the Kiwi Link with long-tails being detected at count stations in Whareora, Owhiwa, Kohinui, and Taheke where they were absent during the 2022 survey. Finally, seven kiwi were translocated back into the Owhiwa area, which further demonstrates how good the pest management has been across the project. These birds will not only be increasing kiwi numbers, but also introducing more genetic variation to the resident population.

Above: deploying automated listening devices (ALDs).

Tutukākā

The Tutukākā HVA project area is immediately north of the Kiwi Link HVA and extends to Sandy Bay in its northern limit and west to the Glenbervie Forest; an area of approximately 10,000 ha. While the HVA was formed in 2018, the Tutukākā Landcare Coalition has been controlling pest since 2003 to protect kiwi populations in the area.

The Tutukaka HVA had a very solid year and made good progress on their strategic aims. For example, the numbers of pest animals removed by trapping was very impressive as a total of 3,231 recorded; of these, 91 were stoats and 49 were feral cats. There were two toxin operation within the HVA during the reporting period. The first was a 'Double Tap' deployment in 98 bait station in the Hugh Crawford Reserve, which targeted both rodents and possums. The second was a 1080 operation in 123 stations across the Riverlands Landcare project. In addition, work was done to service and extend the bait station network in the Tutukaka Forest and adjacent landowner properties, ready for a pulse of secondary toxin in late 2024.

In addition to kiwi monitoring, bat, matuku/bittern, and forest bird surveys were done across the HVA during the reporting period. These surveys were conducted for the first time in most areas, and as such, the data should be treated as a baseline.

However, some pleasing trends were observed. For example, of the eight sites surveyed for Matuku between October-November 2023 using automated listening devices (ALDs), birds were detected at three sites. During bat surveys that were conducted in January-February 2024, long-tailed bats were detected at three locations in the Ngunguru area and two sites around Tawapou.

A highlight for the year was the release of three kiwi that were raised on the pest free Matakohe / Limestone Island kiwi creche at Matapouri in April. The event was generously hosted by Te Whanau a Rangiwhakaahu hapū at the Rangiwhakaahu marae, and supported by the Kiwi Coast, Department of Conservation, Backyard Kiwi, and the NRC. Approximately 300 people were in attendance. Kiwi releases are an excellent way of raising the awareness about the threats our native species are facing but also how, with coordinated and well-resourced community-led conservation, these taonga are able to thrive in their natural habitats.

Aperahama Edwards, Chairman of the Te Whanau a Rangiwhakaahu Hapu Trust summarised the kaupapa on the day when he said "We are really proud of our shared efforts to restore our taonga and raise community awareness. As mana whenua in Matapouri we are committed to the protection of our taonga".

Left: Kaumatua Aperahama Edwards , Chairman of the Te Whanau a Rangiwhakaahu Hapū Trust. Right: Kaumatua Aperahama Edwards, Te Whanau a Rangiwhakaahu, with Tahwhiti rahi at the kiwi release at Rangiwhakaahu marae in Matapouri (within the Tutukaka HVA). Photos by Kieran Pullam.

Mid North

The Mid North HVA is the largest of the projects and covers a total area of around 70,000 ha; however, the amount of habitat actively being managed within this is approximately 40,000 ha. There are an impressive 68 hapū, community and school groups working within the HVA that extends from Kawakawa in the south, the Purerua Peninsula in the north, and west to Puketi Forest. In the last year, 817 mustelids and a total of 58,794 pests were removed by trapping across the Mid North HVA; however, these pest tallies are an underestimate of the true numbers that are being removed from the HVA as it does not include those individuals removed through toxin operations. In the last year, toxin operations targeting rodents, possums, and mustelids occurred at Waiare Road, Puketotara, Waitangi, and Hupara; a combined area of c. 2,000 ha.

One of the Mid North HVA objectives is to enable groups to continue their existing work, and an important part of achieving this is to provide opportunities for education and upskilling. As such, four trapping workshops were run in the last year. These workshops provide a safe environment for people to find out how to use pest management tools properly. In addition to workshops, a trap library was also established in the last year, which lets landowners access and trial devices that they may be reluctant to purchase because of the price.

Within the Mid North HVA boundary is Pest Free Purerua; home to what is thought to be 25% of Aotearoa's brown kiwi population. This project is aiming to eradicate possums and suppress all other predators to very low levels over the 7,600 ha peninsula and receives additional funding from Jobs for Nature and Predator Free New Zealand. Although good numbers of pests are still being trapped across this project (1,411 in total including 231 possums and 13 stoats), most are caught in the 'buffer' zone at Taronui. Pleasingly, within the core of the project, very low numbers of possums were caught, and monitoring indicated that the population was at zero density.

On the back of this sustained integrated pest control on the peninsula, approval was gained to translocate 20 threatened brown teal / pateke in 2023. Unfortunately, a high proportion of these birds were preyed on by a small number of feral cats. While this was upsetting, it provided the project with valuable insights into the impacts even very low numbers of feral cats can have. This information helped to inform management this year and a considerably more effort was invested into additional cat management. This appears to have paid dividends this year as a second translocation of 20 more pateke took place in March 2024. This release was supported by Ngatiwai Trust, Ngati Torehina, the Pāteke Recovery Group, Kiwi Coast and the Northland Regional Council. Of the birds released, at least six are still present on the peninsula and pairing birds have been observed, indicating that breeding is likely to occur.

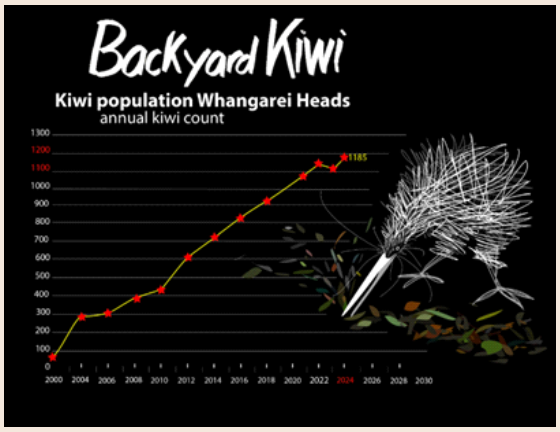
Above: Waimate North Landcare trialling AT220 traps from the Mid North HVA trap library.

CASE STUDY

Whangārei Heads HVA and Backyard Kiwi

Over the last 23 years, the Whangārei Heads kiwi population has seen a significant increase due to dedicated recovery efforts by Backyard Kiwi and community volunteers. These efforts include trapping mustelids and feral cats, pulsing secondary toxins to target trap shy stoats, as well as advocating for responsible dog control. The population has grown from approximately 80 kiwi in 2001 to an estimated 1,185 in 2024. These figures are derived from annual directional kiwi call count surveys conducted each winter. On average, kiwi call counts have increased from 2.9 calls per station per hour in 2002 to 10.3 calls in 2024, indicating an annual growth rate of about 10%, compared to the national average decline of 2%.

As the kiwi population continues to expand in the Whangārei Heads area, many are now migrating northwards into the wider Parua Bay area and beyond into the Kiwi Link area, which has been confirmed by monitoring the movements of radio tagged birds. Despite these positive outcomes, ongoing predator control and responsible dog management remain essential for the survival of kiwi chicks and adults.



Waipoua

This was the first year operating as a community-led HVA. There were three key strategic themes that came through during the establishment discussions for what is needed to support conservation mahi in the area:

- Coordination
- Capacity building
- Engagement

Within each of these themes, activities have been identified and agreed to be pursued as adding value to the collective conservation effort in the area. Actions have been developed to advance each activity. Examples of actions completed this year are provided.

Coordination – Collaborative goat and pig control

To get a clear picture of the existing pig and goat control work that is going on across projects it was agreed to collate the results for 2023/24. Going forward these results will be used to identify where additional control and further opportunities for collaboration across land tenures is best actioned.

Project	Number of goats culled	Number of pigs culled
Maunganui Bluff aerial goat cull	24	12
Native Forest Restoration Trust reserves	4	2
Waipoua Forest Trust reserves	76	16
Manulife – Whatoro Forest	40	-
Private land adjoining forest on north side	17	-
DOC – Maunganui Bluff	12	28
DOC – Waipoua/Mataraua/Waima Forest	174	220
TOTAL	**347**	**278**

Hunter shooting goats from helicopter at Maunganui Bluff.

Engagement – Outcome monitoring

Outcome monitoring is considered key to engaging our communities. It is also crucial to know that the combined pest control efforts are having the desired biodiversity outcome.

Kiwi territory mapping was completed to increase knowledge on kiwi distribution beyond the existing kiwi listening locations in Waipoua Forest. Kiwi territory mapping was completed initially at Maunganui Bluff and then repeated at three other locations in the Waipoua HVA (summary of results in the table below). The methodology of the territory mapping allows for an assessment of the number of individuals and pairs within a given project area and their approximate territories. This provides good baseline data, and the method will be repeated every 3-5 years to track kiwi populations and their response to stoat and/or dog control.

In 2024/25 territory mapping will be completed at 1-2 more sites within the HVA as well as additional mapping at this year's sites where there were gaps in coverage or where there are opportunities to investigate further the kiwi that were heard outside of the property boundaries.

Below: Map showing confirmed individuals and pairs and their approximate territories. Red indicates the territory of a pair, green the territory of a single male.

Below: Summary of results from kiwi territory mapping.

Location	Total number of individuals	Number of pairs identified
Maunganui Bluff – Te Roroa	Seven – 5 males; 2 females	Two
Michael Taylor reserve – Native Forest Restoration Trust (NFRT)	Eleven – 7 males; 4 females	Four
Millennium and Professor McGregor reserves – Waipoua Forest Trust and NFRT respectively	Four – 4 males	-
Pukemiro reserve and (part of) Kaitui Scenic Reserve – Waipoua Forest Trust and DOC administered land respectively	Zero kiwi detected in Pukemiro reserve (regenerating farmland); Five in Kaitui – 4 males; 1 female	One

Tiakina Whangārei

Tiakina Whangārei is a community-driven urban initiative aimed at fostering connections between people and their surrounding environment through conservation activities, while also supporting existing projects to protect and enhance the cities native biodiversity.

Since its inception in 2018, Tiakina Whangārei has focused on pest animals and educating the community about the detrimental impact that certain species have on native biodiversity. More recently, the scope of the project has expanded to include pest plants. This addition has been well received by the Whangārei urban community, and Tiakina Whangārei now supports several groups controlling environmental weeds in urban reserves.

Tiakina Whangārei continues to actively encourage and support urban communities in Whangārei to 'take action' in their local environments. Support ranges from assisting individuals to set up traps on private properties, to the establishment of larger 'pest-free' community groups dedicated to managing pest animals and plants in urban reserves. Tiakina Whangārei's approach mostly involves removing barriers to participation by providing free or subsidised trap hardware, technical advice, formal training, community workshops, herbicides, vertebrate toxins, health and safety information plans, and anything else relevant to the undertaking.

Predator Free Onerahi has registered over 300 pest control devices on the TrapNZ app. In addition to backyard trapping, volunteers under the Tiakina Whangārei/Predator Free Onerahi umbrella regularly maintain trap and bait station lines along sections of Beach Road and the Waimahanga Track and have recently extended the bait station network to include the Waverly Street link track.

Social media outreach	
Page visits	10.7k
Post reach	78.4k
New page "follows"	408
Total page "follows"	1.9k

Tiakina Whangārei engagement	
Public events	9
Facebook posts per month	4+
Print articles	9
Educational institutes engaged	10

Tiakina Whangārei Trap NZ data	
Pest devices distributed this FY	401
TrapNZ registrations	560
Devices uploaded to TrapNZ this FY	114
Pests removed this FY	1,177

Top: Te Kamo trap giveaway. Middle: Northland Golf Club weed workshop supported by Tiakina Whangārei.Bottom: Waimahanga pest control volunteers, Julie and Ed.

Tiakina Whangārei also supports two weed management/restoration groups operating on public land in the Onerahi area. These groups have organised several public information days and community competitions focused on engaging and educating the local community about environmental weeds, particularly mothplant. The Waimahanga Weed Action Group has made significant progress controlling climbing asparagus along the Northern end of the Waimahanga track and the Waverly Street Link track, achieving impressive results in the last year.

Predator Free Te Kamo has distributed over 123 traps to backyards and urban fragments in the area since it was established in 2023. In addition to back yard trapping, Tiakina Whangārei also supports a small group of volunteers working to control pest animals and pest plants in the Magnolia Bush Reserve at the top of Fairway Drive. In little over one year, this group has trapped 89 possums and has been working to control environmental weeds, most impressively, a large area of Queen of the Night growing in the reserve.

Partnerships and expanded efforts

Tiakina Whangārei continues to collaborate with existing conservation groups to help manage some of the larger reserves that border the city. Key partnerships include those with the Pukenui Western Hills Forest Trust and the Parihaka Community Landcare Group.

In September 2023, with Tiakina Whangārei's support, Pukenui volunteers deployed Double Tapp across 70 hectares of bait stations in the Coronation Reserve to assist in controlling possums and rats. Additionally, together with the Whangārei District Council, Tiakina Whangārei funded the installation of a further 30 hectares of bait station infrastructure and supported volunteers to undertake two toxin operations targeting possums and rats within the Parihaka Scenic Reserve.

Above left: Queen of the night infestation in Magnolia Reserve before control. Above right: Magnolia Reserve after Queen of the night removal.

Above left: Pukenui volunteers pre-Coronation Reserve toxin operation. Above right: Parihaka volunteers bait station fill.

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.	**Achieved**	

	2021-22	2022-23	2023-24
Field Days / A&P Shows	0	5	5
Community events	18	7	11
School visits and workshops	0	20	11
Enviroschools workshops	4	9	6
Pest workshops and contractor training	7	10	6
Kiwi releases and activities	0	2	4
Controlled substances licence courses	4	4	5
Total	**33**	**57**	**48**

Predator Free Whangārei

Ka rere te kūkupa e kawe ana ngā kākano mō āpōpō

Tihewa mauri ora ki te wheiao ki te ao mārama

Predator Free Whangārei

Tiaki te whenua, tiaki te tangata

Key Performance Measure	Outcome
Possum elimination operationally active Percentage of project area active in removal phase *'Knock down'* (520ha) or *'Mop Up'* (1826ha	**26% (2,346ha)** Manaia Ridge Ocean Beach Coastal Strip The Nook McLeod Bay Kauri Mountain Adjoining Coastal Farmland and Bush Pataua South
Possum elimination surveillance Percentage of project area in surveillance phase *'Detection and Response'*	**25% (2,263ha)** Te Whara Taurikura Reotahi Adjoining Coastal Farmland and Bush

Predator Free Whangārei is delivering a 9,000+ha possum elimination project in the Whangārei Heads, alongside a 60,000ha mustelid enhanced suppression network across wider Whangārei. The Possum Free Whangārei Heads project is one of the 18 mainland landscape scale elimination projects in New Zealand, co-funded between NRC and Predator Free 2050 Limited.

Possum Free Whangārei Heads

The project has made great strides over the past 12 months and is now operational in two thirds, (including where landowner permissions are held) of the elimination zone, with most of the remaining area being open farmland. With a team of six field officers on the ground, the majority of whom are Whangārei Heads locals, the project has been able to balance a dynamic work schedule.

The project has so far received 95% of support from around 500 landowners and the support from schools, businesses and community groups has been invaluable.

Deployment of the latest trapping technology has been an exciting trialling phase with promising futures, such as AI traps and cameras. A couple of nights with a thermal drone operator also proved to be a significant cost saver, capable of covering over 2,000 ha from the sky within four hours. Since possums' den for most of their day, utilising the acute senses of a conservation dog to detect possums has also been integral in developing 'Proof of Absence' data. This has been a milestone for the project after collaboration with local groups within the Dog Advisory Group, such as Backyard Kiwi and Kiwi Coast, subsequently training an indicator dog suited to work in the high kiwi populated landscape.

Working with multiple community groups has been another key milestone achieved this year. Kohinui Landcare, Campbell Rd Landcare, Pataua North Landcare, Reotahi Landcare, Manaia Landcare, Bream Head Conservation Trust, have been active with pest control in their backyards for decades, so working alongside on the possum elimination project as well as dealing to other pests has proven to show exciting outcomes. From providing Trap.NZ support, to providing bait, utilising new technology, or at times allocating field resources, this has been another great collaboration.

Furthermore, working with local uri group in Pataua South, Aki Tai Here, has been invaluable. By integrating both the possum elimination project's goals, as well as providing support to target a range of pests, we hope that in the future this will achieve incredible biodiversity, social, and well-being outcomes for the local community.

Supporting kiwi in wider Whangārei area

As part of the enhanced mustelid suppression network, we have worked with Kiwi Coast and the NRC Partnerships team to support various baiting operations this Spring, across Whangārei. From Pukenui Western Hills Forest Charitable Trust to Tutukaka Landcare, to Bream Head Conservation Trust and Taheke Landcare, it has been exciting to be able to support the community's' efforts in protecting kiwi within the district.

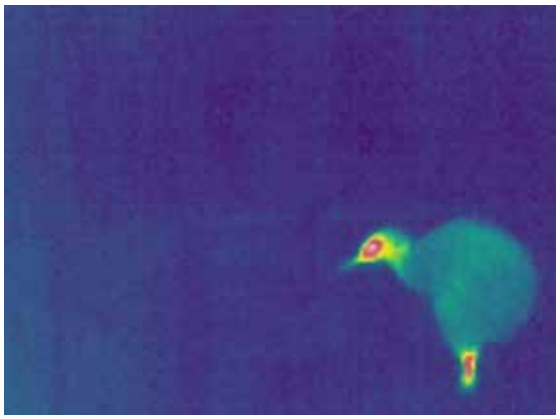


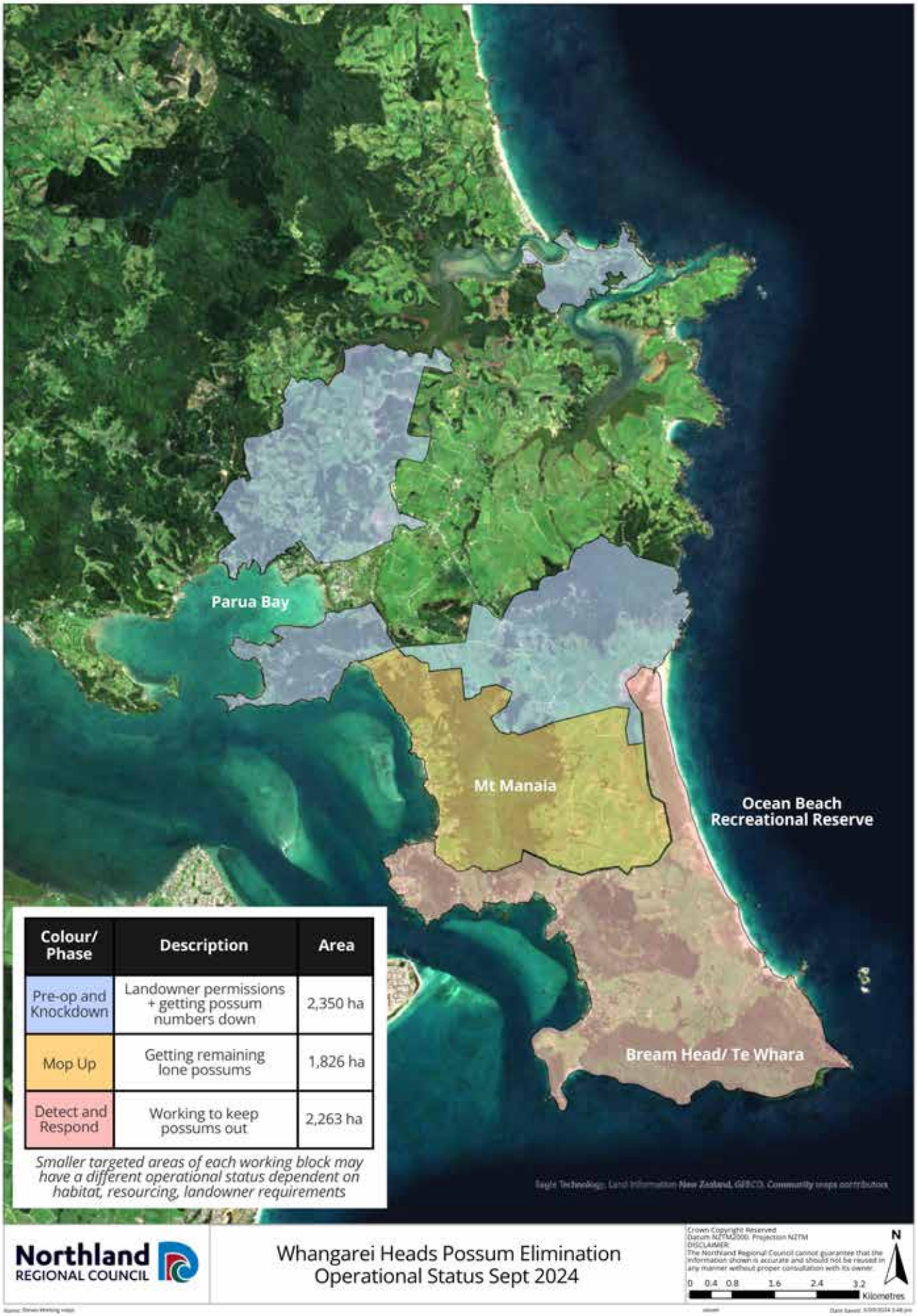
Figure 1. AI camera picks up on a friendly familiar face

Facebook engagement (page launched Feb 2023)	2023	2024
Page "Likes"	344	667
Page "Follows"	458	879
Facebook Posts	82	165
Post reach	29k	57.8k
Content interactions	3k	6.5k

Comms & Engagement	2023	2024
Public enquiries	44	37
Public events hosted or presented at	27	33
Newsletter Articles	33	28
School engagements	15	10

Year	Landowner Agreements – Yes	Landowner Agreement – no	Bait stations set live	Traps set live	Trail cameras set active
2023	396	12	329	384	157
2024	489	21	468	556	342

Year	Bait Taken last 12 mnths	Annual Bait Station Checks	Trap Catches last 12 mnths	Annual Trap Checks
2023	416 kg	4,500	170	4,637
2024	99 kg	3,200	296	2794


Parua Bay
Mt Manaia
Ocean Beach
Recreational Reserve
Bream Head/ Te Whara
Colour/ Phase
Description
Area
Pre-op and Knockdown
Landowner permissions + getting possum numbers down
2,350 ha
Mop Up
Getting remaining lone possums
1,826 ha
Detect and Respond
Working to keep possums out
2,263 ha
Smaller targeted areas of each working block may have a different operational status dependent on habitat, resourcing, landowner requirements
Northland REGIONAL COUNCIL
Whangarei Heads Possum Elimination
Operational Status Sept 2024
Crown Copyright Reserved
Datum NZTM2000. Projection NZTM
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.
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0 0.4 0.8 1.6 2.4 3.2
Kilometres

Predator Free Pēwhairangi Whānui

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

Key Performance Measure	Outcome
Possum eradication Percentage of project area in knockdown / removal phase	Russell 20% 600 ha Purerua-Mataroa 45% 4,200 ha Rakaumangamanga 75% 2,237 ha
Possum eradication surveillance Percentage of project area in surveillance phase (Detection and response)	Russell 15% Purerua-Mataroa 58% Rakaumangamanga 0%

Predator Free Pēwhairangi Whānui Engagement	
Collective Hui	4
Peninsula Hui	14
Hapu hui	7

The Predator Free 2050 programme spans the Purerua-Mataroa, Rakaumangamanga (Cape Brett), and Russell peninsula. All three projects are operational on the ground, delivering a mix of work including initial knock-down, mop-up (targeted removal,) and detection and response which is the last phase of the elimination programme. An ArcGIS mapping and data platform is in place across the three peninsular projects to record real-time data and to track results. A "proof of absence" (probability of detection) model is being developed utilising the GIS data, and Manaaki Whenua methodology that will support the objective of reaching the zero status.

Pēwhairangi Whānui Quarterly hui hosted by Te Rawhiti 3B2 Ahu Whenua Trust and the Rawhiti Marae

Promotional videos have been completed for all peninsular projects that showcase the diverse landscape of the areas, methods of elimination being used, and the strength of kaimahi and hapori who are driving the elimination delivery on the ground.

Predator Free Russell's Trappers

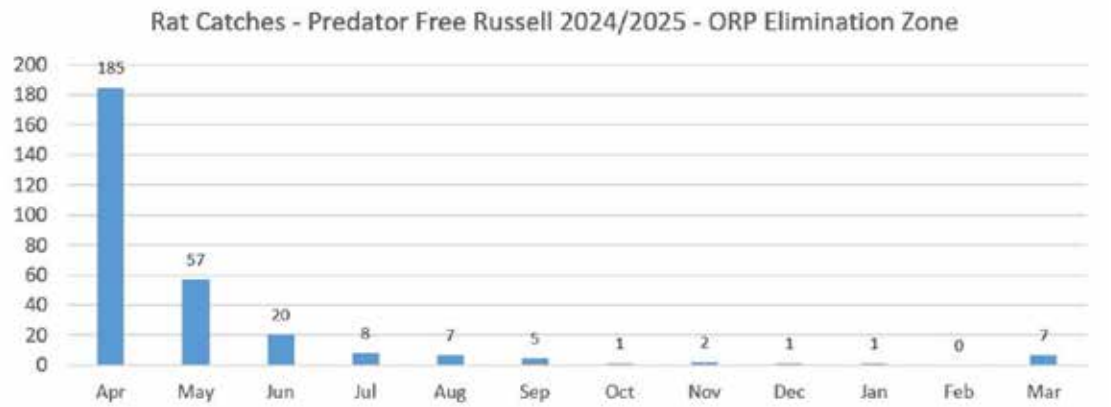
Predator Free Russell (Russell Landcare Trust)

Ongoing detection and response efforts in the Old Russell Peninsula elimination area confirm that possum and rat numbers are being maintained at near zero levels with the only detections occurring around the Orongo Bay barrier zones. This occurrence is expected in areas where elimination and suppression zones meet, and a key priority is having ability to respond to such incursions.

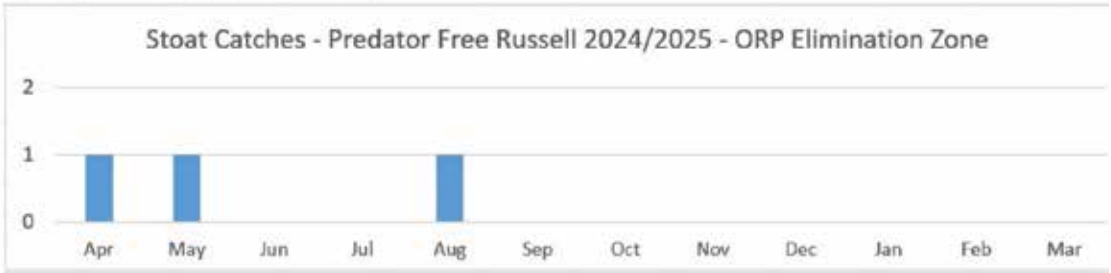
Innovative floating traps have been designed and installed in the coastal / mangrove habitat of the barrier. They have successfully removed numerous ship rats that use the coastal margin for food, as well as an access into the Old Russell Peninsula elimination zone.

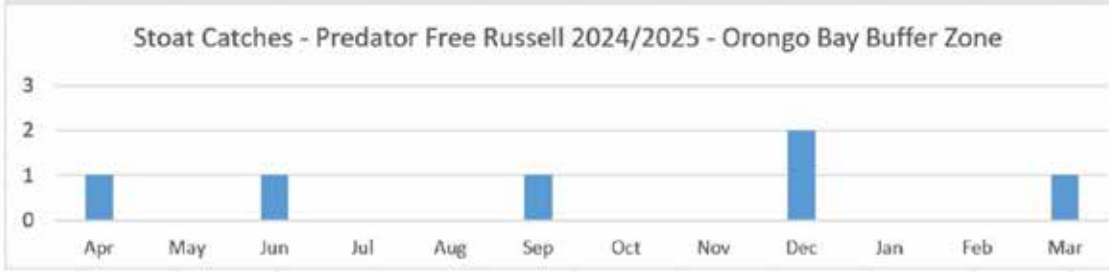
The project expanded into the Tapeka Peninsula in early 2024 and has recently pushed into the Russell township. Final installation of equipment will enable a barrier to be formed which will protect the ongoing work to make Tapeka/Russell an elimination zone. Russell residents have continued to fully support the efforts of Russell Land Care Trust with generous funding donations and volunteer input building traps and removing pest animals and weeds on a weekly basis.

Floating Rat traps



Note: Please see March monthly operational report for explanation for the higher March catch figures (which are not a concern).





Possums

Note: There is no possum graph because no possums have been caught in the last year in the project area

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Predator Free Purerua - Mataroa (Kiwi Coast, Ngati Torehina)

The Purerua-Mataroa peninsula has a history of pest control dating back decades, however the establishment of the Predator Free (PF2050) project in 2022 provided a significant boost to pest control efforts, and helped the area move from the goal of suppressing pests to elimination of pests. The peninsula is supported by a barrier zone at Te Tii, near the start of the peninsula, and a larger buffer protection zone provided by the Mid North High Value Area (MNHVA.)

Pāteke being released at The Landing, 2024.

The project covers an area of over 7,600ha and is home to around 25% of Northland's kiwi population. The project is funded by a combination of PF2050 Ltd / Jobs for Nature and receives significant support from Ngāti Torehina, Ngāti Rēhia, private landowners, Pamu Landcorp, Plant & Food Research, Summit Forests, Bay of Islands International Academy, Department of Conservation, Save the Kiwi Trust, and Northland Regional Council.

Over the last year 1,411 pests were trapped through a variety of methods including DOC 200s for stoats, SA2s and AT220's for possums, and T-Rex and SnapE traps for rats. Self-reporting and resetting AT520AI traps will be used in 2024/25 utilising new AI technology to identify and target possums and rats.

A local trapper checks an AT220. These traps have helped to fill gaps in trap networks

Ngāti Rehia - Predator Free, Te Ahutai

"Ko te Ahurei Taiao, He tupu hāpai, Kia tau te wā"

Ngāti Rēhia are leading elimination and enhanced suppression efforts on 400ha of whenua maori at Te Tii, Takou and Matoa. Led by their Predator Free Te Ahutai Senior Ranger, and supported by ahi kaa whanau, and the Ngāti Rēhia Runanga, mahi over the last twelve months has resulted in possum, rat and mustelid knock-down across 286ha at Te Tii and Matoa.

Whenua Maori at Te Tii is a critical habitat that is part of a barrier protecting the larger Purerua-Mataroa Peninsula elimination area that is being targeted by Kiwi Coast. PF2050 initiatives and funding has enabled renewed focus on possum and rat elimination in this area, with the first round of trapping catching 29 possums, 6 rats and 2 stoats.

A network of 244 bait stations and 279 traps are installed, with an additional 272 planned for installation later in 2024. Ngati Rehia have a gold level health and safety certification from Site Wise.

Predator Free Rakaumangamanga (Ngati Kuta, Patukeha, Te Rawhiti 3B2 Ahu Whenua Trust)

Predator Free Rakaumangamanga, led by Te Rawhiti 3B2 Ahu Whenua Trust, builds on decades of successful pest control mahi and is now working towards boosting biodiversity gains by eliminating possums and other pests from the Rakaumangamanga / Cape Brett Peninsula. On the ground delivery commenced in late 2023 focussed on the complete removal of possums from the entire peninsula. Initial efforts have built on previous trapping efforts and current infrastructure already in place, starting at the Northern end of the peninsula.

Predator Free Rakaumangamanga project team

A network of 2,163 traps and 1,544 possum bait stations are installed and operational across 2,237ha. An additional 700ha will be worked on over the next twelve months to achieve a peninsular wide elimination network.

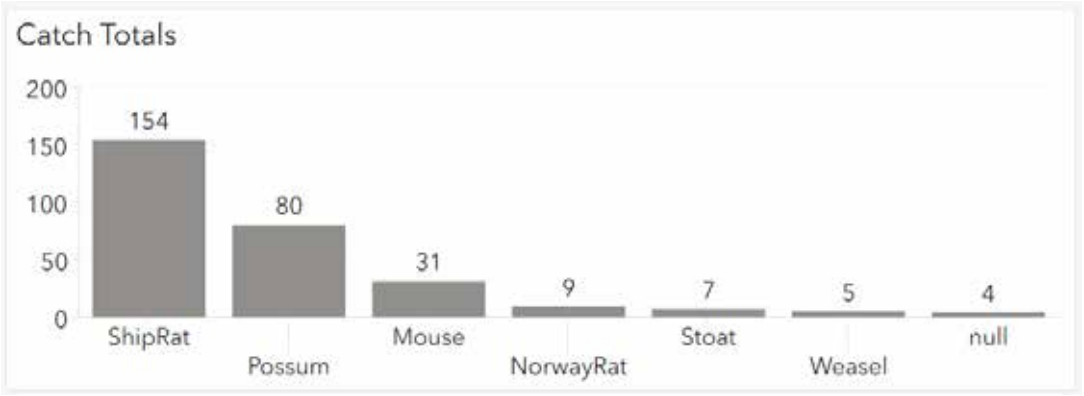
The programme is being funded primarily by PF2050 Limited (via Jobs for Nature,) with valuable contributions from Nga Whenua Rahui and MPI for associated work to protect existing kawenata, and known areas containing Kauri dieback.

Nine kaimahi have been trained and engaged in pest control work over the last year with the Te Rawhiti 3B2 Ahu Whenua Trust obtaining a green level certification for health and safety from Site Wise.

Predator Free Rakaumangamanga Predator Control Devices (Traps)

Early milestones include the repair and reinstatement of a predator proof fence located between zones 1a and 1b in the northern peninsula. The fence will help control wild pig incursions that have historically been detrimental to bait station effectiveness. Other milestones include the construction of two new cabins and supporting water tanks and composting toilets, along with the upgrade of an existing kaimahi shelter. These buildings will enable extended periods of stay on the peninsula by the kaimahi teams. Over 168km of pest control lines have been maintained during the 2023-24 financial year. Kaimahi have cleared and re-marked all existing pest control lines using chainsaws and scrub bars to reinstate these lines.

To date (30 August 2024) over 2,000 trap checks have been carried out with a total of 237 predators caught and recorded in the new Arc GIS data base (since June 2024.)



7. Kauri Protection

17
New sites sampled 2023-24

131
Kaitiaki engaged through iwi/hapu collaborations 2023-24

9
Kauri Protection workshops and training

3354
metres fencing to protect Kauri in 2023-24

2012
Meters of walking track upgrade

137
Hygiene kits distributed

19
School visits/events

12
Hygiene stations installed

71 since 2019

358
Students educated about kauri dieback

2,358 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.

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, 163 mitigation advice have been issued.

Performance Measure	Result	Details
Incident response times All incidents are recorded, and a response plan developed and implemented within 20 working days	**Achieved in part**	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 Kauri Dieback Viewer.
Hygiene stations A minimum of 5 hygiene stations installed at priority sites	**Achieved**	

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 installed 12 new barrel and gate hygiene stations across Northland with a further 2 upgraded at the Waitangi Treaty grounds. The barrel and grate stations come in two sizes for tracks with varying volumes of traffic.

Hygiene stations 2023-24	
New barrel and grate hygiene stations provided	12
Upgrades to existing stations (Treaty grounds)	2

In July 2022 Biosecurity New Zealand (BNZ) launched a National Plan for kauri protection and government allocated $32 million over five years to deliver the plan. Since the plan become operative the Northland Regional Council (NRC) has been allocated $1.5M by BNZ to progress kauri protection actions including vector control, fencing, soil sampling, education and construction of boardwalks.

Above: New MKIII hygiene station at AH Reed

Outcomes

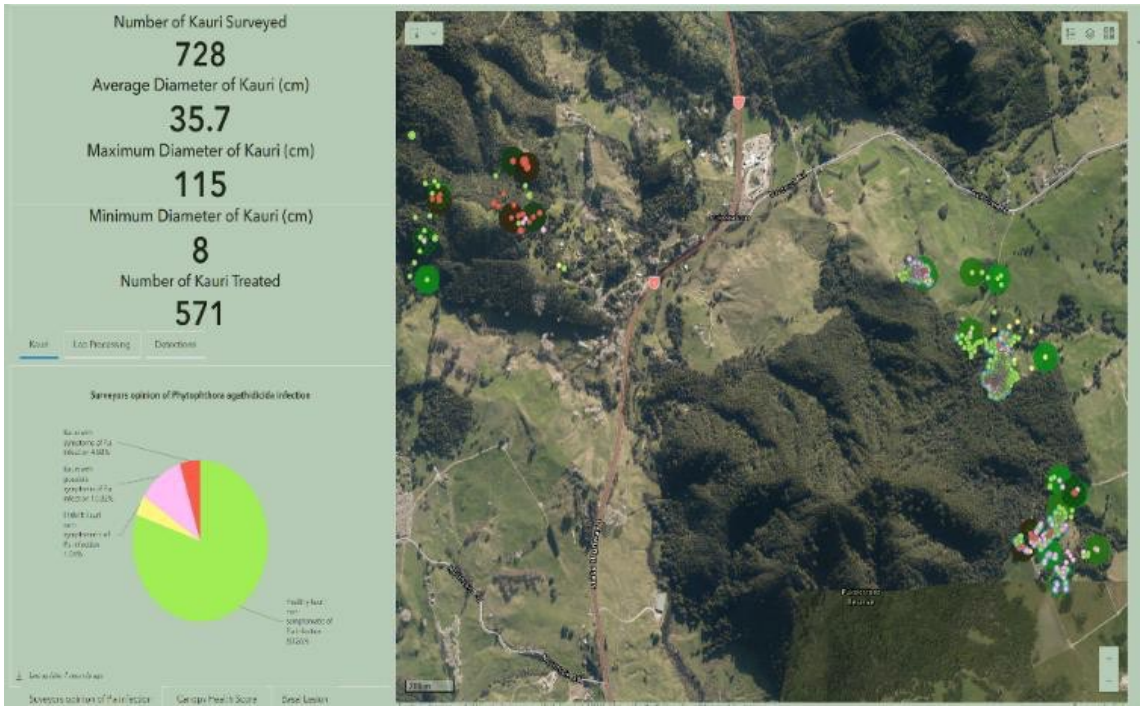
Soil sampling

Sampling and surveying work this financial year has exceeded expectations with 1342 independent tree surveys undertaken with 39 samples testing positive for PA. These sites or grouping of these sites located mostly in the south of the region will all require management plans.

A large portion of sampling was undertaken in Pukekaroro reserve, Robert Hastie memorial reserve and Kauri Mountain. Survey in the coming year will concentrate sampling further north. A purpose-built app is used to collect field data and record actions which can then be transferred to national platforms.

	Surveys	No. Samples	P.A Detected*	P.C Detected**
Kaiwaka / Maungaturoto	813	48	10	28
Waipu / Mangawhai	137	45	6	17
Kaipara west	200	20	7	8
Whangarei	24	49	5	7
Kauri mountain	165	33	8	20
Arethusa (Far north)	1	4		
Waipua forest trust	1	9	1	
Manganui (Far north)	1	5	3	
Totals	**1342**	**212**	**39**	**80**

** Phytophthora agathidicida , ** Phytophora cinnamomi*



Pukekaroro reserve Located on the edges of SH1 Pukekaroro reserve is just south of the Piroa- Brynderwyn hills, This area has a high density population of kauri. (728) kauri tree surveys, (10) P.a kauri trees detected, (571) kauri treated for P.a disease.

Vector control

Local pig hunting clubs were visited and sponsorship of local pig hunts that promoted kauri hygiene practice. The Northland pig hunting club runs a kauri protection awareness workshop in conjunction with NRC staff twice a year and the club has information relating to kauri protection on every newsletter they send to members. The Kaitaia pig hunting club have also had NRC attendance at their annual weigh-in and staff distributed kauri protection promotional material.
Wild pigs and goats have also been targeted at Russell Forest as part of the sika culls with traps and shooting used to assist local farmers reduce populations around the margins of the forest. A total of 40 sika, 200 pigs and 400 goats have been removed so far as part of the wider project at Russell.

Surveys

Over the last year 1342 inspection surveys have been completed with data gathered on the general health of the tree, age class, size and comparison pictures for future reference. These surveys also include a basic hazard risk assessment.
In other work, a total of 212 soil samples were taken from northland this 2023/2024 season with detections of Phytophthora agathidicida (P.a) in 39 of these samples and 80 in Phytophthora cinnamomic (P.c).
The 39 positive samples were laboratory tested with some having secondary testing for quality and auditing assurance. Management plans and risk assessment surveys are now being produced for the areas that have shown P.a disease. The majority of these sites are located toward the southern end of Taitokerau around Pukekaroro and Kaiwaka. This high level of infection is not uniform or typically found elsewhere throughout Taitokerau and in the coming year soil sampling is planned for further north to assist with building trend information around the levels of infection and if these are changing on an annual basis.

Fencing installation

Fencing has also been a major activity during the last year and is used to protect kauri forest from wandering stock and wild animals. Cyclone Gabrielle has caused widespread damage to many fences, with noticeable damage in the Kauri Mountain, east coast area. Thirteen projects have been completed including remedial work at Kauri Mountain, and 3354 metres in total of fencing has been completed across Taitokerau during the last year.

Gorge road Maungatoroto- Fencing encircles this kauri grove and prevents disease spread caused by wandering cattle

Track upgrades

Three major track upgrades were also undertaken at a total cost of $568.7k to protect kauri roots from damage. These were based along the east coast of northland at Helena Bay, where 928m of walking track and drainage works have been installed, Whangamumu which comprised 200m of elevated boardwalk and Te Rawhiti, which received 884 metres of track upgrade originally started in 2023. Boardwalk design and placement has been key element of the track upgrades. In addition to the track upgrades, 12 new barrel and grate hygiene stations have been installed and a further 2 upgraded at the Waitangi Treaty grounds. A key performance indicator for hygiene station installation in 2023-24 was set at five units and that target has been exceeded.

Phosphite treatment

Contractors have treated over 700 kauri during the last year with phosphite in 3 separate areas, Kaipara west coast, Kaiwaka central and Kauri Mountain. The aim is to conduct biennial inspections of these trees with drone surveillance and photo obliques to monitor the overall health of the tree and document changes

Site	Year	
Kaipara West / Greenhill Road site	2024	54
Kaiwaka / Pukekaroro reserve	2024	571
Kauri Mountain	2024	78
TOTAL		**703**

Education and mana whenua collaboration

The Kauri Protection Team collaborated with more than 11 iwi/hapu across Northland during the year was as part of education and engagement events with workshops, school visits and hui. One event at Ka Uri in Kaitaia staff engaged with 55 mana whenua from across Tai Tokerau who came together with agencies to share learnings about kauri protection.

The ability to support hygiene needs with material items such as barrel and grate hygiene stations and sharing our educational tools for mana whenua to advocate in their own rohe has resulted in positive feedback from hapū.

Collaboration between NRC, DOC and mana whenua who all engaged in a weeklong Kauri Protection education event.

Iwi/hapū engagement

Iwi/Hapu	Type of Engagement	No. Kaitiaki
Ngāti Rēhia	Kaimahi Training in kauri Protection as part of the sika deer programme	41
Te Roroa	Hui, collaborative field days site	9
Ngāpuhi	Rongoa workshop	18
Te Rarawa	Hui, Workshops, Kauri assessments, support	23
Ngāti Wai	Support, Hui	9
Ngāti Kuri	Support, Hui, Education	4
Ngai Takoto	Support, Management plans	4
Whangaroa Trust		
Rohe Hapū	Support, Soil sampling, Assessments, Hui	16
Te Uri O Hau	Support, hui	3
Te Aupouri	Site Assessments, Education, Hui	4
TOTAL		**131**

Other engagement

Who	Type of Engagement	No. Kaitiaki
Regional council staff	Kauri protection workshop	44
District council staff	Basic hygiene practices training, hygiene kits supplied	3
School students	Education and VR e-learning tool	358
Customer enquires	Kauri protection education	19
Local tramping club	Kauri workshop training	40
Local pig hunting club	Sponsorship of local club	20
TOTAL		**484**

Virtual reality

The use of virtual reality headsets (VR's) has played a significant role in education forums led by the Kauri Protection Team over the last year. Approx 600 students have viewed the kauri classroom app over the last year interacting in a virtual world which showcases Omahuta and Waipoua forests including Tane Mahuta. The students are highly engaged, and the VR imparts information on how to prevent disease spread and protect our forests.

Performance Measure	Result	Details
Community engagement – events and collateral Deliver a minimum of 10 public engagement events annually.	**Achieved**	

Refer Appendix for more details	2021-2022	2022-23	2023-24
Field Days / A&P Shows	0	2	9
Community events (includes sponsorships)	0	3	11
School visits	6	12	19
Stakeholder activities	12	N/A	
Kauri protection workshops	11	3	44
Pig hunting competitions	4	2	20
Total events	**33**	**22**	**103**
Collateral distributed – hygiene kits	200	255	
Collateral distributed – Visitor's flyer	0	3,000	
Collateral distributed – All flyers	500	-	-
Collateral distributed – Waitangi flyer	50,000	-	-
Collateral distributed – Tiakina kauri bags etc		120	

Key Performance Indicators/Measures	Achieved	Comments
Soil Sampling 100% of remaining aerial survey sites on private land will be sampled and a minimum of 50% of high risk sites will have management plans.	**Achieved**	Dry summer conditions have allowed for an extended period of soil sampling this year. Two positive sites were confirmed in 2022- 2023 (very low sampling effort due to wet weather) cf 39 sites confirmed in the last year. Eight high risk sites have been identified thus far with 4 management plans *completed to date.
Maintain a record of distribution of *P. agathidicida* disease across Northland. Recorded on national and council data systems.	**Achieved**	The national database holds maps of disease distribution
Follow up Soil Sampling Sample five previously sampled sites in order to reconfirm the status of the site with regard to the presence of *P. agathadicida.* A sample of 10 previously sampled trees from existing sites are tested to determine the extent of pathogen or disease.	**Achieved**	Five follow up sites have been sampled and compared with 13 samples previously supplied. Most of these have tested negative for the disease.

<table>
<tr><th>Key Performance Indicators/Measures</th><th>Achieved</th><th>Comments</th></tr>
<tr><td>Hygiene stations
A minimum of 5 hygiene stations installed at priority sites.</td><td>Achieved</td><td>A total of 12 barrel and grates have been installed, and 2 supplied
<table><tr><th></th><th>2020-21</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Stations installed</td><td>11</td><td>14</td><td>12</td></tr></table></td></tr>
<tr><td>Community engagement
Deliver a minimum of 10 public engagement events annually. This includes workshops and school visits.

Incident response times
All incidents are recorded, and a response plan is developed within 20 working days.
Evidence held on council database.</td><td>Achieved

-</td><td>28 contractor/community workshops, school visits, field days, other shows, and hui – up 12 on the previous year

Data not available at the time of preparing the report- between 16 and 18 incidents each year have been responded to over the last 3 years.
<table><tr><th></th><th>2020-21</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Incidents reported</td><td>18</td><td>16</td><td>22</td></tr></table></td></tr>
<tr><td>Management plans</td><td>Achieved</td><td><table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>Total</th></tr><tr><td>High risk properties</td><td>2</td><td>N/A</td><td>8</td><td>10</td></tr><tr><td>Plans prepared</td><td>2</td><td>N/A</td><td>4</td><td>6</td></tr></table></td></tr>
</table>

** The purpose of the management plan is to limit the spread of disease to surrounding areas and is usually applied to areas where disease positive trees have been identified. A plan may also include disease free areas to mitigate the risks posed to significant heritage sites or reduce adjacent populations of animal vectors.*

Currently staff have management plans with landowners for

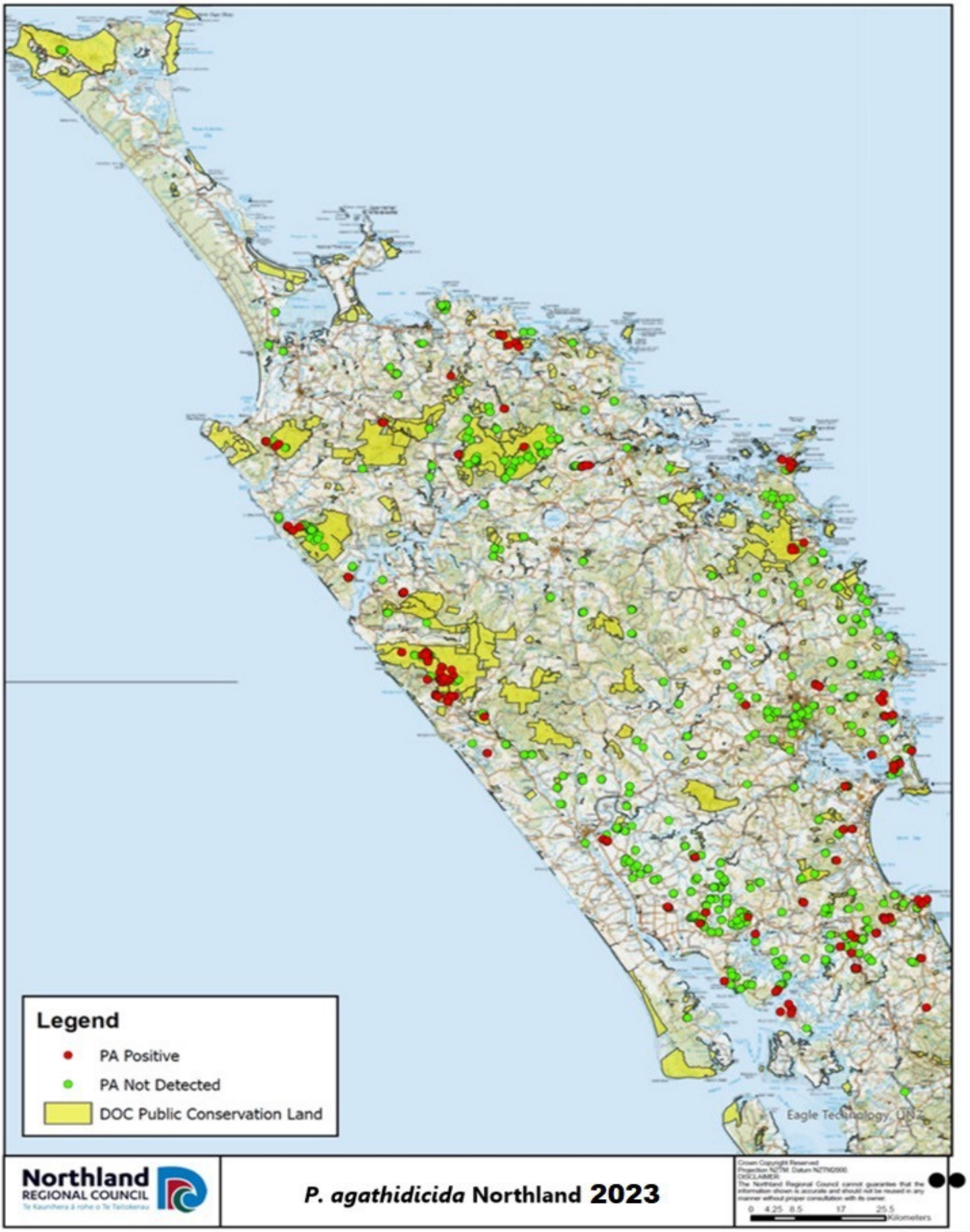
- Maruni Conservation Ltd
- Harambee Road
- Baldock Road- Kaiwaka
- Kauri Mountain

Expenditure 2023-24

A total of 1,264,691 of operating budget was utilised during the year on kauri protection throughout northland. Biosecurity New Zealand allocated $850,000 and the Northland Regional Council contributed $414,691 plus the labour hours of four full time staff.

Expenditure 2023-24	Amount
Track Upgrades	568,700
Soil sampling	107,600
Publicity/Education and promotions	57,000
Fencing	108,690
Surveillance monitoring	125,000
Wild animal control	285,000
Training and national meetings	12,701
TOTAL	**1,264,691**

[1] *Events were cancelled by Covid-19.*


Legend
PA Positive
PA Not Detected
DOC Public Conservation Land
Eagle Technology, LTD
Northland
REGIONAL COUNCIL
P. agathidicida Northland 2023
Crown Copyright Reserved
DISCLAIMER
0 4.25 8.5 17 25.5
Kilometers

8. Freshwater Pests
Riha wai māori

Exclusion freshwater pests

Key points of the exclusion freshwater pest programme

<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>Not applicable</td><td><table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>Confirmed incursions</td><td>0</td><td>0</td><td>0</td></tr></table></td></tr>
<tr><td>The Exclusion incident investigation
Initial investigations for all reported sightings and/or discoveries of exclusion species undertaken within 5 working days.</td><td>Not applicable</td><td>No reports of exclusion species</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>No reports of exclusion species</td></tr>
<tr><td>Incursion response plans
Develop surveillance and incursion response plan for at least one vulnerable high value biodiversity and/or culturally significant site annually.</td><td>Partially Achieved</td><td>As part of the Mahi Tahi Pest Fish Programme, the team has established new partnerships with Te Uri o Hau and Ngāti Kuri. The initial phase focuses on training in pest fish surveillance techniques, utilizing advanced camera technology, bathymetry mapping, netting, eDNA analysis, and best-practice biosecurity hygiene protocols. In collaboration with Ngāti Kuri and the NRC Biodiversity and Policy teams, we are also supporting the development of the Ngāti Kuri Wai Māori Monitoring Plan, which will include a targeted biosecurity response plan for Ngakeketo (expected to be completed 24/25 financial year). In parallel, we are engaging with Te Roroa and Te Kuihi, building on the recent gold clam response work to develop surveillance and response plans for the Kai Iwi Lakes complex (Taharoa, Kai Iwi, and Waikare).</td></tr>
</table>

Orfe

Follow-up work at Martins Dam (Paparoa), a potential historic release site for Orfe, was limited due to DOC resource constraints following a restructure within department which lead to a change in their freshwater biosecurity capability. The results of the DNA tests to determine if the fish are Orfe are still outstanding. Given the interest in confirming the presence of Orfe NRC plans to discuss with DOC the possibility of using rotenone to eradicate fish from the lake. A feasibility survey is planned for the 2024-2025 year to evaluate the practicality and implications of this potential eradication effort.

Performance Measure	Result	Details

Preparedness for the invasive Freshwater Gold Clam and Check, Clean and Dry Programme.
Freshwater gold clam is a recent New to New Zealand incursion in the Waikato River and a part of Lake Taupo, and there is a risk that the clam could be transported to other waterways via contaminated watercraft and equipment.

New information pamphlets and posters were distributed to provide visitors with essential information about risk posed by the Freshwater Gold Clam and how to take action to prevent the spread (Check, Clean, Dry). Information signage has been installed at key recreational lakes in Taitokerau where high-risk activities such as motorised boats and jet skis are popular. These signs inform visitors about the risk posed by the clam and how to report if they see something unusual.

Staff efforts were particularly focused on Lake Taharoa – Kai Iwi Lakes, due to its status as the region's highest-risk recreational lake, receiving an estimated 75,000 visitors annually. Over the summer, a joint social media campaign with Kaipara District Council was launched targeting visitors to the region. This campaign aimed to raise awareness and ensure the community understood the requirement to Check, Clean, Dry their gear before entering our waterways.

Kaimahi from Te Roroa, the Kaipara District Council, Johnson Contracting, and council conducted biosecurity checks on watercraft visitors to Lake Taharoa during peak visitor periods (labour weekend and the summer holiday period from December 2023 to February 2024). The checks involved stopping and inspecting all types of watercraft, including jet skis, boats, and kayaks along with their trailers. A visitor survey was conducted at the same time.

Almost 2000 surveys were completed with the aim of gathering insights into visitors' origins, their activities at the lake, other potential destinations in Taitokerau, and their awareness of the current biosecurity threat posed by the clam.

Of visitors surveyed, 47% identified as having travelled from within the Northland region with Auckland closely following at 45%. There were 25 visitors from the Waikato region (2%). A portion of these visitors self-identified as having been in the infected area only two days prior.

Elsewhere staff have also participated in or organized various outreach and education activities, including regional information wānanga and speaking engagements at regional and national freshwater events. These events were conducted in collaboration with organizations like Mountains to Sea, DOC, Landcare Trust, and the Northland Freshwater Working Group.

Pre and post summer eDNA surveillance at six key lakes was also completed with no gold clam being detected.

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

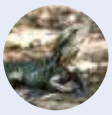
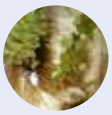
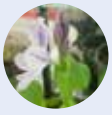
Performance Measure	Result	Details
Identify new sites Identify new sites of freshwater eradication pests through passive and active surveillance by council staff, the public, or through regional surveillance.	**Achieved**	New sites identified: **2021-22** / **2022-23** / **2023-24** **Red-eared slider turtle**: 12 (12) / 2(2) / 7(7) **Eastern water dragon**: 1 / 1(1) / - **Snake-necked turtle**: - / - / - **Nardoo**: - / - / 1(1) **Salvinia**: 2 / 3 / - **Water hyacinth**: / 4 / - 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.

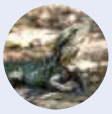
Red-eared slider turtle
During the 2023-24 period, there were seven reports of red-eared slider (RES) turtles:

- **Whangarei** (Waiarohia Stream): Two reports (likely same turtle), were unable to be confirmed during investigation and the turtle has not been sighted since. This site will remain active but unconfirmed – additional activities will rely on public sighting to determine exact location for follow up.
- **Kerikeri:** Two reports were received from landowners in Kerikeri. The first, at an irrigation lake, was confirmed by NRC staff with a turtle observed basking. Trapping is challenging due to multiple basking sites, but the landowner plans to install a trap once debris is cleared. Efforts will continue into 2024-2025. The second report, an unconfirmed sighting at a paddock off Redcliff Road, is possibly linked to the nearby lake population. Trapping efforts here are ongoing, using fyke nets and baited cage traps.
- **Kaikohe:** One report came from a private lake, where a basking trap was set without success. The turtle has not been seen for four months and may have moved. The landowner will report any future sightings.
- **Dargaville:** A RES turtle was handed into the NRC office and has been rehomed under new protocols. All rehomed turtles are now microchipped, and prospective owners must sign a register and have their pond site assessed by NRC staff before receiving the turtle.
- **Rawhiti:** A RES was captured by a landowner basking on the bank of their small pond and handed in to NRC. The turtle has been used by NRC as a live display at field days as an education tool highlighting the issues with RES.

Performance Measure	Result	Details
Eastern water dragon There were no reported sightings of eastern water dragon for the year ending 2023/24. **Nardoo** One site of Nardoo was found in a garden pond . The site was hand removed by a Biosecurity Officer and will be monitored to see if further control is needed. This is the only known active site in the region (the previous site was declared eradicated last year.		

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.	**Achieved in part**	<table><tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr><tr><td>**Incidents reported**</td><td>19</td><td>4</td><td>8</td></tr></table> Seven reported sightings of RES were made by the public 2023-24 and investigated by NRC staff of these 2-site visits were able to confirm presence (Kerikeri & Kaikohe) and 3 site visits were unconfirmed (as discussed above). 1 turtle was retrieved and rehomed according to new NRC protocols. No reports of eastern water dragons in 2023-24
Staff capacity for freshwater animal work continue to limit resolving new reports of eradication species alongside managing other freshwater pest species across operational sites. The large population of red-eared slider turtles identified in Kerikeri will require more resourcing and effort to determine strategies around trapping and management control. These processes will be developed over the 2023-24 year with the support of external experts through the red eared slider turtle working group.		
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 2023-24			
Eradication species		**Results**	**Details**
	**Eastern water dragon**	**Not applicable**	No active management sites.
	**Eel grass**	**Not applicable**	No active management sites.
	**Nardoo**	**Not applicable**	No existing active management sites requiring inspection in 2023-24 as the only known site in the region was declared eradicated last year. The newly discovered site was controlled and has been added to the inspection rotation for 2024 2025.
	**Red-eared slider turtle**	**Not achieved**	There are 17 sites where turtles are considered to be present based on sightings and reports. Four sites still remain classified as 'undetermined' because of the unverified nature of the reports, or the detail provided. No trapping or surveillance work was undertaken at any of the sites due to limited capacity and weather conditions.
	**Salvinia**	**Not applicable**	Sites are managed by the Ministry for Primary Industries.
	**Senegal tea**	**Achieved**	Annual inspection undertaken for the one active site.
	**Snake-necked turtle**	**Not applicable**	One reported sighting in 2023-24 in the Waitangi Wetland (unconfirmed). The site encompasses a large network of different watersheds with dense wetland areas and marshlands difficult to navigate or search for the turtle. NRC continues to work with the landowner to provide further updates on sightings.
	**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
		2020-21	2021-22	2022-23	2023-24	
	Eastern water dragon	0	1	2	0	No active or monitoring status management sites. See above for further details
	Eel grass	0	0	0	0	No active or monitoring status management sites.
	Nardoo	0	0	0	1	One newly discovered site in 2023-24
	Red-eared slider turtle	5	16	17	20	14 historical sites listed as active management sites and 3 new RES sites added this year (2023-24) from Kaikohe, Kerikeri and Waiarohia where RES are believed to be resident.
	Senegal tea	2	2	0	1	One active management site with 20m2 infestation area, that had some possibly mature foliage, controlled in spring prior to any seed set.
	Snake-necked turtle	0	0	0	1	One new reported sighting in the Waitangi Wetland (unconfirmed).

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>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Public reports</td><td>6</td><td>2</td><td>2</td><td>8</td></tr>
</table>
We received 8 new reports of freshwater progressive containment species in 2023-24. For each report, initial response time targets were met. However, actual netting and surveillance operations took a little longer to initiate because of the resourcing required and weather conditions holding up fieldwork.
</td></tr>
<tr><td colspan="3">Incident investigation details

There were 8 reports of freshwater progressive containment species investigated in 2023-24.

A report of koi carp in the Kaihu River (outside the koi containment zone) was investigated. Netting operations confirmed the presence of goldfish and catfish but found no koi carp. Any goldfish or catfish caught as bycatch are removed and disposed of. Similarly, reports by a landowner of orange fish in a small drain feeding into the Awakino River (Dargaville) were followed up with a netting operation where no koi carp were captured. eDNA sampling in a farm dam on Shoemaker Road Dam (Waipu) revealed no koi carp present in the dam and follow up netting is required to confirm the absence of koi carp (2024-2025). Reports of koi carp in the Manganui River (Outside Containment) by a farmer were followed up with a netting operation where only catfish were captured. Additional netting and eDNA sampling is required to confirm koi presence (2024-2025). Multiple reports of orange fish in the Hatea River and Kaka Street drain (Whangarei) were linked to the same population of goldfish which have been confirmed from catches taken between 2022-2024. No koi have been collected in the site. Similarly, a report of orange fish in the Rangitane Loop Pond (Kerikeri) inside containment zone was confirmed as goldfish after a site visit. Two other reports were received but were discounted as not being reliable.</td></tr>
</table>

Maintain distribution record Maintain an updated distribution record of progressive containment pest fish species.	**Achieved**	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).
Annual status reports Training, surveillance, control, and eradication actions attempted for progressive containment pest fish species will be reported annually.	**Achieved in part**	Refer to species specific status and management summaries below.
Community Engagement Attend at least 2 community events (annually) to advocate and promote public awareness and biosecurity best practice around pestfish	**Achieved**	Attended 14 community events. See section on Preparedness for the invasive Freshwater Gold Clam and Check, Clean and Dry Programme for a summary.
Management tools and technology Investigate the use of new management tools and technology around pestfish detection or control	**Achieved**	We have developed a new camera surveillance system, to detect pest fish in high-value biodiversity and culturally significant dune lakes, including Kai Iwi. This tool is being trialled in collaboration with mana whenua, including Te Roroa at Kai Iwi Lakes, Te Uri o Hau at Lake Swan and Parawanui, and Ngati Kuri at Lake Ngakeketo (Te Paki).

The scale and intensity of management actions required to confirm the presence or absence of pest fish, such as through netting, combined with seasonal limitations that affect fish activity (e.g. water temperature), make delivering an efficient and effective pest fish program highly challenging and resource intensive.

The recent addition of a fixed-term FTE for the 23/24 year significantly boosted the ability to conduct surveillance and response activities. Leading to more effective field responses, including netting and eDNA investigations for eight new koi carp reports, while also enabling surveillance at 14 active koi carp sites, covering a total of 21 sites for the 2023-24 season. As a result, two long-standing undetermined koi carp sites were re-evaluated and confirmed as koi-free.

The program has also begun shifting to a partnership-based delivery model 'Pest Fish mahi tahi', with NRC working closely with the Department of Conservation, Fish & Game and hapū and Iwi for managing pest fish across the region. The programme includes supporting the training of kaitiaki in pest fish surveillance and incursion response, while also emphasizing the importance of using best practice biosecurity measures like the Check Clean Dry to mitigate the spread of freshwater pests when operating in freshwater

Figure 3: Freshwater Pest Display at Dargaville field days event featuring two live turtles Snappy" and "Uguay" to promote awareness around red eared slider turtles.

Management and eradication actions in 2023-24

Annual reporting on the status and number of new sites regarding Progressive Containment freshwater pests, associated training opportunities, pestfish surveillance, control, and eradication actions attempted during 2023-24 are outlined below. The summer season prioritised surveillance netting and eDNA

Koi carp

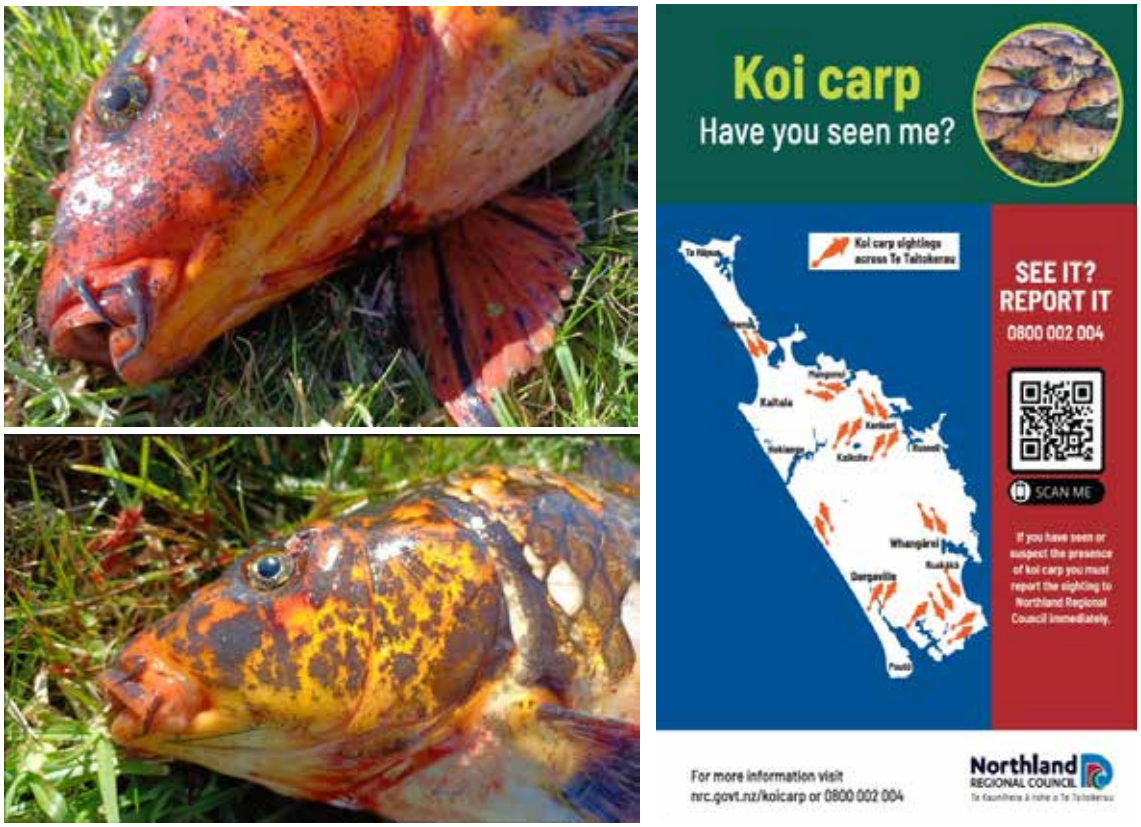


Figure 2: Two koi carp captured in the Waipu golf course pond during a netting operation in May 2024 (Top and bottom left) and Koi carp distribution map created for the March 2024 field days event illustrating the status of koi carp incursions throughout Northland (right).

Confirmed sites outside the containment area (2 sites)

Location	Type of site	Date confirmed	Activity undertaken 2023-24
Lake Ōmāmari	Dune lake/ wetland	2012	Historically NRC has been unable to access this lake. However, recent discussions with the landowner in 2023-24 were successful, allowing us to conduct eDNA sampling. No koi carp were observed or detected via eDNA results. The lake often dries out in summer, which may explain the lack of koi. No further sampling is planned unless the landowner reports new sightings.
Kaingaroa – Mangatete River	River system	September 2020	This site remains undetermined (Mangatete River) since the capture of one fish in 2020. No further koi were captured in past netting operations 2021-2022 and 2022-23 and 2023-24. This work has been carried out in partnership with DOC and will look to continue in new areas of the Mangatete using eDNA sampling in 2024-2025.

Potential sites outside the containment area to be confirmed (15 sites)

Location	Type of site	Activity undertaken 2023-24
Kaitaia, Awanui and Karemuhako River	Stream	As a result of corroborating eDNA analyses and extensive netting operations delivered over the past 3 seasons across the breadth of the Awanui and Karemuhako river systems, there is no clear evidence of koi carp in the river. Similarly, reports this year in the same site were confirmed to be goldfish consistent with past reporting patterns. Based on this the status of this site will be moved to "undetected". While no further monitoring would be required for this site, this would be useful site to trial our underwater camera surveillance setup as the water clarity in this river is reasonably clear. This trial will commence in the new year 2024-2025.
Kai iwi Lakes, Taharoa and Kai Iwi Lakes	Lake	Although active koi carp surveillance was not carried out, eDNA sampling in Lake Kai Iwi, Taharoa and Waikare during 2023-24 as part of the gold clam surveillance programme. No gold clam or koi carp were detected in the lake. Ongoing Incursion Response Training for Lake Waikare and Taharoa will be carried out in partnership with Te Roroa and KDC moving forward into 2024-2025.
Martins Dam	Dam	Follow-up work at Martins Dam (Paparoa), a potential historic release site for orfe, was limited due to DOC resource constraints following a restructure within department which lead to a change in their freshwater biosecurity capability. The results of the DNA tests to determine if the fish are orfe are still outstanding. Given the interest in confirming the presence of orfe NRC plans to discuss with DOC the possibility of using rotenone to eradicate fish from the lake. A feasibility survey is planned for the 2024-2025 year to evaluate the practicality and implications of this potential eradication effort.
Tangowahine, Awakino river	River system	Despite technical challenges, a surveillance netting operation was carried out in the Awakino River, in Feb 2024 in partnership with DOC. No koi were captured through netting or eDNA surveillance although catfish and goldfish were detected. A more concerted netting effort and eDNA sampling operation will be carried out in 2024-2025.
Tauraroa River	River system	In December 2023, NRC and DOC conducted a netting operation in the Tauraroa River, capturing goldfish and catfish but no koi carp. Previous eDNA surveillance results, also have detected goldfish and catfish but not koi. This year's sampling extended 10 km further downstream from the initial sites, consistently showing the presence of goldfish and catfish. Further surveillance is planned for 2024-2025.
Parapara stream, Taipā	Stream	No surveillance was conducted in the Parapara Stream this year due to the need to prioritize higher risk sites. Previous mis-identifications of goldfish as koi carp, along with reports of goldfish releases by a landowner are consistent with past surveillance results. Both netting and eDNA have repeatedly indicated the presence of goldfish but no koi have been detected. Therefore, the site's status regarding koi carp should be updated to "Not Detectable."

Location	Type of site	Activity undertaken 2023-24
Ruawai Molloy Dam	Drainage canal & Pumping Dam	During the January 2023 summer surveillance, water levels in the Ruawai drainage canal were too low for netting. However, a farmer reported finding a koi carp in his cattle trough, which was investigated, revealing only goldfish. The fish likely entered the trough from a nearby drain fed by a large dam on the property. eDNA sampling and small-scale netting will be conducted in 2023-24. In January 2024, eDNA sampling was carried out at Molloy Dam in collaboration with DOC. Results confirmed the presence of goldfish, consistent with those found in the farmer's trough. Due to other site visit commitments, we could not confirm eDNA findings with netting this year, but follow-up netting is planned for 2024-25.
Arapohue – Tramline Drain	Drainage canals	A netting operation was carried out in the Tramline Drain network in January 2023 during a major flooding event on the basis that pest fish access into the drainage network from the Wairoa River would be highly probable. However, despite significant widespread flooding in Dargaville and Ruawai districts (Jan 2023), water levels within the drainage network were still significantly low. No koi were captured within the drains and gill nets were only able to be set within a few fragmented pools. Additional information on the frequency of the floodgate usage will be sort from the Kaipara District Council will support timing of future netting efforts in the drainage system.
Makaka Creek, Te Kōpuru,	Creek	The river system had recently been dredged likely contributing to the lack of fish. A netting operation in the 2024/25 is planned.
Mountfield Road Dam	Waipu Farm Dam	Mountfield Road Dam is a known koi carp site (within the containment zone), with hybrid (koi goldfish populations). No surveillance was delivered by NRC this year to high workloads. However, DOC carried out a small-scale netting operation in May 2024 as a training operation capturing several hybrid koi carp. NRC are planning to deliver a feasibility survey 2024-2025 on the possibility of using Rotenone at this site.
Shoemaker Road Dam Waipu,	Waipu Farm Dam	Additionally, the landowner of Mountfield Road Dam requested NRC carry out surveillance in another dam on Shoemaker Road Dam (Waipu) to determine if koi were present. Shoemaker Dam is a considerably large farm dam. We completed an eDNA composite sample around the lake and no koi carp were detected. Status UNDETECTED.
Matapouri	Ocean	A public report of a koi carp sighting at Matapouri Ocean, near the Mermaid Pool, was followed up with a phone call and ultimately closed due to a case of mistaken identity. The orange fish was spotted in the open ocean, well outside the known habitat range of freshwater koi carp, and was likely a goatfish based on location and description of the fish.
Lake Parawanui	Lake	A netting operation in Lake Parawanui was planned for late June in partnership with Te Uri o Hau as a training opportunity, but due to poor weather conditions the operation was cancelled. However, eDNA sampling was carried out in June 2024 and only goldfish was detected, A comprehensive netting operation is planned for 2024-2025 in partnership with Te Uri O Hau. Historically, this site has had reports of koi carp, perch, rudd and orfe so it is surprising not to see any of these species show up in eDNA results.

Location	Type of site	Activity undertaken 2023-24
Kaka Street Drain, Whangarei City (2 reports)	Drain	Two reports were received from the public of koi carp in the Kaka Street drain (Whangarei). The drain has been subject to many sightings over the years, particularly during flood events, including photos of orange and black fish resembling koi. However, recent netting (14 July 2023) revealed the fish were goldfish (fig 3). Many of the fish captured were bright orange and had patches of black colouring on the head and spine matching images taken by the public in previous years.
Hatea River Site (Linked to Kaka Street Drain)	Hatea River	A report of koi carp in the Hatea River was investigated (Jan 15th, 2024) and found to be linked to the Kaka Street goldfish drain located adjacent to the drain outlet, which has a confirmed goldfish population of black and orange goldfish and no koi carp. As noted above koi carp are present. We are looking to change the status of this site as NOT DETECTABLE.
Rangitane Loop Pond (Kerikeri)	Pond	A member of the public walking the Rangitane Loop Walk reported an orange fish thought to be koi carp. The site was investigated and a goldfish was observed.

Figure 3: Goldfish mistaken for koi carp captured from netting operation in the Kaka Street drain in Whangarei City October 2023. Multiple reports of koi carp sightings in the drain (2) and in the Hatea River (1) were based on gold black colourations (see above) but a close up of captured fish show these are goldfish (note the absence of barbels on lower jaw).

Inside the containment area

New pestfish sightings within containment areas continue to be received, the assistance of a check clean dry advocate in responding to these reports has improved our capacity to respond and provide more advocacy, awareness and support to locals and landowners for these species and other workstreams within the pestfish programme. However, these populations represent an ongoing threat for expansion of these pests and there would be added value in further delimiting the progressive containment zones if resources allowed.

Perch

Image of progressive containment perch

Outside the containment area

Confirmed sites outside the containment area (none)

Potential sites outside the containment area (3 sites)

Location	Type of site	Activity undertaken 2022-23
Wairua river, Pīpīwai,	River	A netting operation using fyke and trammel nets was conducted in the Wairua River to assess the presence of koi carp and perch following recent reports from WDC and Fish and Game. The operation captured catfish, eels, and trout, but no koi carp or perch were found. The site is scheduled for further summer surveillance in partnership with DOC in 2025.
Mareretu	Pond and stream	No surveillance was conducted at this site in 2023-24 due to capacity constraints. The site was identified for monitoring based on a reference in a 2014 NIWA report. Surveillance is planned for the 2024-2025 summer work streams.
Kaihu River, Dargaville	River	In January 2024, NRC and DOC conducted a collaborative netting operation in the Kaihu River, capturing goldfish and catfish but no perch or koi carp. Further netting is planned for February 2025, extending to a broader area of the river.

Inside the containment area

There are only a limited number of sites known to occur within the three containment areas, and these are relatively discrete sites. Progress will be made on managing the risk posed by these sites with additional FTE help and our surveillance partnership with Fish and Game, DOC and iwi stakeholders through training operations.

Figure 5: Netting operation (Dec 2023) to determine presence/absence of koi carp and perch from recent and historical reports from Fish and Game and WDC in the Waiirua River. Fish captured were catfish and trout but none of the target species. Further netting is planned in 2025.

Tench

Tench caught out of lake Kapoai - Dargaville

Outside the containment area

Confirmed sites outside the containment area (1 site)

Potential sites outside the containment area (1 site)

Location	Type of site	Activity undertaken 2022-23
Arapohue	Pond	No surveillance undertaken in 2023-24. The site was added after a reference was found in the Smith Diaries (a summary of historic release activities undertaken by Stewart Smith). The site is considered low priority, as it tends to dry out during drought periods. Operational activities have been scheduled for the 2024-2025 to confirm its status.

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.

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

<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 controlled pests will be responded to within 20 working days.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Public requests</td><td>10</td><td>2</td><td>2</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">Two reports were received from the public regarding sustained control species in 2022-23. The first was an unidentified fish species in Lake Manuwai (see details above).

No active netting was delivered in Lake Manuwai this year (2023-24) for rudd due to the high number of surveillance sites visited already and the need to prioritise gold clam surveillance and incursion planning. However, we were able to carry out eDNA sampling to assess gold clam presence in Manuwai which also served the purpose of pestfish surveillance. No gold clams or rudd were detected through eDNA Netting work is planned in the new year 2024-2025 in partnership with Fish and Game and DOC.</td></tr>
</table>

Community engagement

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Community engagement - events
Total number of engagement activities conducted to increase awareness of freshwater pests is maintained, or greater than the previous year.</td><td>Achieved</td><td>
<table>
<tr><th>Refer Appendix for more details</th><th>2021-22</th><th>2022-23</th><th>2023-24</th></tr>
<tr><td>Field Days / A&P Shows</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td>Community events / waka ama</td><td>-</td><td>4</td><td>5</td></tr>
<tr><td>School visits and workshops</td><td>-</td><td>2</td><td>1</td></tr>
<tr><td>Stakeholder activities</td><td>1</td><td>1</td><td>3</td></tr>
<tr><td>Pest workshops</td><td>1</td><td></td><td>2</td></tr>
<tr><td>Total</td><td>2</td><td></td><td>14</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Community engagement events included the Check, Clean, Dry Campaign, attendance to the Whangarei Agriculture and Pasture show, Paparoa Agriculture and Pasture Show and Northland Field Days.

In addition, Check, Clean Dry training and biosecurity response surveillance tools training was provided to Mana Moana biosecurity ambassadors, Kaipara District Council staff and kamahi rangers from Te Roroa at Kai iwi Lakes.</td></tr>
</table>

9. Marine Pests and Pathways
Riha tai me te huarahi ki mua

Caulerpa removal barge Omākiwi Cove, Bay of Islands

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 encouraging cleaner hulls through a Marine Pathway Management Plan will result in fewer vessels carrying marine pests, such as Mediterranean 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.		
Asian paddle crab	Mediterranean fan worm	Undaria seaweed
Australian droplet tunicate	Pyura sea squirt	
Japanese mantis shrimp	Styela sea squirt	

Programme implementation 2023-24

Programme implementation in 2023-24 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

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 / 2020-21 / 2021-22 / 2022-23 / 2023-24 **From hull surveillance** 0 0 0 0 **From external monitoring** 0 1 2 2
Exotic Caulerpa (*Caulerpa brachypus Caulerpa parvifolia*) was identified by hapū kaitiaki in Omākiwi, Bay of Islands in May 2023. This is the first time these species were recorded on mainland New Zealand. More information about this response below.		
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**	2020-21 / 2021-22 / 2022-23 / 2023-24 **Range Extension Reports** 1 2 0 0

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**	New Pests Reported / 2019-20 / 2020-21 / 2021-22 / 2022-23 / 2023-24 **Hulls surveyed** 2,048 2,144 2,060 2,037 2,049
2049 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**	Vessel compliance / 2019-20 / 2020-21 / 2021-22 / 2022-23 / 2023-24 **Overall compliance** 47.5% 44.6% 51.3 55% 45% **Incidents** 145 169 194 136 222
Hull surveillance and vessel compliance data is reported monthly in the Chief Executive's report to council. Approximately 45% of the vessels inspected met the required biofouling threshold and had no marine pests present. These vessels would be compliant with the Marine Pathway Management Programme rules if the vessel moved between designated areas. This compliance rate is a reduction from recent years (2021-23) and is a return to lower compliance levels witnessed in 2019-21. Reasons for this reduction in compliance are unclear, however the 'Clean Below? Good to Go' educational campaign is ongoing, emphasizing to vessel owners the importance of having clean hulls before moving. The messaging and imagery associated with this campaign has recently been extended to include other boating equipment such as anchors and fishing gear, to bring attention to other potential pathways for marine pests. The number of incidents (vessels with at least one marine pest) also increased in 2023-24. As there were no species range extensions recorded in 2023-24, it is possible this increase in pest presence is a result of increasing pest populations in known locations, therefore making attachment to vessel hulls more likely. Investigation of methods to reduce this risk are ongoing (see case study; 'Marsden Cove Trial').		

CASE STUDY

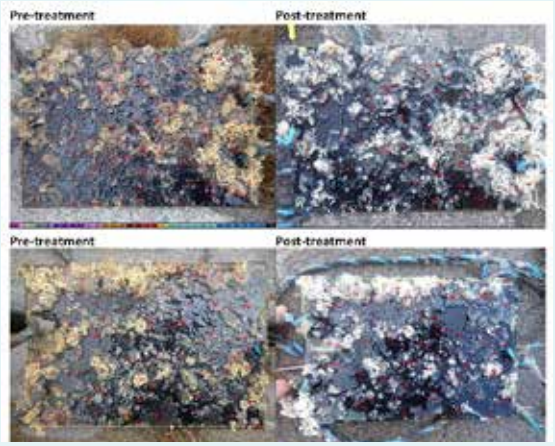
Marsden Cove Trial

The upper North Island is home to more than 70% of New Zealand's domestic maritime vessels. This includes around 20,000 recreational boats and 1,300 commercial boats that are moored or berthed in the water most of the time. With a coastline of accessible bays and good anchorages and coastal towns, the regions in this area are tightly interconnected, with sea travel easy and frequent. Marine pest species can be inadvertently moved between these coastal areas as 'hitchhikers' on boat hulls or in the ballast water of larger vessels, and Northland Regional Council (NRC) is actively working to manage and mitigate this risk to the region.

Often populations of marine pests are well established when discovered making eradication a tricky task as current removal/treatment methods are labour intensive and only applicable on small scale incursions. More effective, reliable, and practical treatment tools are needed to reactively manage incursions of pest species. Recently, NRC have been collaborating with Cawthron Institute to trial an encapsulation-based treatment approach for marina berths. This work is funded by the Ministry for Primary Industries (MPI).

A trial in Marsden Cove Marina was carried out between 28 October and 5 November 2023. Marsden Cove has a large, well-established population of the high-profile pest Mediterranean fanworm (*Sabella spallanzanii).* The clubbed tunicate *(Styela clava*) and lightbulb ascidian (*Clavelina lepadiformes*) are also present in the marina providing ideal conditions for eradication treatment trials. The field trial was carried out by Cawthron Institute and NRC Marine Biosecurity staff along with Patuharekeke Te Iwi taiao unit and the dive contractor Marine Environmental Field Services.

Two finger berths of the marina (12 m and 14 m long) were successfully encapsulated and treated using a custom-designed turbidity curtain. After encapsulation the inside of the curtain was treated with chlorine which was distributed evenly around the containment area. Divers carried out ecological monitoring of the two treated berths and a control site before and after encapsulation.



Example photos of biofouling plate image analysis

A berth at Marsden Cove Marina fully encapsulated with a weighted turbidity curtain

Perspex settlement plates had been deployed at the marina by Patuharekeke Te Iwi taiao unit three months before the trial. These plates had an extensive biofouling community present at the time of the trial and were used to assess the effects of the chlorine treatment. The plates were hung at three different depths within the curtain and photographed before and after treatment. The changes in biofouling communities observed aligned with the water chemistry measurements.

An on-site mortality assessment of Mediterranean fanworm was conducted to assess the effect of chlorine on the target organism at each of the treated berths as well as the control site. It appeared that both deployments resulted in mortality of the worms, with considerably higher empty tubes observed on the treatment sites compared to the control site.

The curtain was left in place for 24 hours at each berth. Any residual chlorine was neutralised prior to discharge. Further trials are planned to improve the chlorine gradient observed but initial tests show promising results for this technique as an incursion response tool.

Strengthening national marine partnerships

Marine biosecurity staff are actively collaborating with our regional Top of the North (TON) partners, including Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council, Ministry for Primary Industries, and the Department of Conservation. Together, we have developed and populated a Marine Vessel Portal (MVP). This portal is designed to streamline data collection from users, stakeholders, and partner councils. Key entities such as marinas and haul-out facilities will benefit initially, but eventually, individual vessel owners will also find it easier to manage their biofouling and hull cleaning records through this system.

The MVP serves as a centralized vessel database, pivotal for implementing the Clean Hull Plan (a National Pathway Management Plan under the Biosecurity Act). It will trace and document vessels traversing regional boundaries. Additionally, the portal will allow the public and marinas to access specific information about vessels, whether they're looking up their own or those entering their facilities. Within the Top of the North area, there's an estimated count of 20,000 vessels on moorings and marina berths. This figure represents roughly 90% of all New Zealand's vessels. Impressively, since the onset of this financial year, the TON collaboration has successfully captured information for over 11,000 of these vessels. For the marine biosecurity team and other departments within the Council, the MVP emerges as an invaluable asset.

TON Partnership engagement 2023-24	
Newsletter subscribers	1,999
Facebook – total page likes	689
Facebook - reach	373,000
Facebook link clicks	11,000
Instagram reach	67,500
Website unique visits	17,000
Website page views	24,000
Marine pest ID webinar attendees	100
Google ads and video impressions	Nil
Google ad clicks	Nil
Google video views	Nil

Google advertising campaigns were not run during the 2023-24 Summer due to budget restrictions

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** 2020-21: 15 2021-22: 18 2022-23: 31 2023-24: 28

Incursion responses 2023-24

With support from Biosecurity New Zealand, council has funded several responses to marine pest incursions during. 2023-24

Exotic Caulerpa, Te Rāwhiti

Caulerpa, a genus of green algae was first reported on INaturalist in New Zealand at Aotea, Great Barrier Island in late June 2021. Researchers from NIWA quickly identified the species as being unusual and organized for a sample to be sent for formal identification, this was later identified as two species which are morphologically similar (*Caulerpa brachypus* and *Caulerpa parvifolia*).

In May 2023, haukainga of Te Rāwhiti identified the exotic Caulerpa species, Caulerpa brachypus and Caulerpa parvifolia within their rohe. Once identification was formally confirmed, a collective of BNZ, council and local hapū, initiated a response. Together, hapū, council, and MPI established a joint strategy aimed at eliminating Caulerpa in Te Rāwhiti. Both a rāhui and a Controlled Area Notice (CAN) have been implemented. Furthermore, council and NIWA dive teams have made extensive efforts to gauge the extent of the infestation, using benthic mats and chlorine for treatment.

Caulerpa functions as an ecosystem engineer, dramatically altering our marine habitats. Its propensity to outcompete and replace native seagrasses and other benthic species, has the potential to set off trophic cascades, disrupting the food web from the base upwards. The current Caulerpa proliferation will diminish access to kai moana and significantly impact ecological biodiversity, and our way of life.

The Northland response has been spearheaded by a collaboration between Ngāti Kuta and Patukeha, the Northland Regional Council, and Biosecurity New Zealand. This partnership has concentrated on developing effective removal methods and documenting the ecological impacts of these activities.

Late 2023 Johnson Bros Ltd., engaged by council and hapū, developed a mechanical suction dredge to aid in the removal efforts. Initial testing and modifications were conducted from February to April 2024, followed by a secondary testing phase from April to July 2024. This innovative system, operated from a barge, uses rotating brushes mounted on an excavator arm to suction exotic Caulerpa from the seafloor. The dredged material is processed through two large trommels, which separate the Caulerpa from finer sediment and sand. The Caulerpa is then retained and disposed of on land, while the sediment and sand are returned to the seafloor. Preliminary results are promising, with the system achieving an average removal rate of over 1,000m^2 per day when fully operational. In parallel with mechanical operations, diver-based efforts have continued to support the removal process. Ensuring complete removal of exotic Caulerpa biomass is essential, as the seaweed can regenerate from small fragments. Diver-operated suction dredges have been used to eliminate remnants missed by the mechanical dredge. Divers have also conducted pre- and post-dredge ecological surveys to monitor changes in faunal abundance and diversity resulting from the dredging activities.

Caulerpa brachypus and Caulerpa parvifolia within Omākiwi Cove, Te Rāwhiti Bay of Islands

Wider surveillance for Exotic Caulerpa in Northland

The "Wider Surveillance for Exotic Caulerpa in Northland" project, focused on detecting and managing the spread of invasive algae species, specifically *Caulerpa brachypus* and *Caulerpa parvifolia*, across the Northland region. This initiative was launched following the discovery of these species at Aotea/Great Barrier Island, Ahuahu/ Great Mercury Island, and several locations within Northland itself. Recognizing the threat posed by the spread of exotic Caulerpa, NRC and Biosecurity New Zealand (BNZ) conducted a comprehensive analysis of vessel movements to identify high-risk anchorage sites that could serve as potential pathways for the algae's spread. This informed a targeted surveillance strategy that focused on key locations across 25 harbours, bays, and 19 island groups in Northland.

The surveillance effort spanned 27 days and involved divers systematically surveying 93.3 kilometers of seafloor using a transect method designed to maximize coverage and detection accuracy. The divers meticulously scanned each designated area for signs of exotic Caulerpa, recording their findings using GPS-enabled platforms for real-time data tracking and analysis. These efforts were primarily aimed at identifying new infestations and assessing the effectiveness of current containment measures. Despite the extensive coverage, exotic Caulerpa was only detected at one location—Poroporo Island, within a Controlled Area Notice (CAN) zone—suggesting limited spread outside of this controlled environment.

Upon detection of exotic Caulerpa at Poroporo Island, immediate containment measures were implemented. Divers deployed benthic mats with chlorine tablets over six identified infestation sites to prevent further spread of the algae, following guidelines set by NRC's resource consent. These actions were crucial in containing the infestation within the CAN zone and preventing its expansion to nearby areas. The use of benthic mats and chlorine as a treatment method demonstrated the project's proactive approach to biosecurity management, ensuring rapid response and minimizing environmental impact.

The project underscored the importance of continuous surveillance and rapid response strategies in managing marine biosecurity threats. It also highlighted the need for sustained funding and resources to maintain and expand surveillance efforts to other potential hotspots. The involvement of local communities is essential for the ongoing success of these biosecurity initiatives, helping to safeguard Northland's marine ecosystems from further invasive species incursions.

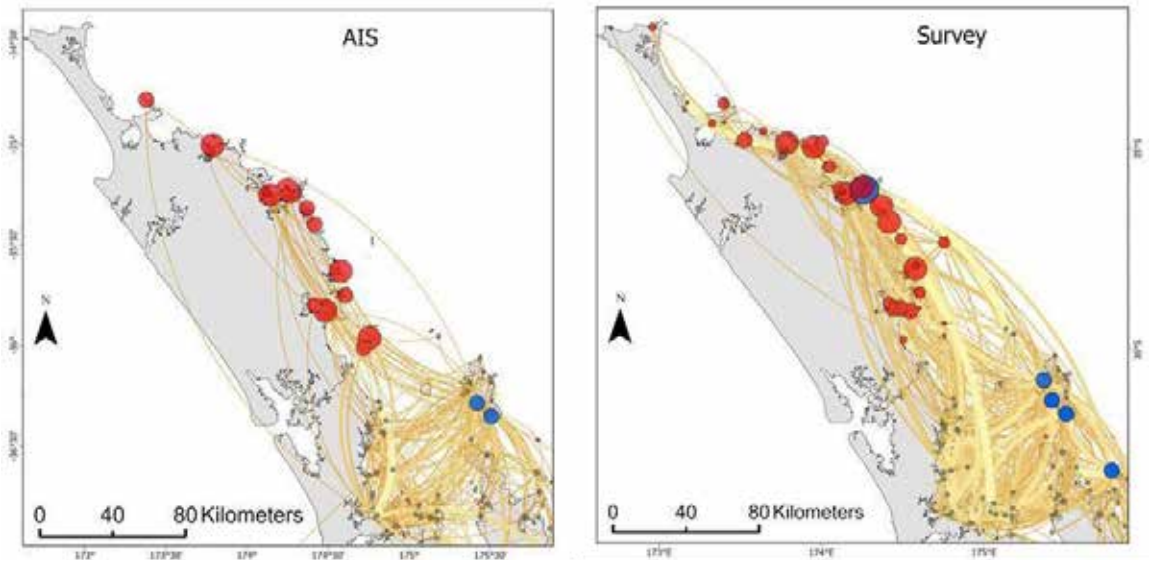


Figure 3- Potential anchoring events along the Northland coast of vessels that had departed locations with known populations of exotic Caulerpa (blue circles) within the 10 previous days. Nodes where potential anchoring events occurred (red circles) are sized according to their relative risk, i.e. the proportion of the total number of Northland anchorage events that occurred at each location. Left panel is for the Automatic Identification System (AIS) data network and the right panel for the Survey data network. Source: Floerl O, Hilliam K, Faubel C, Stevenson S, Treml E. 2023. Prioritising surveillance sites for exotic Caulerpa in Northland. Nelson: Cawthron Institute. Cawthron Report 3952. Prepared for Northland Regional Council.

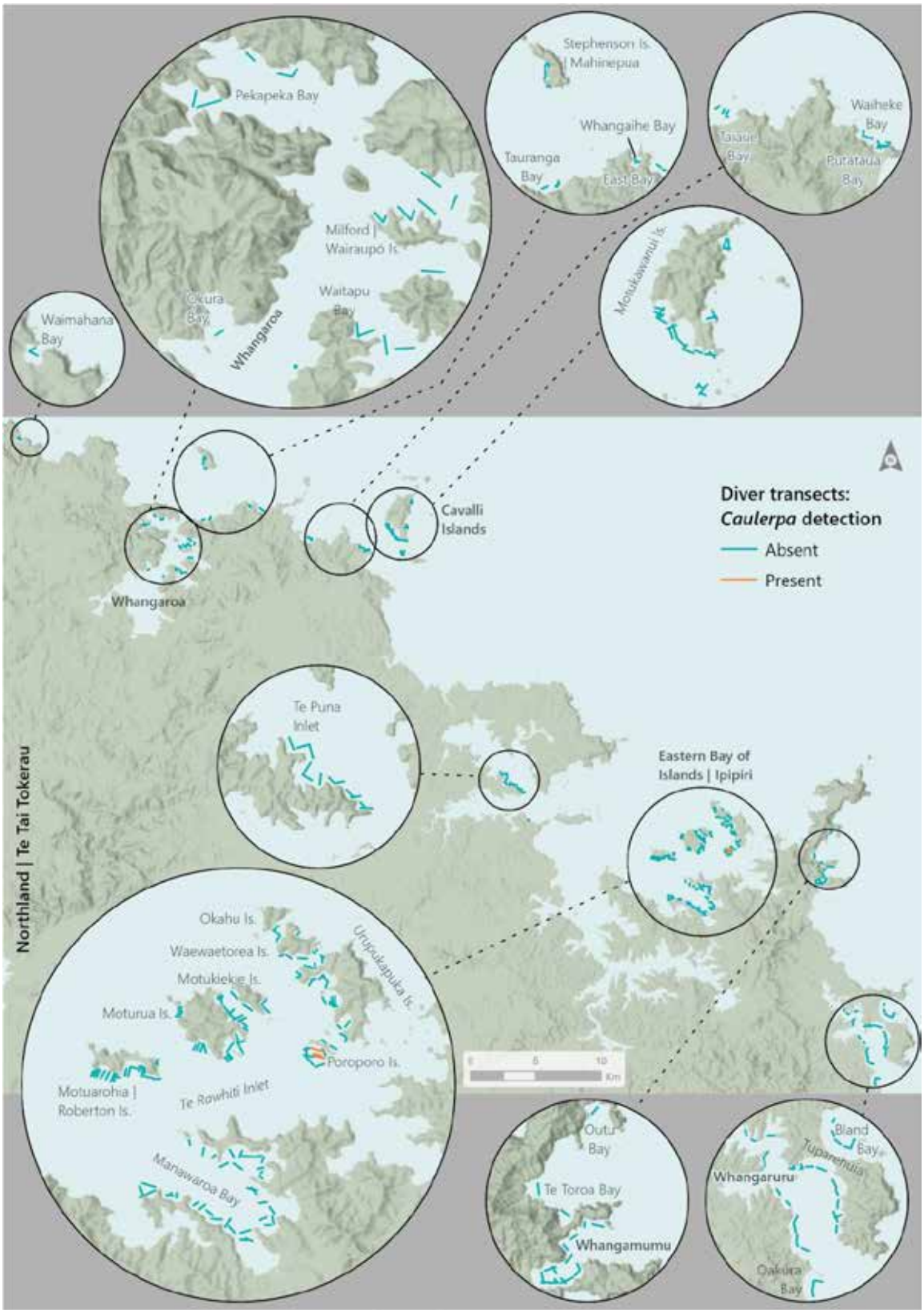


Figure 4 Exotic Caulerpa diver-based transect surveillance from Whangaroa Harbour to the Bay of Islands harbour, including various islands completed between 15th April to 28th April and 13th May to 16th May. Transects with exotic Caulerpa detected are in orange, transects without exotic Caulerpa detected are in blue.

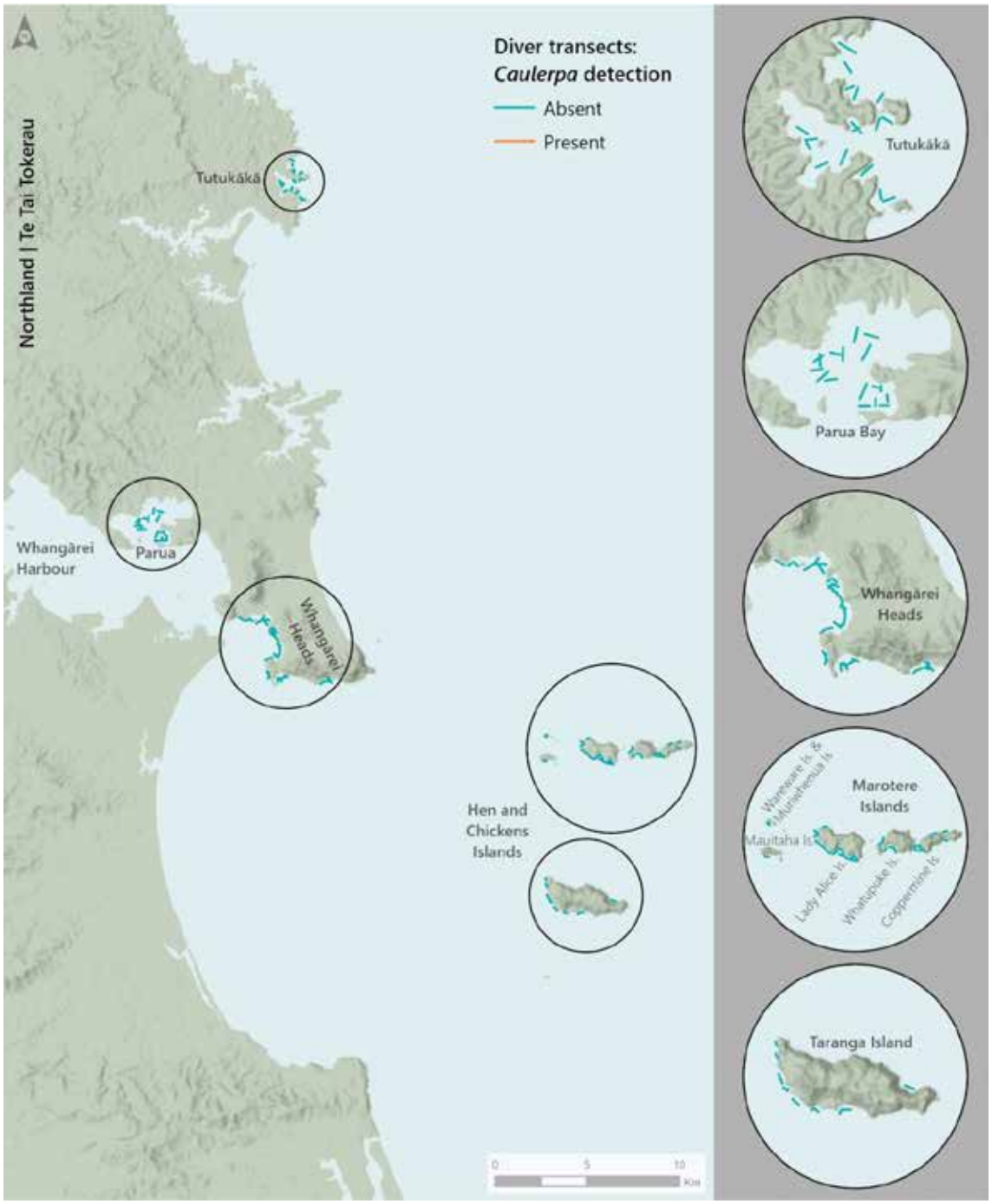


Figure 5. Exotic Caulerpa diver-based transect surveillance from Tutukākā Harbour, Whangārei Harbour and the Hen and Chicken Islands conducted between 1st May and the 12th of May 2024. No exotic Caulerpa was detected in these areas.

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**	

	2020-21	2021-22	2022-23	2023-24
Incident response recorded as > 5 working days	32	24	25	18

Education and Advocacy

Experiencing Marine Reserves

Experiencing Marine Reserves (EMR) is a national programme for marine conservation and education that focuses on providing hands-on experiences in New Zealand's marine reserves.

Marine biosecurity staff presented at the annual EMR hui at the Waitangi Conference Centre in November 2023, the theme of which was Rimurimu (seaweed). Staff spoke about exotic Caulerpa, shared operational updates from the removal trial in Omakiwi Cove, and discussed how hapū and community groups can assist with the incursion response (e.g. remaining vigilant, reporting sightings, raising awareness).

In January 2024 staff undertook training at Reotahi Marine Reserve for EMR on correct techniques for removing Mediterranean fanworm (*Sabella spallanzani*). EMR have a Section 52 permit from MPI to remove fanworm from the reserve, and in January they successfully removed 181 individuals. In February 2024, staff attended an EMR education event at Oneroa to promote awareness of marine pests, with a particular focus on the exotic Caulerpa response.

TriOceans

TriOceans (the Tangaroa Research Institute) is a marine conservation organisation based in the Bay of Islands that focuses on marine conservation through research, education, and community engagement. They coordinate a marine kaitiaki course that offers hands-on experience in marine science for young adults.

Staff ran a marine pest identification workshop for students participating in the marine kaitiaki course. Students learned about the roles and responsibilities of the marine biosecurity team, how to identify key marine pests, and undertook a fanworm dissection.

Sea Week

In March 2024, staff took part in Sea Week activities at Matarau Primary School, hosting a station comprising of dress up as a marine biosecurity officer, a fanworm dissection, learning about marine pest pathways, and marine pest identification.

Marine biosecurity teaching resource

In collaboration with Enviroschools, marine biosecurity staff ran a full day workshop with teachers from across Northland to provide an insight into marine biosecurity, introduce a marine biosecurity teaching resource, and discuss ways this resource could be used in schools. Teachers trialled many of the activities from the education resource, including a marine meter squared exercise in the intertidal zone, a new marine invaders card game, and a sea level rise game. Participants were able to collaborate on ideas for how these activities could be incorporated into differing school environments and curriculums, and how it could be delivered to early childhood years through to high school students.

Marine biosecurity staff giving a briefing on correct removal procedures for Mediterranean fanworm (Sabella spallanzanii) at an Experiencing Marine Reserves (EMR) event in Reotahi Marine Reserve. TriOceans students taking part in a marine pest identification workshop in the Bay of Islands. Northland teachers trialling an activity from the new marine biosecurity teaching resource.

Rāhui Tapu / Marine Protected Areas

Northland Regional Plan

In addition to the Marine Pathway and Pest Management Plan, marine biosecurity staff are implementing the new rāhui tapu (no-take)/marine protection rules in partnership with mana moana hapū which are now operative at Mimiwhangata peninsula and Maunganui Bay (Deep Water Cove) to Opourua (Oke Bay) and include commercial seining and trawling restrictions around Rākaumangamanga (Cape Brett) as shown in the map. These rules were introduced following a decision of the Environment Court in May 2023, and are intended to protect the significant ecological values in these areas which have been severely impacted by fishing.

NRC and mana moana hapū have been implementing these rules under three areas of focus: Communication and Public Engagement; Environmental Monitoring and Compliance Monitoring.

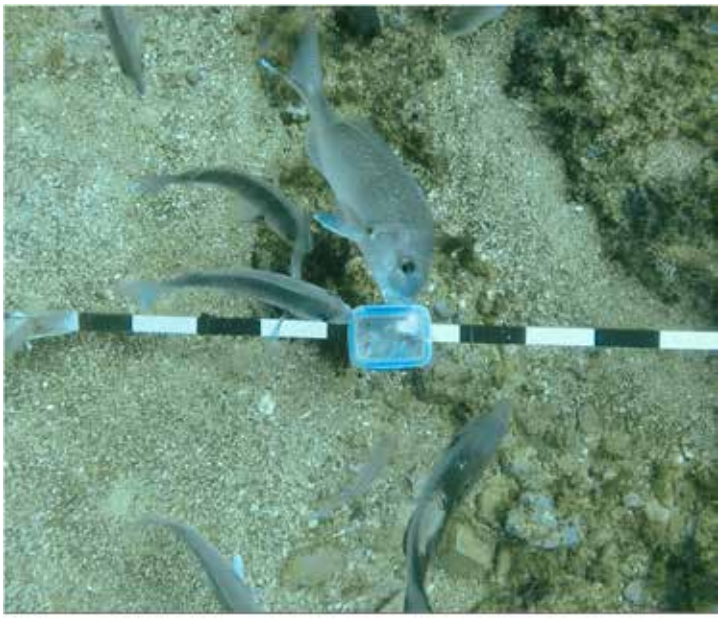
Activities identified	Actions taken
Signage placed at boat ramps and relevant sites near to Rāhui Tapu	Signage is in place at the following boat ramps: Opua; Okiato; Waitangi River; Tapeka Point; Waipapa Landing; Kerikeri Cruising Club; Opito Bay; Rawhiti; Kororareka; Kaimarama Bay; Te Uenga Bay; Windsor Landing; Teal Bay; Ngahau; Ngunguru; Whananaki; Otamure; Mouresses Bay; Tutukaka; Oakura (x2); Bland Bay; Whangaruru Wharf Road; Ohawini
Pamphlets circulated to key stakeholders	Approximately 4,000 pamphlets have been circulated at boat ramps, on-water, via key stakeholders, campgrounds, marinas and snorkelling/diving charterers
Information about the marine protection rules is available on NRC's website and navigational applications	Information about the rules is available on NRC's website, and the boundary coordinates have been uploaded to Navionics, MarineMate, and NZ Fishing applications and have been notified by LINZ
Social media promotion	Social media promotion occurred pre-summer 2023/24, and prior to Easter 2024 and the April school holidays
Local radio advertisements	The MPAs were advertised on Russell Radio as part of NRC's wider Good to Go boating campaign, with additional advertising leading into Kings Birthday weekend
Advertisements and editorial content placement in external publications	Articles have been placed in: • NZ Fishing News • NZ Marina Operators Newsletter • Boating NZ • Gateway Magazine • Huaki • Whangaruru Pothole • Te Hiku Media • Northland Age • Waatea News

Activities identified	Actions taken
Media releases and media liaison	A media release was issued on 14 September 2023.
Messaged merchandise giveaways to target audiences	Drybags and floating keyrings with MPA pamphlets were circulated to the boating public by kaitiaki at boat ramps over the summer period, during on-water surveillance, and via key stakeholders
On-water and targeted boat ramp messaging	An on-water education phase has been implemented, with regular on-water surveillance occurring in both Rāhui Tapu, and presence at targeted boat ramps between 26 December 2023 and 25 February 2024.
Staff/hapū attendance at relevant events	Staff attended the Whangārei Maritime Festival, the Bay of Islands Cruisers Festival, Waitangi Day celebrations, and Funky Fish Competition
Community Education	Experiencing Marine Reserves provided community education (snorkelling days, night snorkel and estuary experiences) in May/June 2024
Kura Education	A "healthy marine ecosystems" Enviroschools programme was delivered in June 2024 offering in-class, pool and moana based learning to kura local to the Rāhui Tapu. 16 schools signed up, reaching over 1,400 students.

Above: Pakaraka School tamariki snorkelling with Experiencing Marine Reserves April 2024. Right: Te Kura o Waikare students learning about kina with Moana Futures.

Environmental Monitoring

Ecological monitoring of the ongoing health of the Rāhui Tapu is essential for measuring the impact of the marine protection rules. NRC and mana moana hapū have commenced discussions surrounding the preparation of broad ecological monitoring plans, utilising historical monitoring sites to obtain long-term datasets of any changes in the environment. A baseline survey of tāmure/snapper has been undertaken in Mimiwhangata Rāhui Tapu with monitoring sites for a kōura/crayfish survey prepared, and the University of Auckland has undertaken a rocky reef survey in Rākaumangamanga Rāhui Tapu.



Snapper (Pagrus aurtus) and a red pigfish (Bodianus unimaculatus) interested in the bait cage of the baited underwater video (BUV) appartus during a survey at Mimiwhangata.

Photos courtesy of Arie Spyksma and Auckland University, taken during the Rakaumangamanga Rocky Reef Survey February 2024.

Compliance Monitoring

Monitoring compliance with the rules is an essential component for the recovery of biodiversity values in the marine protected areas. As the rules are a new addition to the Regional Plan, NRC has developed regulatory processes for enforcement of the rules. NRC resourced regular on-water surveillance in both Rāhui, educating the public about the rules and the values they intend to protect. A breakdown of the on-water education and activities witnessed is set out below:

Both Rahui Tapu			
Month	**Vessels Approached**	**Fishing**	**Diving**
October 2023	12	4	0
November 2023	28	8	5
December 2023	10	1	0
January 2024	49	22	10
February 2024	51	6	1
March 2024	22	3	2
April 2024	16	3	2
May 2024	6	1	0
June 2024	27	2	1
Totals	**221**	**63**	**36**

On-water surveillance - Rākaumangamanga

Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau