Annual Report on the Biosecurity Operational Plan

He Pūrongo Mahi Haumaru Koiora

Northland Regional Pest and Marine Pathway Management Plan - Annual Report 2020-2021

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

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Cover images (clockwise from top left):
Weed warriors, Piroa Brynderwyn High Value Area.
Marine pest, Sabella Spallanzani.
Kauri trees killed by Phytophthora agathidicida.
Tui feeding on pohutakawa flowers.

Juvenile tree fern

1. Kia ora and welcome

Nau mai, haere mai,

Welcome to the annual report on biosecurity from July 2020 to June 2021. We feel particularly proud to be able to present this report given the challenges of Covid-19 as we continue to adapt the way we work with our customers to provide the quality service, advice, and "hands on" help with pest management possible. We are amazed by and feel honoured to be associated with the mahi of our Northland communities, iwi, hapū, and other agencies that we work with to support their aspirations for a better, pest free Northland and we aim to sustain this in the coming year. We admire how effective and enduring our communities are at protecting our most valued habitats and native species on private land – a fine example is the record of kiwi recovery success led by *Kiwi Coast.* At the same time, we strive to provide much needed employment for Northlanders.

Within these pages you will see the progress we have made on some of our worst "forest invader" weeds like bat-wing passionflower and balloon vine, and the inspirational work of communities in the High Value Area programme that are restoring kiwi populations and improving forest health.

We showcase our new biosecurity ambassador dog "Oi" in kauri protection and present case studies including kauri protection work, community pest control, wilding pine control, marine pests, freshwater pests and more. There are several significant statistics in this year's report such as close to 100,000 wilding pines removed, >1,000 Northlanders trained at our weed workshops since 2011, and >12,600 predator traps supplied to our people.

On the water, the marine team has surveyed more than 2,000 hulls last year in the search for marine pests. In combination with other northern regions, we are working closely with crown agencies on a proposal for a national "Clean Hull Plan" which will be further progressed during 2022.

Our relationship with crown agency partners such as the Ministry for Primary Industries, Department of Conservation, and Predator Free 2050 has continued to prosper, and we showcase joint funded programmes in kauri protection, feral deer control, the wilding pine programme, and PF2050 work at Whangārei and Pēwhairangi (Bay of Islands).

Our goal is to keep supporting the aspirations of Northlanders for a better environment and we welcome your ideas about future work.

Our Northland – together we thrive!

Malcolm Nicholson
Chief Executive

Jack Craw
Chair Biosecurity and Biodiversity Working Party

Pohutukawa (Metrosideros excelsa)

2. Introduction | Tīmatanga 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 2017-2027 in accordance with the Biosecurity Act 1993 (Pest Plan). The Pest Plan is a combination of the plans for eradication or effective management of specified pests (or groups of pests), and a marine pathway plan designed to prevent and manage the spread of harmful marine organisms via boat hull fouling within Northland coastal waters.

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

This Annual Report on the Operational Plan 2020-2021 is the third produced under the 10 year Pest Plan. The report notes progress made against aims, objectives and performance measures contained in the Operational Plan and expands on these where appropriate.

Implementation Programme

Exclusion Pests

Preventing the establishment of named pests in Northland. Council will search for and control new incursions of pests that are present in New Zealand, but not yet established in Northland and have the potential to be a serious pest. Emergency control actions of pests that are not listed in the Pest Plan can also be carried out.

Eradication Pests

Eradicating identified pests in Northland. The intermediate outcome is to achieve zero density of these pests in certain areas. In the short to medium term, infestation levels will be reduced to the point where it becomes difficult to detect the pest.

Implementation Programme Objectives

Progressive Containment Pests

Containing and, where practicable, reducing the geographic distribution of certain pests in Northland over time. Eradication is not feasible, but it is practicable to prevent them from spreading to other parts of Northland, or to eradicate the pest from other parts of Northland.

Sustained Control Pests

Providing ongoing control of a pest (or group of pests), or an organism being spread by a pest to prevent unreasonable impacts. The intermediate outcome is to ensure any external impacts are manageable. This includes plants banned from sale and distribution.

Marine Pathway Management Plan

Reduce and avoid impacts to biodiversity, cultural and economic values by preventing the establishment of marine pests and (where practicable), containing the geographic distribution of marine pests in Northland.

Practical Pest Management

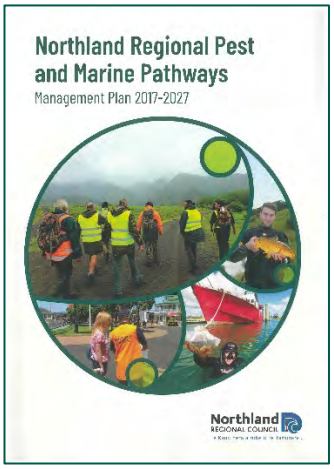
Council achieves practical pest management by:

- Requiring landowners, occupiers or other persons to adhere to pest or pathway management rules (eg. pests controlled, pathways managed, management plans prepared, and the presence of pests reported).
- Undertaking inspections of properties and places for a variety of outcomes (eg. to determine whether pests are present, that rules and management programmes are being complied with and monitoring effectiveness of control).
- Carrying out direct control (service delivery) of high threat pests where council is best placed to coordinate control efforts (eg. pests that are difficult to identify or control, distributing biological control agents, traps and herbicides and work on a user pays basis).
- Promoting awareness and education on what good biosecurity management looks like. To help occupiers and communities control pests the council provides practical advice and advocacy material around impacts of pests and pathways of pest spread. This includes working cooperatively with other agencies and stakeholders, contributing to research, cost sharing with others and promoting 'good practice' guidelines to control pests.
- Supporting community led pest management activities through non-regulatory approaches such as council's biosecurity partnerships.

Report format

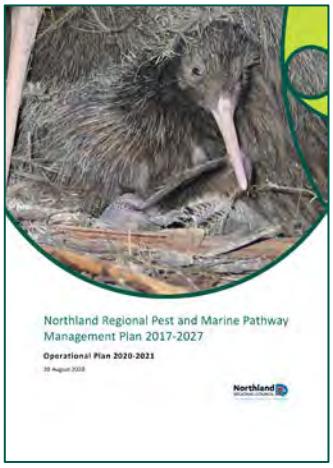
This report should be read in conjunction with the:

Northland Regional Pest and Marine Pathway Plan 2017-2027



https://www.nrc.govt.nz/media/uhudlio4/northlandregionalpestandmarinepathwaymanagementplan20172027.pdf

Operational Plan 2020-2021



https://www.nrc.govt.nz/media/vd2h5oh0/2020-2021-biosecurity-operational-plan.pdf

Sections 1 to 4 set the scene for the need for the report based on the programmes implemented, and the actions carried out by council as the management agency. Section 5 provides a financial overview for expenditure during the year.

Sections 6 to 10 comprise the main part of the document and report on the five pest management implementation programmes in the same order as set out in the Pest Plan. Programme activities and key performance measures are listed in left hand columns. The comments in right hand columns and the row below note achievements (or the reasons why a performance measure has not been met). Supplemental reporting material is detailed in the appendices.

3. Structure of Biosecurity | Te kaupapa

In the 2020-2021 year, the Biosecurity department consisted of four teams led by the Biosecurity Manager.

Partnerships

Responsible for delivery of biodiversity restoration projects controlling sustained control pest animals. Management of programmes is generally outside of the Pest Plan and includes:

- Community Pest Control Areas (CPCAs) – a way of assisting communities to manage pests on private land.
- High Value Areas (HVAs) – specifically identified land areas of high biodiversity, cultural, recreational, or economic value.
- Predator Free 2050 – landscape scale eradication programmes.
- Biofund (Environment fund) – small management agreements and grant funding to establish pest control projects.
- Significant biosecurity partnerships – such as the Northland Regional Council – Kiwi Coast partnership.

Pest Plants & Freshwater

Responsible for delivery of both the:

- Pest plant programme (exclusion, eradication, progressive containment, and sustained control plant pests).
- Freshwater pest programme (exclusion, eradication, progressive containment, and sustained control freshwater pests).

Incursions & Response

Responsible for delivery of:

- Wild animal control (large exclusion and eradication pest animals).
- Sustained control disease (*Phytophthora agathidicida*).
- Incursion response as required.
- Freshwater Check, Clean, Dry programme.

Marine

Responsible for the delivery of the:

- Marine Pathway Plan.
- Sustained control marine pests programme.

4. Pest species in the plan
Ngā riwha katoa i te rautaki

Northland's Pest Plan contains **143** species. A breakdown on the number and types of pests along with a detailed listing of the pests included is detailed in the tables below and overleaf.

Type of Pest	Number of Species (or groups of species) in the Pest Plan					
	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

How are pest species determined?

Many organisms in the Northland region are considered undesirable or a nuisance. Criteria set in the Biosecurity Act 1993 must be met to justify regional intervention in managing them as pests. Evaluation details can be found here: https://www.nrc.govt.nz/media/ahhdcmt5/amendedcostbenefitanalysisreportaugust2017.pdf

Pest species included in the plan

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*	
Disease			
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	Koi carp Perch Tench
Marine			

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 Cape ivy Century plant Coastal banksia Cotoneaster incl: *C. glaucophyllus* *C. franchetii* Eleagnus Elephant's ear English ivy Furcraea German ivy Greater bindweed Hakea Hakea Himalayan fairy grass Himalayan honeysuckle Jasmine Kangaroo acacia Lily of the valley vine Oxylobium Paperbark poplar Periwinkle Prickly moses incl: *Acacia verticillata subsp. cephalantha* *A. v. subsp. ruscifolia* Sexton's bride Sharp rush Sycamore Sydney golden wattle Taiwan cherry Velvet groundsel
Animals	Argentine ant Darwin's ant Feral and stray cats Feral goat Feral pig Mustelids incl: Ferret Stoat Weasel Possum Rabbit Rodents incl: Norway rat Ship rat	
Disease	*Phytophthora agathidicia*	
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	

5. 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 were also allocated to supplement council investment in pest management.

External Funding 2020-2021

During 2020-2021 there were $3,855,821 of external funding grants allocated from the Ministry for Primary Industries, the Department of Conservation, and other sources. This funding was used for a range of projects including:

- Kauri dieback track mitigation project
  This 14 month, $2,000,000 project to upgrade sections of the Te Araroa Trail in Northland (thereby helping protect Kauri) was signed off in December 2020. This funding from the Provincial Growth Fund is being used for a series of track upgrade projects.
- Wilding conifer control project
  In 2020-2021 council was allocated $1,720,000 funding from the Ministry for Primary Industries as part of the Wilding Conifer Control Project. This funding (along with $565,830 deferred expenditure from 2019-2020) funded project work completed by end June 2021.
- Marine incursion response
  The Ministry for Primary Industries allocated $102,828 for marine incursion response activities.

Biosecurity Activities 2020- 2021	Budget *(revised)*	Actual	Variance
Expenditure	$11,091,599	$11,708,396	-$616,797
Revenue	$9,223,242	$9,790,626	$567,384
Operational deficit	**-$1,868,357**	**-$1,917,770**	**-$49,413**

The biosecurity operational deficit for 2020-2021 was **$1,917,770**. This was a variance of **$49,413** (**0.4%** of expenditure, or **2.6%** of deficit) as of 30 June 2021.

6. Pest plants | **Riha otaota**

Whangārei Heads Weed Action volunteers in action.

2020-2021 at a glance – pest plants

0
Exclusion species incursions

34
Eradication plant incident reports

11
Biofund projects with a pest plant component

1,270
Public enquiries

98,000
Wilding pines controlled

6,505
Weed Action volunteer hours

20,711
Pest control hub total page views

44.3 days of viewing

13
Stakeholder activities

31 since 2018

95
Weed workshops participants

1,055 since 2011

6.1 Exclusion plants

Houttuynia cordata

Key points of the exclusion pest plant programme

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

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
New incursion sites of exclusion plants are identified.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Confirmed incursions</td><td>0 *</td><td>1</td><td>0</td></tr>
</table>
* Two potential incursions were referred to other authorities in 2018-2019.
</td></tr>
<tr><td colspan="3">There was one report of an unknown plant received which was referred to as “Japanese knotweed”. However, inspection confirmed there was no infestation.

Targeted social media posts were done for the exclusion species sea spurge (new coastal weed being found on West Coast beaches). These were timed to coincide with the summer holiday period.</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days.</td><td>Achieved</td><td>Initial investigation of the single potential incursion was undertaken within 5 working days.</td></tr>
<tr><td colspan="3">Houttuynia management sites
Ongoing surveillance continued at the two existing Houttuynia management sites (three inspections per annum). At the most recent management site (discovered October 2019), three juvenile plants and one seedling were found and removed over the course of the 2020-2021 visits. The second management site (discovered 2017) had one older plant (categorised as adult), one juvenile, and one seedling found and removed during the year.

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

6.2 Eradication Plants

Firethorn

Key points of the eradication pest plant programme

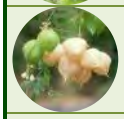
- Enforcement of rules relating to eradication plants.
- Eradication of listed eradication pest plants found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National pest plant accord). This performance measure is reported in *Section 6.4 Sustained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

Progress in achieving aims

Performance Measure	Result	Details
Identify new sites New incursion sites of eradication plants are identified. *Unbracketed figures are the total confirmed new sites identified in the year.* *Bracketed figures are the subset of the new sites arising from public reports.*	Achieved	

New sites identified	2018-19	2019-20	2020-21
Bat-wing passionflower	17 *(6)*	31 *(5)*	39 *(6)*
Mickey mouse plant	55 *(16)*	16 *(2)*	181 *(8)*
Yellow flag iris	3 *(2)*	4 *(1)*	2 *(1)*
Evergreen buckthorn	2	2	1
Spartina		1 *(1)*	1 *(1)*
Mexican feathergrass		1 *(1)*	
Wilding kiwifruit		1 *(1)*	1 *(1)*
Firethorn		1	1 *(1)*
Akebia		1	1 *(1)*
Balloon vine			1 *(1)*

The effectiveness of eradication work is predicated on having a reasonably high certainty that most infestation sites are known. Additional funding for eradication species works in 2020-2021 allowed for significant effort to be invested in essential surveillance activities which could not be done previously because of capacity constraints. This included large scale mail merges and extended searches beyond known infestation areas. The largest eradication programmes (batwing passionflower and Mickey mouse plant) were a particular focus for this work resulting in many new management sites as detailed below.

Eradication species		Identification of new management sites
	Akebia	One akebia report was investigated and confirmed as a new site.
	Balloon vine	Two reports were investigated with one confirmed as a new balloon vine site (the second known site in Northland). Targeted social media posts and mail outs were undertaken for buffer areas surrounding the known management sites.
	Bat-wing passionflower	There were nine bat-wing passionflower reports received from the public resulting in six confirmed new sites. Some of these reports were prompted by mail outs undertaken in buffer areas surrounding known management sites. One confirmed report represented a significant range expansion, with a single cluster of seedlings being identified at a site in Whangarei Heads. A source for this infestation has not been identified yet, despite field surveillance, a mail drop across a wide buffer area, and a targeted Facebook post. Extended field surveillance resulted in 33 new confirmed sites with a corresponding expansion of the known infestation area.
	Chilean rhubarb	A mail out was conducted for an extended buffer area around Northland's one large Chilean rhubarb management site. No new infestation areas were reported.
	Evergreen buckthorn	One large new site was confirmed through extended surveillance utilising abseil contractors on coastal cliffs adjacent to known management sites.

Eradication species		Identification of new management sites
	Firethorn	Two reports were investigated. One proved to be a different species of pyracantha, and the other was confirmed as a new site of firethorn (*Pyracantha angustifolia*).
	Nutgrass	Three reports of nutgrass species were received and investigated. None were found to be *Cyperus rotundus.*
	Mickey mouse plant	Ten Mickey mouse plant reports were received from the public with eight confirmed as new sites. A mail out was also done in buffer areas surrounding known management sites. The public reports combined with extended field surveillance resulted in 181 new confirmed sites and a corresponding expansion of the known infestation area. The new sites include 25 with the status of "surveillance" where no plants were found, but regular surveillance is required because of their proximity to fruiting plants.
	Spartina species	One report was investigated and confirmed as a new site in the Hokianga harbour.
	Wilding kiwifruit	One report was investigated and confirmed as a new site.
	Yellow flag iris	One report was investigated and confirmed as a new site. A second new site was found by a Biosecurity Officer on an unrelated inspection.

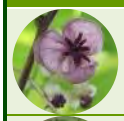
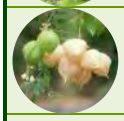
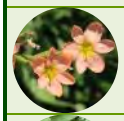
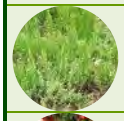
Performance Measure	Result	Details
Incident investigation and response Response to reports from the public on eradication plants will be initially responded to within 5 working days and actions completed within 20 days.	Not achieved	<table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Incidents reported</td><td>36</td><td>26</td><td>34</td></tr></table> Of the 34 incident reports responded to, nine took longer than the target response time. Control actions took longer than 20 days to initiate for six reports.
Additional funding enabled the engagement of additional contractors for inspection and control work, but there is still a high workload relative to capacity, as well as a back log of work not undertaken in previous years. Two new staff are budgeted for the pest plants programme in 2021-2022 which will further increase team capacity.		

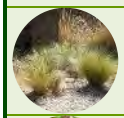
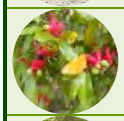
Performance Measure	Result	Details
Best practice management All management sites visited on scheduled best practice rotation.	Achieved in part	Refer species details below.

Prior to the additional surveillance work undertaken this year there were over 950 small scale, and 120 moderate to large scale eradication pest plant management sites spread across the Northland region that required regular inspection and control. The frequency of this inspection for these sites is dependent on the species ecology and the site status.

As noted earlier, additional funding has enabled engagement of additional contractors for eradication works. However, the high load of assessment and back logged work remains a limiting factor. In addition, there was a lack of trained contractors able to fulfil the new contract opportunities (this was compounded by Covid-19 lockdowns in Auckland preventing contractor travel). To address this problem, four new contractors completed authorised persons training during the year and are now able to operate on eradication programmes. In addition, two new staff budgeted for the pest plants programme in 2021-2022 will increase team capacity, both for delivery or eradication works, and contractor training and management.

Eradication plant management site visits 2020-2021

Eradication plant		Results	Details
	Akebia	Achieved in part	Best practice was achieved for 67% of sites. One active site received only a single inspection and treatment visit, and two monitoring sites did not receive annual inspection.
	Balloon vine	Achieved	Two inspections, control and extended surveillance activity were undertaken for the existing large balloon vine management site. The newly identified site has been controlled with extended surveillance planned for 2021-2022.
	Bat-wing passionflower	Not achieved	Best practice inspection rotation was only achieved for 6% of sites and four monthly inspection rotation for the 272 sites continues to be challenging to resource. Additional funding has helped to address the shortfall; however, a key contractor was lost to the programme, requiring engagement and training of a replacement midway through the year. Large scale bush blocks that require intensive grid searching remain the most difficult to manage effectively, with the availability of the specialist contractor team impacted by Covid-19 constraints in Auckland.
	Cape tulip	Not applicable	Managed by Ministry for Primary Industries.
	Cathedral bells	Achieved in part	Best practice was achieved for 33% of sites. One active site did not receive control, and 3 active sites received only one site visit (note however, that all these sites are approaching status change, with no plants detected).
	Chilean rhubarb	Achieved	The large Chilean rhubarb infestation area received annual survey and control, targeting all known infestation points, plus extended survey in adjacent areas and suitable habitat.
	Evergreen buckthorn	Not achieved	The target of six monthly inspection for active sites remained difficult to achieve because a key contractor was no longer available. Access permission also prevented access at five sites. New contractors have now completed authorised person training and certification, so will be able to undertake inspection and control work in 2021-2022.
	Field horsetail	Achieved	Biannual inspection and control were undertaken.
	Firethorn	Not achieved	Best practice was achieved for only 33% of sites. Four active sites did not receive annual inspection and control.

Eradication plant management site visits 2019-2020			
Eradication plant		Results	Details
	Gypsywort	Not applicable	Managed by the Department of Conservation and Fish and Game New Zealand.
	Lesser knotweed	Achieved	Two inspections, control, and extended surveillance activity were undertaken for the known management site with a new extension of range found. Based on observations of staff, biannual visits do not seem to be sufficient to prevent spread, so the site will be switched to triannual control in 2021-2022.
	Mexican feather grass	Not achieved	Best practice was achieved for 67% of sites. Two active sites did not receive annual inspection. One historic site with insufficient location information was also unable to be located through traceback activities.
	Mickey mouse plant	Achieved in part	Best practice was achieved for 93% of sites (target of 24 month inspection and control intervals was achieved), and extended searches undertaken in buffer zone of known infestation sites.
	Monkey musk	Achieved in part	Best practice achieved for 75% of sites. One active site received only a single inspection and treatment visit because of access issues.
	Nassella tussock	Not achieved	The single active coastal cliff site was not able to be searched because of safety and access issues and will require abseil contractors in 2021-2022. Extended search of other long term surveillance status sites was also not possible because of capacity issues. Effective large scale grid search, especially for the many sites in regenerating bush, is very labour intensive and there are no local trained contractors available for this work.
	Nutgrass	Achieved	Two inspections and control were undertaken at the single known management site.
	Royal fern	Not achieved	One of the two large management sites received annual surveillance and treatment, as well as extended drone surveillance. At the second site, new funding was utilised to undertake drone surveillance in autumn to coincide with peak visibility to delimit this previously undefined wetland site, with control planned for summer 2022-2022.
	Spartina species	Not achieved	Annual inspection and treatment were completed for 56% of sites in the Kaipara Harbour and 48% of sites in the Hokianga Harbour. The start of the control season was delayed by a change in the compliance requirements from the Environmental Protection Authority. There are also still few (if any) contractors with the required certifications willing to undertake the work because of difficult physical working conditions and constraints imposed by tides and other compliance requirements. Sites in the Whangaroa Harbour, Taipā, Mangonui, Rangaunu Harbour, and Pārengarenga Harbour had been previously managed by the Department of Conservation but are now no longer being actively managed. Before council staff can recommence aquatic herbicide treatment, full consultation with local iwi and hapū will be required. Additional survey and delimitation will also need to be completed. The current council resource to manage and deliver spartina work in the Mid and Far North is a 0.5 staff member based in the Waipapa office, who is also responsible for numerous other pest plant species control programmes and community liaison. A new Waipapa based staff member planned for the 2021-2022 financial year will help meet this need.
	Wilding kiwifruit	-	No existing sites were prioritised for follow up.
	Yellow flag iris	Achieved in part	Best practice was achieved for 69% of sites. The target for active sites is annual inspection, but two visits were conducted for several larger sites. There were 15 sites that did not receive an annual inspection (primarily in the more northerly locations) because of limited staff and authorised contractor availability.

Clockwise from top left

A field of spartina in mudflats of the Kaipara Harbour.

A Biosecurity Officer treating a large area of spartina.

Can you see him? A contractor hidden amongst mangroves and mud treats a spartina infestation.

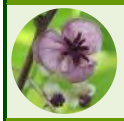
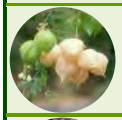
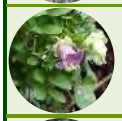
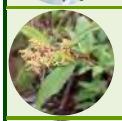
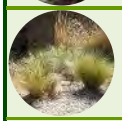
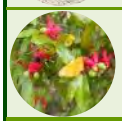
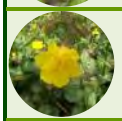
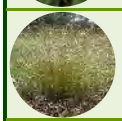
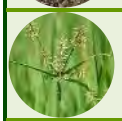
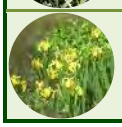
Modified performance measure		
Progress towards eradication Annual decrease in number of adult plants observed or the infestation area of existing sites.	**Modified measure**	Refer species details in table on facing page.

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

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

Data collection is in a transition phase, especially for programmes with sites at a range of scales, where large sites have been recorded by infestation area, and small sites have been recorded as count data. The bat-wing passionflower programme has also had amalgamation of sites occurring as result of more intensive surveillance during the year.

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

Eradication plant		Year	Number of sites		Number of sites with mature foliage		Count of adult plants		Infestation area	
			Existing	New	Existing	New	Existing	New	Existing	New
	Akebia	2019-20	5	1	4 (80%)	1 (100%)			n/a	n/a
		2020-21	6	2	1 (17%)	1 (50%)			100 m^2	7 m^2
	Balloon vine	2019-20	1 (large)	0	0	-			n/a	n/a
		2020-21	1 (large)	1	0	1 (100%)			0.91 m^2	30 m^2
	Bat-wing passionflower	2019-20	259	31	39 (15%)	17 (55%)	72	166		
		2020-21	272	39	42 (15%)	8 (21%)	176	9		
	Cathedral bells	2019-20	6	0	2 (33%)	-			1,000 m^2	-
		2020-21	6	0	1 (17%)	-			1,000 m^2	-
	Chilean rhubarb	2019-20	1 (large)	0	1 (large)	-	18	-		
		2020-21	1 (large)	0	1 (large)	-	26	-		
	Evergreen buckthorn	2019-20	46	2	7 (16%)	2 (100%)	29	16		
		2020-21	48	1	9 (18%)	1 (100%)	44	20		
	Field horsetail	2019-20	1	0	0	-	-	-		
		2020-21	1	0	0	-	-	-		
	Firethorn	2019-20	5	1	1 (20%)	1 (100%)	n/a	1		
		2020-21	6	1	5 (83%)	1 (100%)	n/a	3		
	Lesser knotweed	2019-20	1	0	1	-			75 m^2	-
		2020-21	1	0	1	-			92 m^2	-
	Mexican feather grass	2019-20	5	1	1 (20%)	1 (100%)	5	25		
		2020-21	6	0	2 (33%)	-	6	-		
	Mickey mouse plant	2019-20	506	16	84 (17%)	6 (38%)	207	18		
		2020-21	522	181	47 (9%)	59 (33%)	96	187		
	Monkey musk	2019-20	4	0	2 (50%)	-			n/a	-
		2020-21	4	0	3 (75%)	-			n/a	-
	Nassella tussock	2019-20	33	0	0 (0%)	-	0	-		
		2020-21	33	0	n/a	-	n/a	-		
	Nutgrass	2019-20	1	0	0	-	-	-		
		2020-21	1	0	0	-	-	-		
	Spartina	2019-20	120	0	n/a	-			n/a	-
		2020-21	120	1	n/a	n/a			n/a	n/a
	Yellow flag iris	2019-20	45	4	13 (29%)	4 (100%)			n/a	n/a
		2020-21	49	2	18 (37%)	2 (100%)			1,291 m^2	3 m^2

Eradication pest plant sites

Increased resources have enabled the detection and treatment of many new sites of eradication pest plants.

Clockwise from top left:
A roadside site of yellow flag iris.
Wilding kiwifruit smothering a power line.
Bat-wing passionflower vines overgrowing a stone wall.
A flowering hedge of Mickey mouse plant discovered in Kamo.
Background:
Giant leaves of Chilean rhubarb infestation.

6.3 Progressive Containment Plants

Mile-a-minute smothering flax on Mountain Road in the Kaipara district.

Key points of the progressive containment pest plant programme

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

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

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

Progress in achieving aims

Performance Measure	Result	Details
Incident investigation and response Initial investigations for all reported sightings or discoveries of progressive containment plants undertaken within 5 working days and decisions documented within 20 working days.	Achieved	2018-19: Public reports 7; 2019-20: 8; 2020-21: 4
Lantana One lantana report was investigated and confirmed as a new management site with the landowner supported to undertake control. Three additional small sites were identified by Biosecurity Officers and landowners were supported to undertake control without requiring a management plan. One larger site was identified in public reserve land and a management agreement is in development. **Pultenaea** Extended searches around known management sites identified five new sites which are now recorded as management sites.		

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 2020-2021 status reports are detailed in the performance measure tables overleaf.

The Manchurian wild rice programme is funded by the Ministry for Primary Industries as part of its National Interest Pest Response Programme and is reported on separately – only highlights from the programme are reported here.

Performance Measure	Result	Details
Best practice management All management sites visited on scheduled best practice rotation.	Achieved in part	Refer species details below.

Progressive containment plant management site visits 2020-2021			
Pest plant		**Results**	**Details**
	African feather grass	Not achieved	Available contractor time and funding was utilised to conduct delimitation work around a new site identified in Poutō dunes during aerial lake surveillance in 2019-2020 (there was significant concern that this site had been undetected for a long period). The surveillance identified an infestation area of approximately 6,675 m^2.
	Lantana	Not achieved	Control is undertaken by occupiers, and the programme currently has no set targets for follow up contact with landowners where control or management plans have previously been enforced. Inspection of previous sites for continued compliance had largely been put on hold because of capacity issues (progressive containment being a lower priority than the eradication work). New 2020-2021 funding began to address the capacity shortfall, and with the addition of two new staff for pest plant related work in 2021-2022, this work should be able to become more proactive.
	Mile-a-minute	Achieved in part	Planned annual treatment was completed for 82.2% of management sites. The mile-a-minute management regime is annual for sites unless there were adult vines present at a previous visit.
	Pultenaea	Achieved	Annual control was undertaken at all sites. New funding in 2020-2021 allowed for the engagement of contractors to undertake grid search in bush blocks that have not previously been surveyed in this way, improving detection and control.

Below
Large swards of African feather grass in the southwestern edge of the new site identified in Poutō dunes.
Right
African feather grass invading sand dunes in the Poutō site.

African feather grass

A perennial rye grass forming clumps up to 2m tall, this weed invades pastures, roadsides, urban areas, swamps, and sand dunes.

Modified performance measure

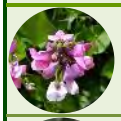
Progress towards eradication Annual decrease in number of adult plants observed or the infestation rate of existing sites.	Modified measure	Refer species details below.

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

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

Data collection is in a transition phase, especially for programmes with sites at a range of scales, where large sites have been recorded by infestation area, and small sites have been recorded as count data. It should also be noted that based on current technology, infestation area data is subjective. It relies upon observer skills in assessing both area and density to give an estimation of total infestation area.

As lantana control is undertaken by occupiers, it is not reported here.

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

Mile-a-minute

This fast growing vine quickly smothers other vegetation, weighing it down and causing breakage.

Far left
Mile-a-minute smothering a garden hedge.

Left
The characteristic seed pods of this member of the pea family.

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

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

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

Manchurian wild rice – annual status report

Manchurian wild rice

The Manchurian wild rice control programme is carried out in partnership with the Ministry for Primary Industries as part of the National Interest Pest Response Programme (NIPR), and an annual report is produced separately. The 2020-2021 programme report is summarised below.

Work outside containment (intransigent) zone

The programme in Northland is based on progressive containment, prioritising sites outside of the Intransigent zone (centred around the core river infestations) for eradication. Progress toward eradication of sites outside of the intransigent zone can be seen in the change in T.I.M.E [4] classification status. Over the course of the 2020-2021 management period, 34 treatment sites underwent a positive change in classification; 20 updated from Treatment to Interim, four Treatment and four Interim updated to Monitored, and six sites were confirmed as eradicated. Three sites underwent a negative change; one Interim site reverted to Treatment, and two Monitored sites reverted to Treatment after live foliage was found. This is summarised in the adjacent table.

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

The programme is progressing well with extensive effort put into contractor engagement in the programme and a push to achieve two quality treatments on all active sites outside the intransigent zone. During this reporting period two treatments were achieved at 84.9% of our nonaquatic treatment sites, and one treatment at a further 10.7% of nonaquatic sites. The impact of this focus is reflected in the significant reduction in infestation area and status change at several sites.

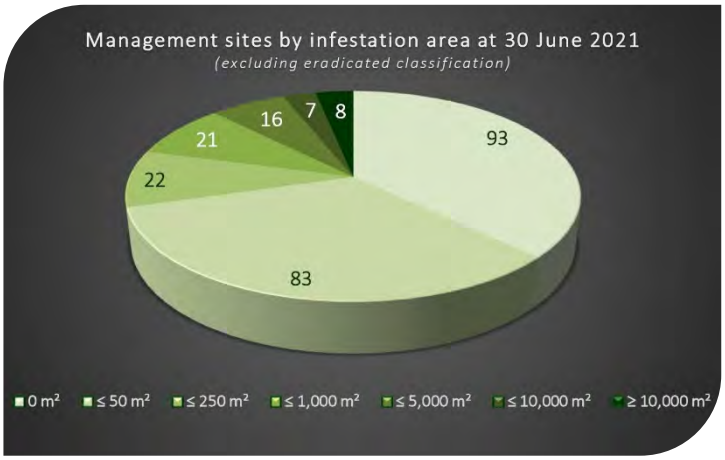
However, the 33 sites designated as aquatic did not receive control this year because of ongoing regulatory challenges (reducing the overall result to 69.3% of all treatments sites achieving two treatments).

Two potential new sites were identified through public reporting, and these were investigated, confirmed, with traceback and delimitation undertaken.

The adjacent graph gives an overview of the total number and relative proportions of management sites by the T.I.M.E classification status as progress is made toward eradication.

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

The adjacent pie chart shows the relative proportions of management sites by infestation area, showing that the majority are small sites (≤50 m^2), or sites with little to no live foliage present.



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, providing advice and information on best practice techniques and herbicide, including:

- Supporting ongoing aerial control undertaken by the Pukehuia Working Group (nine landowners).
- Herbicide supplied to seven landowners undertaking ongoing control.
- Herbicide supplied to five new landowners commencing control in 2020-2021.
- Contract control work undertaken at one site to support significant landowner efforts.

Digging the dirt on wild rice

Growing up to 4 m tall, Manchurian wild rice (*Zizania latifolia*) is a highly invasive grass, forming dense long lived stands that choke waterways, displace native vegetation, and invade pasture causing major productivity losses.

Manchurian wild rice rhizomes and roots extracted from soil in the digger trials.

Accidentally introduced to New Zealand in ship's ballast water near Dargaville in the early 20th century, rice grass causes damage to stop banks and drainage channels from its extensive rhizome (root) system.

The hardy underground rhizomes make Manchurian wild rice extremely difficult to control. Currently the most effective control technique requires two herbicide treatments a year, that whilst very effective at reducing the infestation size, can take years before the rhizomes are depleted and the infestation removed. Council undertook trial work this year to see if excavating rhizomes is an effective strategy for reducing the time to eradication (and therefore the number of herbicide treatments required) for smaller contained sites.

Two trial plots (45 m^2 and 136 m^2) were selected, marked out, and excavated methodically by a 2 ton digger. Each bucket of soil removed was shaken to break the dirt off the rhizomes and roots. The roots and rhizomes were removed by hand and the soil stored outside the excavation areas. The process was repeated until all the sites had been excavated and no more roots or rhizomes were found to be removed. The remaining soil was then scraped back into the excavated sites and levelled, ready to be resown with grass.

Digging the dirt on wild rice…
The 2 ton digger excavates one of the trial sites.

The trial reconfirmed earlier work that showed approximately 80% of the Manchurian wild rice plant was underground. Most rhizomes were found down to 300 mm below ground level, although one old drought crack yielded a rhizome 600 mm deep. Sorting through the excavated material was time consuming, but the addition of rotary sieving (or extra labour) would speed the process considerably. Both sites produced around 0.9 m^3 of material for disposal.

The sites will be monitored for regrowth, but early results are promising, indicating mechanical removal could be a viable and economic alternative to prolonged herbicide application.

6.4 Sustained Control Plants

Key points of the sustained control pest plant programme

Woolly nightshade (tobacco weed)

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

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Request response time
Response to requests from the public on sustained control plant pest responded to within 20 working days.</td><td>Response time data not available</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Sustained control pest plant requests</td><td>1,050</td><td>657</td><td>1,227</td></tr>
</table>
The council database reporting system is not currently able to report on request response times and requires modification to capture response data (rather than close date) for this performance measure.
</td></tr>
<tr><td colspan="3">Enforcement requests (incidents)
Of the 43 requests for enforcement of sustained control pest plant rules, 35 were actioned within 20 working days. Note, most of these enforcements were not resolved within 20 days because of the enforcement process compliance window must allow a reasonable period for control work to take place.

There was a noticeable increase in demand (50% increase on 2019-2020) for sustained control rule enforcement, and it was difficult to inspect, process and manage all requests and related enforcements in addition to eradication delivery schedules, resulting in delays to request resolution.</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>The New Zealand Transport Agency and Whangarei District Council have plans in place.

Plans with the Kaipara District Council, Far North District Council and New Zealand Rail are in development.</td></tr>
<tr><td colspan="3">Engagement to progress plans with Kaipara District Council, Far North District Council and New Zealand Rail is ongoing but is constrained by staff capacity. A new staff member with a pest plants partnership focus is being established in the 2021-2022 year, will be focussing on working collaboratively with these councils to support them in development of meaningful proactive (rather than reactive) plans. A trial framework is also in development for a new categorisation tool for weeds in road corridors, which will allow better scheduling and cost control.</td></tr>
</table>

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

Performance Measure	Result	Details
Plant retail outlet compliance All known plant outlets in Northland are aware of obligations and inspected annually for species identified in the National Pest Plant Accord (NPPA) and Pest Plan.	Achieved in part	

	2018-19	2019-20	2020-21
Nurseries inspected	0%	61%	72%

Inspection noncompliances

There were two instances of noncompliance where plants were either removed from sale or display and destroyed or returned to the supplier out of the Northland region. Both these were the sustained control needlepoint ivy cultivar *Hedera helix*.

Two examples of newer tradescantia cultivars were also recorded, but these were not on the list for which genetics have been completed so could not be positively identified as being one of the banned cultivars.

Trade Me

Trade Me was monitored through saved searches for species banned from sale and propagation (focussed on higher risk species). Ten listings for agapanthus and one listing for German ivy were reported and removed.

Existing capacity constraints combined with a significant incursion response during the year which took staff away from core work meant that only a proportion of nurseries and outlets could be targeted for inspection. Priority was given to the larger nurseries and retail outlets selling exotic species rather than those that have been identified as being native only nurseries. Two new staff have been budgeted for the 2020-2021 financial year which will help address this constraint.

NPPA listed species

Blue morning glory

A beautiful flower, but this fast growing, high climbing vine is a pest plant none the less. Producing dense smothering blankets of foliage, it reaches tree tops quickly where it's weight can bend and damage canopy trees *(as seen in the image to the right).*

Wilding pines

Wilding pine

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

Whilst managed pine plantations are an essential resource in Northland's economy, the region's unique habitats are vulnerable to invasion from wilding pines. Competing with native trees, wilding pines do not provide a food source for native birds or insects. Their needles smother native species on the forest floor and discourage regeneration. Seeds can be blown many kilometres by wind and have spread into some of our most unique and fragile ecosystems, areas such as coastal margins, dunes, wetlands, gum lands and geothermal sites.

Northland wilding pine control 2020-2021	
Jobs created (new starts)	297
Hours worked	12,253
Full time equivalent staff (non council)	7.8
Contractors engaged	8
Wilding pines controlled	98,114
Area controlled (hectares)	4,800
Number of control sites	51+
Jobs created (new starts)	297

Wilding pines are invasive species that left unchecked at their current rate of spread will invade 25% of New Zealand within the next 30 years. The three main species of concern in Northland are *Pinus radiata, Pinus pinaster* and *Pinus contorta.*

A drill and fill crew ready to tackle wilding pines at Motatau reserve.

Since early 2020 council has been allocated funding from the National Wilding Conifer Control Programme to carry out projects to control wilding pines in Northland. The programme is helping to build valuable relationships with Northland's communities and provide local employment and upskilling opportunities, whilst helping protect our native biodiversity and habitats.

Wilding pines on Maukoro Maunga, a former pā site at Pātaua South.

Wilding pine blitz in Pātaua South, January 2021

Council, Ngātiwai, and Weed Action Whangārei Heads are collaborating to remove invasive wilding pines, which compete with native species and disrupt fragile ecosystems. They can also be dangerous when hanging over roads, paths, and recreational areas.

Te Puke Tū Tai (also known as the Dudai) resides at the eastern end of Pātaua South's Frogtown Beach. Over four days in January, five Ngātiwai kaimahi (workers) and project coordinator Mike Urlich removed 1,000 trees to prevent further spread in this popular holiday area. A former plantation site, Te Puke Tū Tai has trees of various ages that continued to grow after harvest two summers ago.

Removing the trees in just four days has inspired several Ngātiwai kaimahi to undertake training so they can undertake larger wilding pine projects around Whangārei Heads. The training (which also enhances their opportunities for future work) enabled them to tackle well established pines on nearby Maukoro Maunga, a former pā site, and from there move on to other sites around Whangārei Heads.

One of a growing number of projects funded by the Ministry for Primary Industries, the National Wilding Conifer Control Programme community partnership fund in Whangārei Heads has made a real impact by removing the wilding pines – making space for young native tree like pūriri and karaka to flourish.

Te Aupōuri wilding pine control

2020-2021

PREVENT THE SPREAD

Simon Job, local owner operator of Suseco Worx and his crew have had a busy year eradicating wilding pines from some of Northland's most vulnerable and outstanding landscapes before they smother the fragile dunes at Kokota (The Sandspit) and Great Exhibition Bay on the Aupōuri Peninsula in the Far North.

Simon and the Suseco Worx team at Te Ārai.

Wilding pines have been silently invading Northland's native forests, wetlands, and vulnerable habitats for the last 30 years and have only recently been recognised as a regional and national threat to our biodiversity. Council, with funding from the National Wilding Conifer Control Programme through the Ministry for Primary Industries, is working in collaboration with local community groups, private landowners, and iwi to eradicate wilding pines on the Aupōuri Peninsula.

To date the team have poisoned, hand pulled, or felled to waste over 15,000 wilding pines from dunes, sand spits, dune lakes and native bush.

"It will make a difference."

Simon Job, Owner, Suseco Worx

Wilding pines invading Te Ārai sand dunes

The Suseco Worx team all whakapapa to the Aupōuri Peninsula and have an innate passion for restoring the environment. For them it is an opportunity to continue to train, develop and gain qualifications, whilst supporting environmental recovery.

Simon says, "it has been an absolute privilege to work in the areas that we have, transform landscapes, and make a difference".

Suseco Worx statistics 2020-21	
Staff employed over 7 months	3 to 6
Hours worked	3,569
Wilding pines controlled	15,000
Area controlled (hectares)	1,900

Roots of a wilding Pinus pinaster seedling pulled from Kokota Spit.

Council supported programmes

Partnership activity	Details
Council supported programmes – Biofund Biofunds approved for the community.	
Council supported programmes – High Value Areas Ongoing collaboration and support for weed focussed community groups in three High Value Areas delivers weed awareness messaging through events, workshops, campaigns, social media, promotional publications and landowner site visits and advice.	

Biofunds	2018-19	2019-20	2020-21
With pest plant component	8	10	11
Total biofunds granted	70	87	117

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

Weed action – Native Habitat Restoration Trust

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

Weed action is a community based organisation focussed on protecting the ecosystems of Whangārei Heads peninsula through removing invasive weeds. The group became an independent charitable trust in 2020-2021 and were renamed **Weed Action Native Habitat Restoration Trust**, a change to reflect their primary focus – restoring native habitats.

The trust operated four key programmes in 2020-2021:

- Landowner support programme (council funded through the Whangārei Heads High Value Area).
- Conservation land buffer zone programme (50:50 funded landowner and council Biofund).
- Pārua Bay privet buffer programme (joint landowners and council Community Pest Control Area funding).
- Reserves and public conservation land programme (funded by Whangarei District Council, Lottery Environment funding and Whangarei District Council Covid relief funding).

Weed action Whangārei Heads 20-21	
Volunteer events	110
Education events	3
Volunteer members	41
Weed Action groups	8
Landowner support	61
Total volunteer hours	3,720

Landowner support programme highlights this year these have included:

- 12 one off events supporting landowners or groups to remove weeds from either private land or adjoining weed corridors.
- Support to residents of Urquhart's Bay, Beasley Road, and Our Road to deal with large infestations of moth plant, cotoneaster, queen of the night, wild ginger, Chinese privet, and blue passionflower.
- Pārua Bay School support with education and planting.
- Three 9 m^3 weed amnesty skip bins.
- Promotional media activities including website, five Whangārei Heads Citizen Association newsletter articles, road signage, and the 2021 Weed Action Whangārei Heads calendar.
- A hands on Weed Workshop.

The Take Back Reotahi Weed Action Group

Specialist weed assistance team (S.W.A.T) – Tutukaka,

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

The Tutukaka Landcare Coalition along with other interested parties from the community formed an operational group focussed on plant pests invading the Tutukaka Coast. Known as S.W.A.T (Specialist Weed Assistance Team) Tutukaka, the team is made up of community volunteers who are waging war on weeds and a project lead who coordinates activities.

S.W.A.T Tutukaka 20-21	
Weed Action events	30
Educational events	6
Volunteer members	60+
Landowner visits	17
Total volunteer hours	525

S.W.A.T highlights this year these have included:

- Weedy Wednesdays – volunteer events held each Wednesday over summer to remove pest plants along the coast. With ages ranging between 20 – 70 years these champions of the environment do everything from plucking seedlings from the forest floor to slaying wild ginger or removing 1,000's of moth plant pods and vines.
- Landowner visits to support weed removal and assist with Biofund applications.
- Stalls at the Tutukaka Twilight Markets to promote weed action.
- The second biannual weed workshop with year 7 and 8 students from Ngunguru School. The two day workshop includes both a classroom session (focussed on pest plant identification and removal), and field experience for students to put their new skills into practice.

Ngunguru School students putting their newly acquired pest plant identification and control skills to work dealing to wild ginger on the school ngahere.

Weed action – Piroa Brynderwyns

https://weedactionpiroabrynderwyns.org.nz/

Part of Piroa-Brynderwyns Landcare, Weed Action is a community group working to keep the Piroa-Brynderwyns area weed free.
To do this, the group has a three part approach:

1. Existing weeds are cleared from the Piroa-Brynderwyn ranges.
2. Public awareness is raised about invasive weeds in the area.
3. Landowner efforts to clear weeds from their properties are supported.

Weed action Piroa Brynderwyns 20-21	
Volunteer and education events	15
Weed action groups	9
Volunteer members	61
Landowner visits	11
Total volunteer hours	2,260

Weed action highlights this year have included:

- The formation of six new Weed Action groups in the community spanning from the Waipū cycleway in the north, to the Kainui Reserve in the south.
- Media including Facebook, website, signage, advertisements, 12 newspaper articles and one editorial, and the Weed Action Piroa Brynderwyn calendar.
- Volunteer support in reserves at Lang's Beach, Cheviot, Mangawhai Heads and Waipū Cove.
- Landowner support with the development and implementation of weed plans has seen the removal of many strategic pest plants.
- Weed event participation including stalls at the Waipū Easter and Labour weekend markets; presentations to the Waipu Lions, the Langs Beach Estate annual general meeting, and a Trappers workshop; as well as organising a weed action volunteer gathering at the Waipū Cove Surf Club.

Weed action and Waipū Lions members address ginger near the Lions track entrance at Langs Beach.

6.5 Community engagement

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

Refer Appendix for more details	2018-19	2019-20	2020-21
Field Days / A&P Shows	4	5	1
Community events	13	4	1
School visits and workshops	1	2	0
Stakeholder activities	4	14	13
Pest workshops	4	5	8
	26	**30**	**23**

A number of community events the Pest Plant team would normally attend were cancelled because of Covid-19 restrictions and alert level uncertainty.

Weed workshops

2021

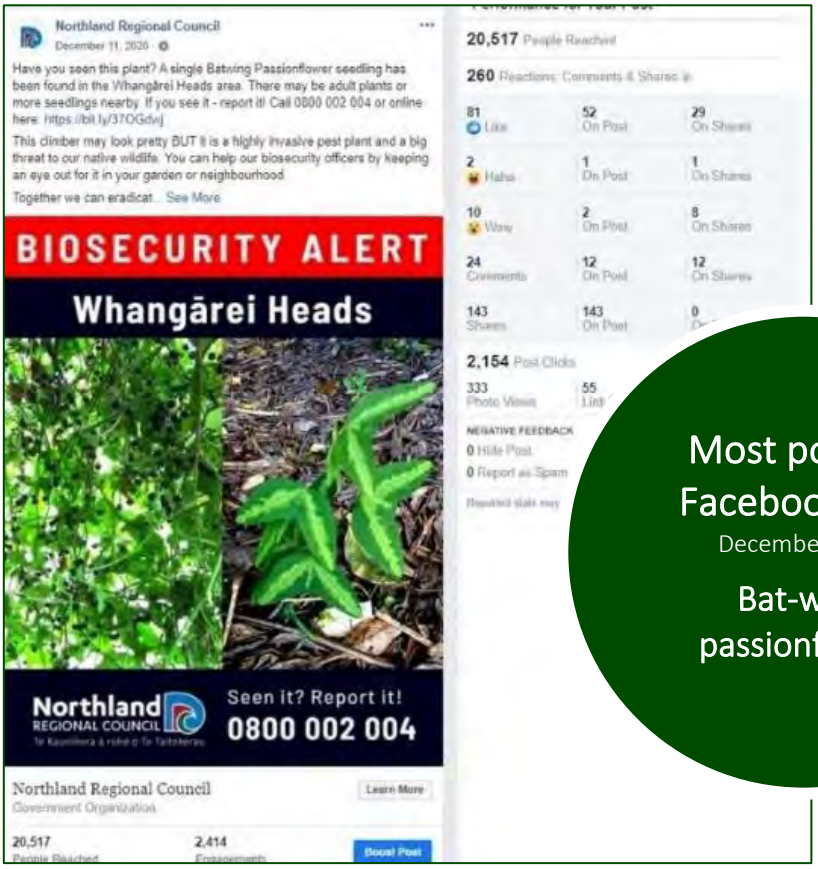
"Informative and fun"

This year 95 people took the opportunity to learn how to tackle some of Northland's worst weeds.

Weed workshops	
Year	Participants
2018-2019	78
2019-2020	61
2020-2021	95
Since 2011	1,055

Performance Measure	Result	Details
Community engagement - media Level of social media interactions to increase the awareness of plant pests is maintained or greater than the previous year.	Achieved	

Refer Appendix for more details	2018-19	2019-20	2020-21
Facebook page most popular post	1	0	1
Pest control hub – page views	*Data n/a*	9,624	20,711
Pest control hub – total page view time	*Data n/a*	29.4 days	44.3 days
Council YouTube channel – clip views	*Data n/a*	3,226	2,128
Press releases	2	2	2
Council website stories	0	4	1

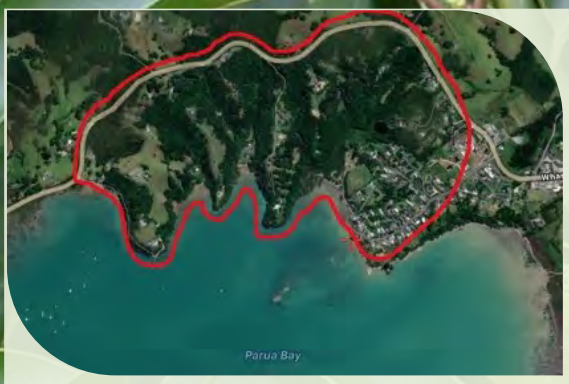


Most popular Facebook post

December 2020

Bat-wing passionflower

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.	New measure	*Baseline establishment of a new performance measure 2020-2021.* At the end of 2020-2021, the Pest Plant biosecurity team had two collaborative relationships established with hapū, whānau or iwi. These collaborations are with: • Te Rūnunga o Te kao / Te Aupōuri iwi • Ngā Takoto
Bicultural capability All permanent staff will have achieved competency level 1 in council's Te Whāriki workshops.	Achieved	*Baseline establishment of a new performance measure 2021-2022.* All permanent staff on the Pest Plant biosecurity team have achieved competency in level 1 of the Te Whāriki workshops.



Map of the initial Pārua Bay Privet Buffer CPCA.

The privet buffer programme has initiated a huge wake up for landowners in the area as they observe how insidiously tree privet is taking over. What appears to be intact forest has privet growing under and through it.

Privet flowers

Pārua Bay Privet Buffer CPCA

https://weedaction.org.nz/upping-the-ante-stopping-the-spread-of-tree-privet/

The project connecting landowners from Wharf Road to Ritchie Road to act as the Pārua Bay Privet Buffer Community Pest Control Area (CPCA) commenced in late 2019. CPCA funding is traditionally used primarily for animal pests, however this partnership is focussed entirely on reducing the spread of tree privet down the peninsula.

The CPCA agreement sees willing landowners within the buffer zone enter a 50:50 agreement over five years. Costs are covered for the first phase of knock down control work and in return the resident must match this with either the equivalent value (dollars) or labour input (effort) when carrying out follow up treatment of seedlings. The agreement has a range of options and can be tailored to suit the capabilities of residents.

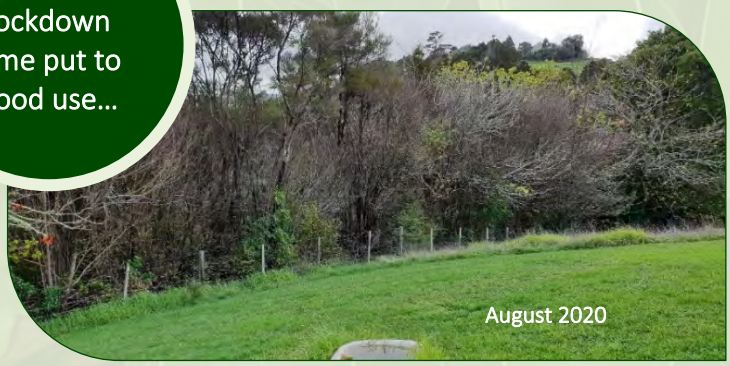
Now in its second year, the project continues to gain momentum. An additional 19 properties were included in the CPCA extending the target area and increasing the coverage from 105 to 155 ha. CPCA signatories completed 467 hours of weed control which, combined with council funded contractor control, meant over 1,000 hours was spent on privet control work in 2020-2021. This combined effort has made huge inroads in privet infestations in Pārua Bay. By providing a positive community networking opportunity and bringing neighbours together for a common purpose, the partnership is making headway in pushing back the privet tide.

Pārua Bay Privet Buffer CPCA	2019-20	2020-21
Landowners involved	11	30
Land area (hectares)	105	155
Landowner privet control (hrs)	206	467
Council privet control (hrs)	155	538
Total privet control (hrs)	361	1,005

Why tree privet?

One of Whangārei Heads *Dirtiest Dozen* (a list of the twelve worst environmental weeds in the Heads), privet is fast growing, long lived, with prolific widely dispersed seeds. Seedlings invade both marginal land and intact forest replacing mid canopy trees such as taraire, towai and pōhutukawa. If left unhindered it will form dense tall stands. In addition to the threat to biodiversity, privet leaves and fruit are poisonous, and the pollen can be aggravating to allergy and asthma sufferers.

Covid-19 lockdown time put to good use...



Pārua Bay Privet Buffer CPCA landowners used the 2020 lockdown as an opportunity to control privet on their land. The results speak for themselves as these photographs before (above) and after (right) show.

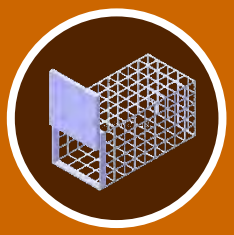
7. Pest animals | Riha **rāwaho**

Volunteer setting a predator trap in the Piroa Brynderwyn High Value Area.

4,170
Customer requests

5,732
hectares of new CPCAs

117
Biofund projects



328 since 2017

Kiwi numbers have gone from
80 → 1,090
in Whangārei Heads

Since 2002

187
Kiwi Coast Community Groups actively managing

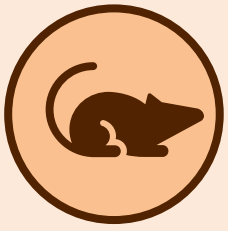
KIWI COAST

224,760 ha

492,458
pests gone from the Kiwi Coast

since 2013

46,681
pests gone from High Value Areas



12,610
Traps issued

102
Event activities

7.1 Exclusion Animals

Big headed ant

Key points of the Exclusion Programme

- Prevention of eight 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.

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
New incursion sites of exclusion animals are identified.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Exclusion animal incident reports</td><td>12</td><td>6</td><td>8</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Rainbow lorikeet incursion
Three incidents were reported and investigated, with several lorikeets being positively identified near Kaiwaka through one of the reports. These lorikeets are still at large and as a result, the Ministry for Primary Industries has initiated a formal response to eradicate what appears to be an established feral population.

Big headed ant
Four incidents were reported during the year, but all were found to be different species.

Sulphur crested cockatoo
One incident was reported from outside of Northland. The enquirer was directed to the appropriate regional council.</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days.</td><td>Achieved</td><td>All exclusion pest animal reports were responded to within 5 days and response plans implemented within 20 working days.</td></tr>
</table>

7.2 Eradication animals

There are currently three species of deer known to be present in Northland, red deer (*Cervus elaphus scoticus*), fallow deer (*Dama dama*), and sika deer (*Cervus nippon*). Red deer and fallow deer are farmed, but sika deer are present in Northland from illegal releases.

Programme objectives

The goals of Northland Wild Deer Response Programme 2016-2025 (a collaboration of stakeholders including the Department of Conservation, OSPRI [6], and Northland Regional Council) has two broad goals:

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

Programme aims

Council will work cooperatively with the Department of Conservation and other stakeholders to achieve the objectives of the Northland Wild Deer Response Plan 2016-2025.

Landowners, occupiers, and the public understand the risks and environmental consequences of feral deer establishing in Northland and are supportive of the programme.

Progress in achieving aims

Performance Measure	Result	Details
Surveillance – identify new sites Incursions are identified through passive and active surveillance.	Achieved	Deer surveillance has included ground hunting by the Deer Response Team [7], thermal surveillance, automated listening devices, and trail cameras.

Ground and thermal surveillance
There was 720 hours ground surveillance conducted by the Deer Response Team in areas including Russell, Okaihau, Whananaki, Kai Iwi, Pouto, Topuni, Marua, Kaiwaka, Kaitaia, Mangakahia, Whakapara, Hikurangi, and Waiotu in 2020-2021.

Automated listening devices
Automated Listening Devices set up in Ngaiotonga (Russell Forest) and surrounding areas picked up and recorded Sika calls.

Trail cameras
Surveillance cameras were deployed in the Russell Forest and properties near Hikurangi.

Trail camera footage of a fallow deer near Hikurangi in December 2020.

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

7 The Deer Response Team are a group of deer specialists contracted from a local Northland company.

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Deer incident response and investigation
100% of deer incidents are responded to within 48 hours.
Response plans developed and implemented withing 20 working days.</td><td>Not achieved</td><td><table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Deer incident reports</td><td>6</td><td>6</td><td>12</td></tr></table></td></tr>
<tr><td colspan="3">Deer incidents were reported in Ōkaihau, Kaiwaka, Kaitāia, Russell Forest, Whakapara, Kerikeri, Waiotu, Maungaturoto, Ōmana and Tapuhi. The areas of the reports are shown on the map overleaf.

All incidents were forwarded to the Deer Response Team immediately upon receipt, but whilst all incidents were followed up within 5 days, not all were able to be responded to within 48 hours.

The Response Team responded to and conducted surveillance for all incidents, but formalised plans were not always deemed necessary.</td></tr>
<tr><td>Surveillance frequency
100% of council deer management sites are visited on scheduled best practice rotation.</td><td>Data not available</td><td>Whilst the Deer Response Team conducted 670 hours surveillance in 2020-2021, incomplete historical incidence data prevents assessment of this performance measure.</td></tr>
<tr><td>Deer farm fence inspection
All deer farm fences (24 farms) are inspected biannually in partnership with the Department of Conservation.</td><td>Data not available</td><td>Fence inspections are managed by the Department of Conservation. Council is working with the department on a solution to allow synchronisation of inspection records between organisations.</td></tr>
<tr><td>Deer location records
100% of recorded deer locations are mapped across Northland.</td><td>Achieved</td><td>A map of deer reports in 2020-2021 and known deer management sites in Northland is shown overleaf.</td></tr>
</table>

DNA from deer droppings

May-June 2021

Droppings from a herd of several dozen deer living in and around the Russell Forest were collected for DNA analysis as part of a plan to eradicate the animals within the next three years.

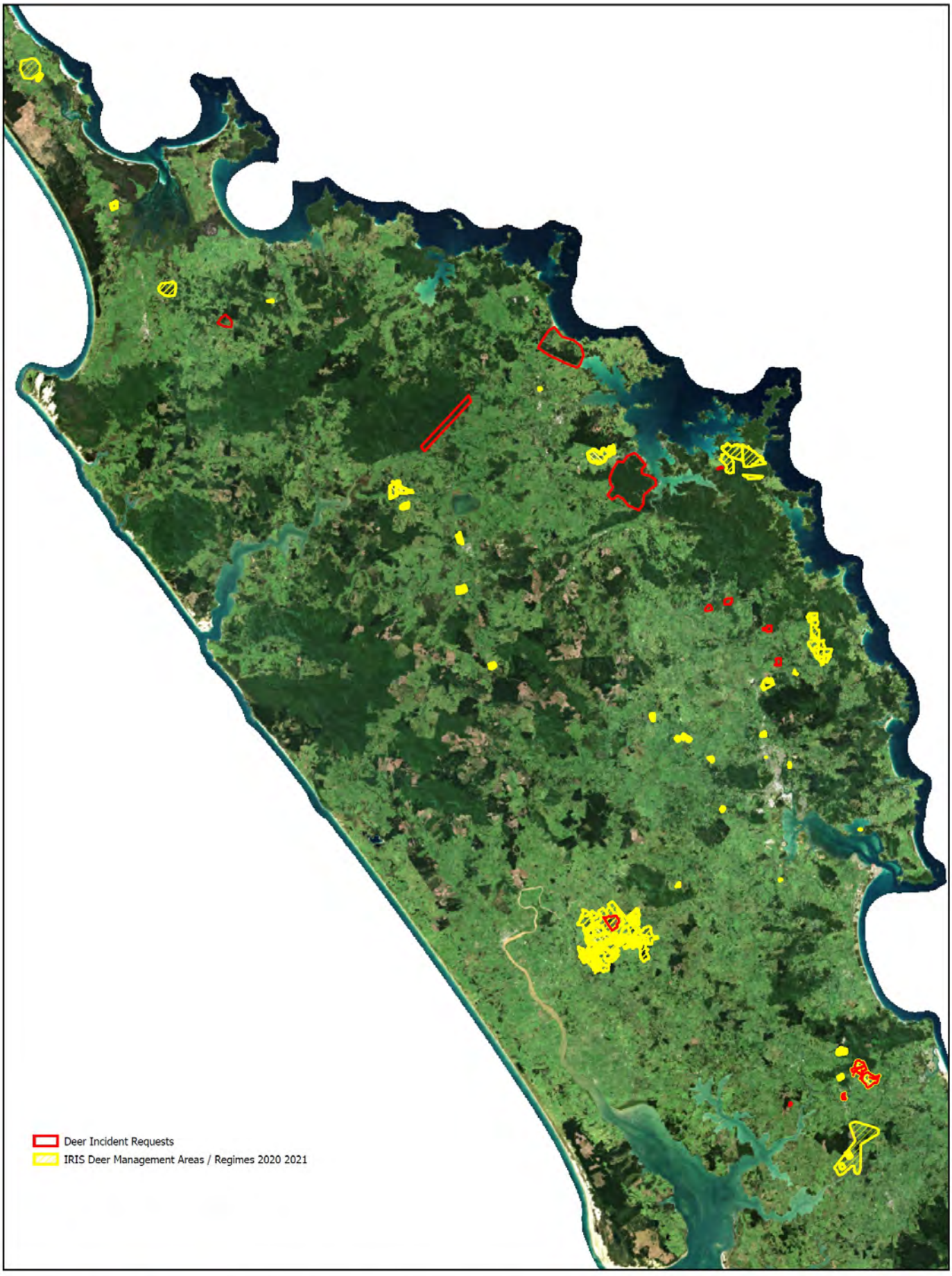
Despite ongoing – and successful – efforts to reduce their environmental impacts and prevent the deer spreading to other parts of the region, officials have been unable to eradicate them altogether, estimating there are 50 to 60 deer living in the forest and surrounding farmland.

It is estimated the herd could double in size in the next three years unless they're eradicated, which is where DNA testing has an important role to play. The DNA survey at a large property in the Russell area was the first step to eradicating sika deer from the area via the Russell Sika Eradication Programme. This 'proof of concept' trial will provide cost and effort data which can be modelled for the wider Russell Forest sika eradication.

A deer hunter with a sample of deer droppings collected for DNA analysis.

The survey involves collecting sika scat (pellets) along set transect lines across the 700 ha property. The pellets are collected, each sample location recorded by GPS, then the samples are sent for laboratory DNA analysis. From the pellet DNA it will be possible to determine the number of individual sika, and the sex and home range of each sika on the property.

Whilst the DNA analyses are still ongoing, initial results the trial are promising.



Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

IRIS Biosecurity Management Areas, Regimes and Deer Requests (2020-21 Financial Year)

0 4 8 16 Kilometers

N

7.3 Sustained control animals

Biodiversity restoration projects controlling sustained control pest animals are generally managed outside the Pest and Operational Plans through council's Biosecurity partnership programmes. These include:

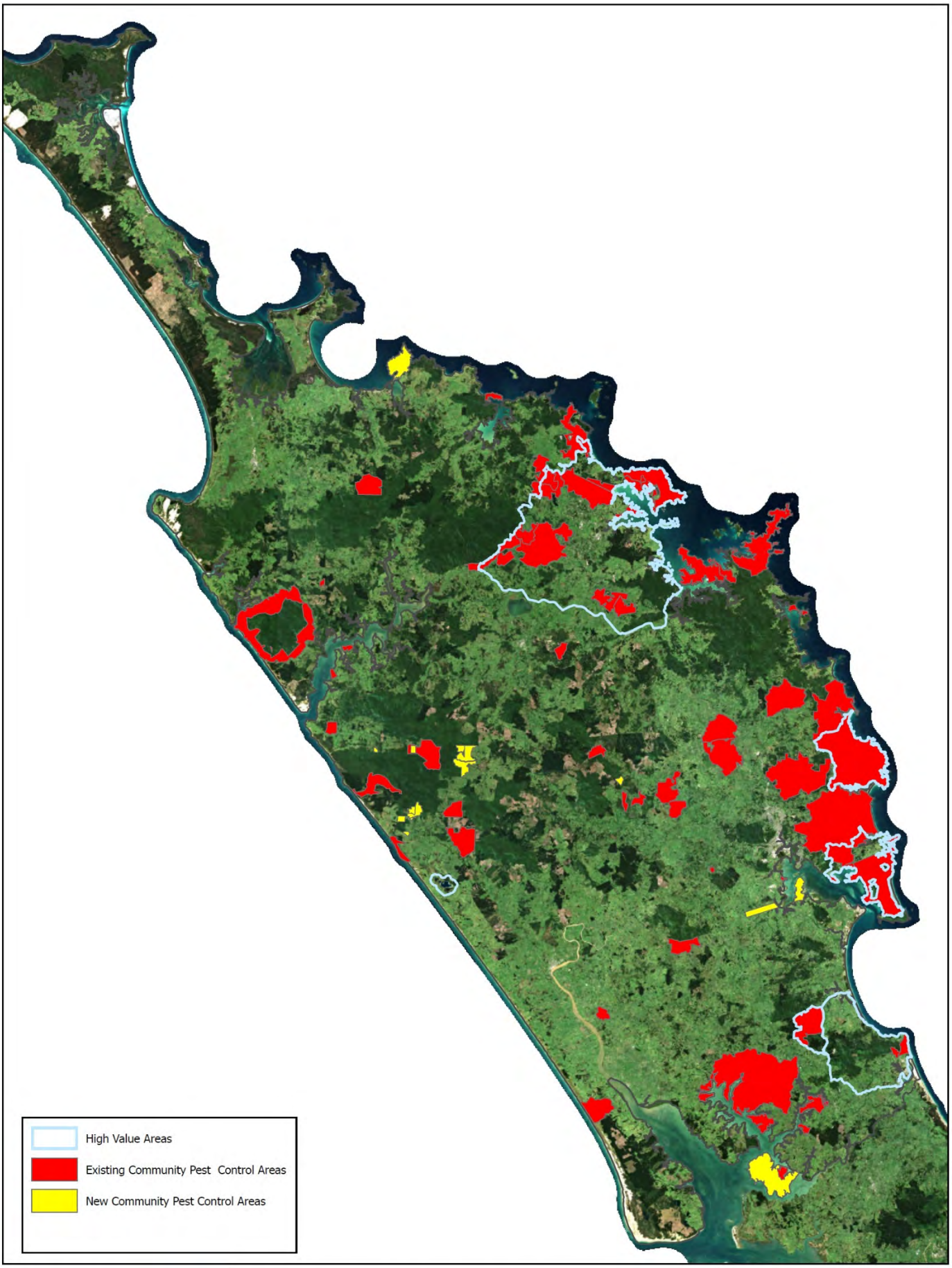
- **Community Pest Control Areas (CPCA)**
  A way of assisting communities to manage pests on private land.
- **High Value Areas (HVA)**
  Specifically identified areas of high biodiversity and/or cultural, recreational or economic value where the community lead and undertake pest control.
- **Biofund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

Caught! A possum (Trichosurus vulpecula) found in a burrow in a kiwi area.

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

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Land area in CPCAs
Increase in land under CPCA protection by 5,000 ha per annum.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>New CPCA land area (ha)</td><td>37,243</td><td>10,107</td><td>5,732</td></tr>
</table>
New and pre-existing CPCAs are shown in the map overleaf.
</td></tr>
<tr><td colspan="3">New CPCAs initiated during the year were:
<table>
<tr><th>CPCA Name</th><th>Area (ha)</th></tr>
<tr><td>Te Orewai CPCA</td><td>135</td></tr>
<tr><td>Matarua Predator Control Area CPCA</td><td>1,113</td></tr>
<tr><td>Native Forest Restoration Trust CPCA</td><td>755</td></tr>
<tr><td>Waipoua Forest Restoration Trust CPCA</td><td>263</td></tr>
<tr><td>Oneriri Pest Free Kaipara CPCA</td><td>3,466</td></tr>
<tr><td>Total area new CPCA (ha)</td><td>5,732</td></tr>
</table>
</td></tr>
<tr><td>Response to reports from public
Reports on sustained control pests will be responded to within 20 working days.</td><td>Response time data not available</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Requests received</td><td>5,200</td><td>4,263</td><td>4,149</td></tr>
</table>
</td></tr>
<tr><td colspan="3">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>
</table>



Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

Community Pest Control Areas 2020/21

Projection NZTM. Datum NZTM2000.
DISCLAIMER:
The Northland Regional Council cannot guarantee that the information shown is accurate and should not be reused in any manner without proper consultation with its owner.

0 3 6 12 18 24 30
Kilometers

July 26 2021

Performance Measure	Result	Details
Increase in kiwi populations Kiwi populations in council supported programmes increase by 2% per annum.	Achieved	

	2018-19	2019-20	2020-21	Change
Mean call/hr	7.2	7.3	12.1	4.8 ↑ *66%*

Kiwi call count monitoring is carried out annually across Northland by community landcare groups and some government agencies, in accordance with the Kiwi Best Practise Manual (Department of Conservation, August 2017, https://www.doc.govt.nz/globalassets/documents/science-and-technical/sap262entire.pdf).

Call count surveys are a tool to assess population trends over time. Fluctuations in mean call rates occur from year to year and so annual mean call rates need to be viewed in the context of the overall long term trend monitoring and whether that is increasing, decreasing or stable.

Data from council's High Value Area programmes (Piroa-Brynderwyn, Whangārei Heads, Tutukaka, and Mid-North) is collated. These community led projects are council's four largest supported programmes protecting kiwi. Data received from these groups in July each year is collated and averaged (call counts per hour) for the four areas. The baseline was established in 2018-2019 for comparison with subsequent years.

Backyard Kiwi WHLF

Backyard Kiwi reaches milestone

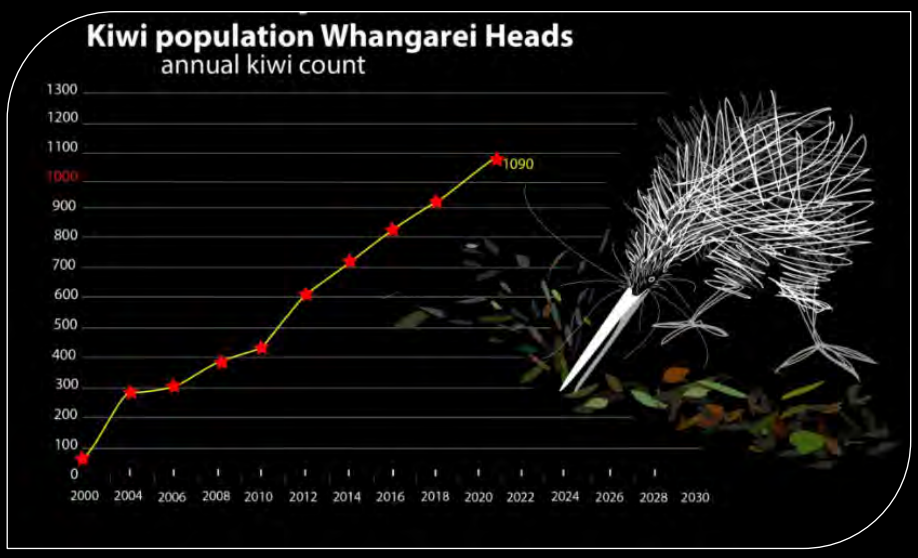
http://www.backyardkiwi.org.nz/

After a couple of tough years with sub optimal kiwi counting conditions, Backyard Kiwi finally had good weather and good kiwi breeding conditions (wet enough to give reasonable feeding conditions – so kiwi were calling hard during the listening period). These ideal kiwi counting conditions allow a good measure of the effectiveness of the Kiwi Recovery work being done at the Heads.

After 148 hours out in the cold listening at 19 sites, the team recorded 1,698 calls – a call rate of 11.5 calls per hour. Up from 7.3 calls/hour last year, the number of individual kiwi counted was 218 males and 110 females compared with 177 males and 92 females in 2020 (kiwi listening does not pick up all the female kiwi because they call less often and are harder to hear because of a deeper call note than the high pitched males). Using a model of 40% of the kiwi habitat at Whangārei Heads covered by listening stations and assuming 1:1 sex ratio it works out as:

218 males x 2.5 x 2 = **1,090** estimated adult kiwi population

This compared to 885 last season and 80 back in 2001. There are also more kiwi showing up north of the Heads in the "Kiwi Link" area. Many of these will be kiwi walking out of the Heads to find new territories – which is great news for kiwi recovery!



The results show that good stoat control, through quality trapping and 1080 toxin (Kiwi Saver) pulses, is giving good kiwi chick survival and above all else, shows responsible dog control by the majority of our community is paying dividends.

An outstanding effort on the part of Backyard Kiwi - well done for a huge team effort!

Northland Regional Council – Kiwi Coast Partnership

https://kiwicoast.org.nz/

In 2017, council consolidated its strong working relationship with the Kiwi Coast Trust into a significant working partnership. Working together, they are ensuring gains made to date are not lost and momentum continues. Working in unity also allows both Kiwi Coast and council to leverage further potential funding and show a strategically coordinated regional approach to community conservation.

Community events since 2013	
Skill building workshops	76
Kiwi event participants	18,367

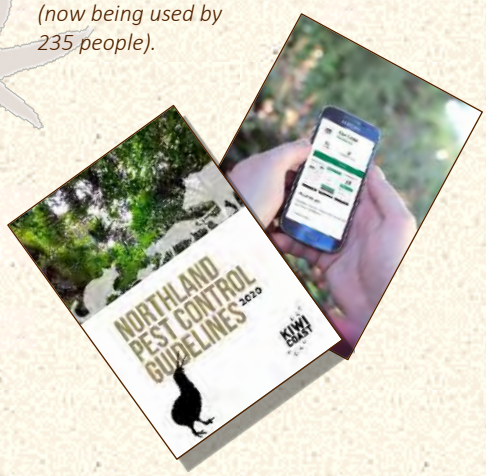
The kiwi coast programme has been expanding since work began eight years ago and now operates at a regional scale, linking **187** entities (of which 181 are community, iwi, and hapū led) over 291 km of coastline from Mangawhai at the southern limit of the Northland region to the Aupōuri Peninsula in the Far North.

Backyard Kiwi Release, February 2021

Kiwi Coast's main priorities are to reduce threats to kiwi survival and engage Northlanders in caring for their kiwi. It continues to support predator control in key areas with a goal to link projects and build continuous trapping networks across landscapes. This will boost kiwi survival and allow their safe dispersal into new areas.

Kiwi Coast Statistics *(calendar year)*	2016	2017	2018	2019	2020
Groups working to save kiwi	94	120	129	159	**187**
Land in active pest management *(ha)*	130,700	146,800	155,000	198,000	**224,760**
Animal pests gone *(since 2013)*	169,731	229,372	297,753	396,634	**492,458**

Resource development has included revising the Northland Pest Control Guidelines (in conjunction with the Biosecurity team), and upgrading the Kiwi Coast Listening app (now being used by 235 people).



Monitoring results continue to demonstrate the strength of Kiwi Coast's collaborative approach. Collated trap catch data shows that **492,458** animal pests were trapped by groups and projects involved in the Kiwi Coast over the last eight years. On average, **1,800** animal pests were trapped on the Kiwi Coast every week in the 2020 calendar year. Kiwi Coast also supports and assists projects to carry out pest control work using toxins to further reduce predator numbers.

The Kiwi Listening Blitz #2 was conducted with promising results. This five-yearly survey uses acoustic monitoring devices designed to track changes in the Northland Brown kiwi population within the Kiwi Coast collective project area over time. The survey found that of the 58 sites surveyed in 2016 the percentage of sites containing kiwi had increased from 65% to **82%**. Furthermore, of the new 170 sites surveyed in 2021 (reflecting the expanded area of Kiwi Coast operations), 95 sites contained kiwi.

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Council supported programmes – High Value Areas
Outputs of the areas measured.</td><td>Achieved</td><td>
<table>
<tr><th rowspan="2">High Value Area outputs</th><th colspan="2">Mustelids trapped</th><th colspan="2">Total pests trapped</th></tr>
<tr><th>2019-20</th><th>2020-21</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Mid-North [8]</td><td>518</td><td>655</td><td>47,495</td><td>40,210</td></tr>
<tr><td>Tutukaka</td><td>142</td><td>49</td><td>2,812</td><td>2,027</td></tr>
<tr><td>Whangārei Heads</td><td>45</td><td>38</td><td>865</td><td>947</td></tr>
<tr><td>Piroa-Brynderwyn [9]</td><td>226</td><td>271</td><td>2,917</td><td>3,497</td></tr>
<tr><td>Total</td><td>931</td><td>1,013</td><td>54,669</td><td>46,681</td></tr>
</table>
</td></tr>
<tr><td>Council supported programmes – Biofund
Biofunds approved for the community.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2017-18</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Biofund projects</td><td>54</td><td>70</td><td>87</td><td>117</td></tr>
<tr><td>Increase</td><td>-</td><td>16</td><td>17</td><td>30</td></tr>
</table>
</td></tr>
<tr><td colspan="3">The Biofund (Environment Fund for small three year management agreements and grant funding to establish pest control projects) continues to be well subscribed by the community with 117 projects in 2020-2021. Pest animal Biofund projects include both bait (predominantly rat in 2020-2021) and trapping hardware. Rural landowners are generally focussed on stoat control for kiwi protection.

A map of Northland showing the location of the Biofund 2020-2021 projects is shown overleaf.</td></tr>
<tr><td>Council supported programmes – traps supplied to community
Record of traps supplied maintained.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2017-18</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Traps issued</td><td>1,380</td><td>11,500</td><td>9,000</td><td>12,610</td></tr>
</table>
</td></tr>
</table>

Biofund 2020-2021	
Stoat traps	814
Cat/possum traps	1,264
Possum traps	543
Bait stations	1,483
Bait	1,474 kg

Right: *A delighted Kaeo resident receives his Biofund delivery of traps.*

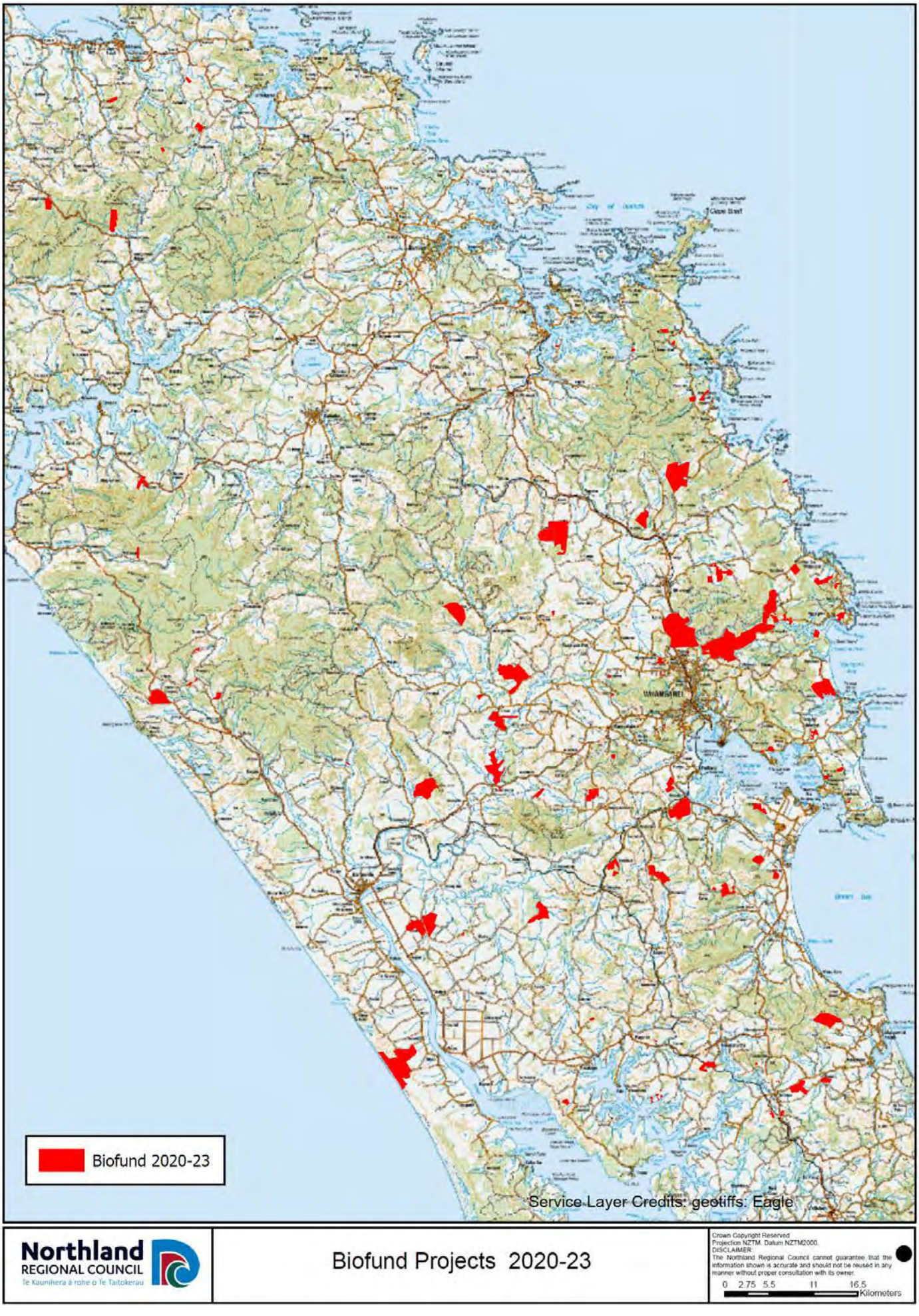
Below: *A load of boxes being collected from Ngāwhā Prison.*

Biofund
2020-2021

117 community projects were granted funding for pest control

[8] Mid North High Value Area data is for calendar years.

[9] Piroa Brynderwyn High Value Area 2019-2020 data has been revised to exclude toxin operations.


Biofund 2020-23
Service Layer Credits: geotiffs, Eagle
Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau
Biofund Projects 2020-23
Crown Copyright Reserved
Projection NZTM. Datum NZTM2000.
DISCLAIMER:
The Northland Regional Council cannot guarantee that the information shown is accurate and should not be reused in any manner without proper consultation with its owner.
0 2.75 5.5 11 16.5
Kilometers

Whakakoro Biodiversity Survey

December 2020

Whakakoro lies on the northern headland of Whangape Harbour, with the Awaroa River to the east. Part of the area is registered QE II National Trust Covenant this area contains two Level 1 sites of high ecological value, identified in the Department of Conservation's Protected Natural Area Programme. Pest control has been carried out in Whakakoro for some time and the landowners (Te Rūnanga o Te Rarawa) are seeking to extend the programme and set up a kōhanga kiwi. In December 2020 four members of the Biosecurity team joined Biodiversity staff in a field team including members from Manaaki Whenua – Landcare Research and Te Rūnanga o Te Rarawa to survey Whakakoro. The team were hosted by Te Kotahitanga Marae for the three day survey.

Bird species: Some 47 species of birds were found, of which 12 were either threatened or at risk of extinction. These included the nationally endangered reef heron (*Egretta sacra*) and the nationally vulnerable Caspian tern (*Hydroprogne caspia*).

Kiwi: Kiwi listening devices were used to survey nine sites, and kiwi were detected at all of them. Further surveys with people listening will be conducted (human surveys provide better information about density and distribution of kiwi). These surveys will indicate where to concentrate mammalian pest control in the initial stages of the kōhanga kiwi programme.

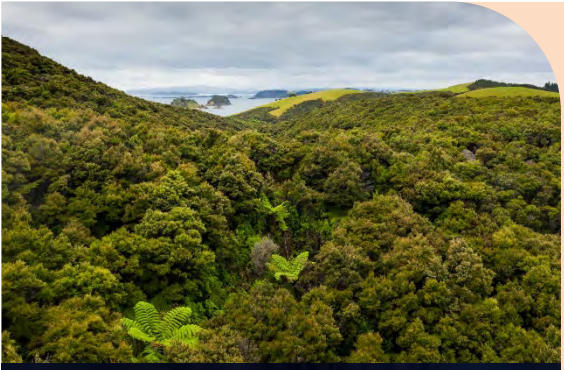
Freshwater fish: Three of four streams surveyed contained a variety of freshwater species including the seldom seen shortjaw kōkopu (*Galaxias postvectis*).

Pest species: A range of pest birds and animals including possums and rainbow (plague) skinks were observed by Biosecurity staff.

Vegetation survey: Two of 17 rare plants historically recorded in Whakakoro were reconfirmed during the survey including the nationally critical Matthew's forget-me-not (*Myosotis matthewsii*) and the at risk – relict pygmy sundew (*Drosera pygmaea*).

Biodiversity at Whakakoro – the good and not quite so good…

Clockwise from top left:
Nationally critical, Matthew's forget-me-not.
Pest reptile, rainbow skink.
Possum.
Hard to find shortjaw kokopu.
Centre:
At risk – relict pygmy sundew.



Mid North High Value Area

Community led conservation groups involved in the Mid North area are working together to restore biodiversity over approximately 40,000 ha between Purerua and Ōpua in the Bay of Islands and west as far as Kaikohe. Getting underway with council in 2018 the primary goal of the project is to connect existing landcare groups and create a landscape scale pest control area.

A highlight from the Mid North over the past year has been the establishment of the 'Pest Free Purerua Peninsula' project (https://pfp.kiwi). This covers 7,600 ha on the northern reaches of the Bay of Islands and is home to the highest density of kiwi in New Zealand. The project used a grant through Kiwis for Kiwi from the Department of Conservation's Jobs for Nature Funding in January 2021 to boost ongoing pest suppression to "chasing zero". Thus, not only clearing animal pests out from the peninsula, but also creating an 8,000 ha pest controlled buffer zone outside the peninsula from Kāpiro to Rangitāne to suppress pest reinvasion.

Since January, hundreds of new traps and pest control devices have been deployed, taking the total number of traps to 1,819. The boost in the trapping network has seen a large number of pests trapped on the peninsula and buffer zone, with possum bite mark indexing recording a low rate of just 1%.

Top: *Some of the stunning landscape in the Mid North HVA.*
Middle: *A kiwi checks out one of the new trap boxes.*
Bottom: *Purerua Peninsula.*

Tutukaka High Value Area

https://tutukakalandcare.org.nz/

For 18 years Tutukaka Landcare has been carrying out predator control in the region and this work continues under the High Value Area project. This work has seen the recovery of kiwi and pateke populations that were on the brink of collapse.

Always the highlight of the year, the annual kiwi release in April was a huge success, attended by over 250 people coming to see wild kiwi up close. The event is great way to engage the community, allowing them to meet a kiwi and learn how they can help to save them through responsible dog ownership and supporting ongoing trapping projects.

Ngunguru School runs a dedicated earth education program across all year groups. With support from Tutukākā Landcare and Ngātiwai, this programme aims at instilling an understanding of Kaitiakitanga and science into the next generation of decision makers. Senior students (Years 7 and 8) focus on invasive species and restoring food chains. The landcare helps the kids set up and maintain a rat trapping network around the school and teaches them how to be safe in the bush. Tutukaka Landcare also offers an internship to four senior students each year. These students spend several days a term in the field with the landcare trapper checking predator traps, and monitoring kiwi and ōi (grey faced petrels).

Top: *Tutukaka Landcare area.*
Bottom: *Both young and old turn out for the Tutukaka Landcare annual kiwi release.*

Whangārei Heads High Value Area

http://www.backyardkiwi.org.nz/kiwi-and-community/whlf

Twenty years of successful kiwi recovery work has seen the Whangārei Heads kiwi population increase from approximately 80 kiwi in 2001 to over 1,090 in 2021. Backyard Kiwi is one of the most successful kiwi recovery projects in New Zealand, with the kiwi population is now expanding northwards into the Kiwi Link area. The factors contributing to Backyard Kiwi's success are:

1. **Stoat Control:** Maintaining a comprehensive and effective predator trapping network targeting mustelids (ferrets, stoats, and weasels) and feral cats over a 7000 ha plus area. Complementary periodic ground based secondary poison pulses (Kiwi Saver 1080) in selected areas to remove trap shy stoats (that build up in any trapping system) is also an essential part of the control.
2. **Outcome Monitoring:** Monitoring of the kiwi population through annual kiwi counts from 20 listening stations and by radio telemetry monitoring of a sample of kiwi fitted with radio transmitters.
3. **Community Engagement and dog control:** Specially targeted engagement is maintained through the trapping network, public kiwi releases, radio monitoring, signage, bumper stickers, newsletters, and also through "telling the story" with video clips on Facebook and the Backyard Kiwi website (www.backyardkiwi.org.nz). There are also public events and regular visits to local schools. As uncontrolled dogs are the major threat to adult kiwi this public engagement is crucial to the long term sustainability of the Whangārei Heads kiwi population.

Although the kiwi recovery work has been very successful to date, continued trapping and toxin pulsing of reinvading predators, ongoing monitoring, and engagement of landowners for dog control are essential for future success of kiwi recovery at the Whangārei Heads and wider area.

Top: *Whangārei Heads peninsula.*
Middle: *A high value area volunteer listening for kiwi.*
Bottom: *>1,000 kiwi – an achievement worth bragging about…*

Piroa Brynderwyn High Value Area

Building on more than 30 years of work by Marunui Conservation, Piroa Brynderwyns Landcare brought together iwi, hapū, landowners, land managers and community members in 2017. Since then, the Landcare has deployed and maintains approximately 1,250 pest traps to protect resident birds such as kiwi, kākā, kererū and fernbirds from predators. Spanning more than 22,000 ha, from Bream Tail to Waipū, bordered on the west by SH1, the high value area combines high biodiversity and recreational values with strong community interest in pest control.

Home to threatened and regionally significant plants and animals; native Hochstetter's frogs, long tailed bats and longfin eels also inhabit the area. Kiwi have been released since 2013 and are now successfully breeding.

Piroa Brynderwyns Landcare's latest focus is Waorahi, a 200 ha property purchased in late 2020 by Piroa Conservation members. Located between two Department of Conservation reserves, the property connects almost 1,000 ha of regenerating bush. This property provides a unique opportunity for a landscape scale approach to pest eradication – especially targeting possums, rats, and mustelids, providing a safe haven for kiwi in nearby Marunui to spread out over a wider area.

The landowners have already made significant progress at Waorahi. Overgrown tracks, gorse, pampas, and wilding pines have been cleared, and the owners aim to replant more than five hectares in native trees and plants. Preparation is underway to deploy 400 bait stations this winter.

Top: *Piroa Brynderwyn Landcare.*
Middle: *Long finned eel.*
Bottom: *One of the many Landcare volunteers maintaining the trap network.*

Predator Free Whangārei

Predator Free Whangārei aims to protect, restore, and enhance thousands of hectares of Northland's native forests, coastal habitats, and wetlands, allowing for greater protection and enhancement of threatened species of native fauna and flora.

It is a $6M dollar project coordinated by council over five years, with a commitment to work in collaboration with Department of Conservation, Kiwi Coast, tangata whenua, Whangarei District Council, Backyard Kiwi, QEII National Trust, Bream Head Conservation Trust, Whangārei Heads Landcare Forum, Tiakina Whangārei, Pukenui Western Hills Forest Trust, Tutukaka Landcare Coalition, Friends of Matakohe Limestone Island, and numerous other community groups.

Over five years Predator Free Whangārei aims to:

- Completely remove possums from the Whangārei Heads Peninsula (9,000 ha).
- Intensively control mustelids over 60,000 ha between Whangārei and Te Whara / Bream Head (60,000 ha).
- Intensively control rats in high priority sites.
- Intensively control possums between Whangārei and Pārua Bay to prevent their dispersal into Whangārei Heads.
- Develop an urban predator control programme in Whangārei City.

To date the programme focus has been on building the necessary foundations required to achieve these ambitious goals. These foundations have included building relationships with project partners; developing methodology, systems, and protocols; forming the delivery team; as well as seeking access agreements with landowners at Whangārei Heads.

Key achievements of 2020-2021 include:

- 99 landowner agreements obtained (4,300 ha of the 9,190 ha area).
- Department of Conservation and Ministry of Health agreements progressing as planned.
- Development of critical resources including GIS and data management platforms, policy, and processes.

Predator Free Pēwhairangi (Bay of Islands)

Predator Free Pēwhairangi (Bay of Islands) is an ambitious $4M landscape, community led predator control and eradication project being undertaken in partnership with Bay of Islands iwi, hapū, landowners, community landcare groups, organisations, and other agencies. It will primarily work across the three main peninsulas within the Bay of Islands; Purerua Peninsula (7,600 ha), Russell Peninsula (3,000 ha), and Cape Brett/Rākaumangamanga (3,000 ha) to establish a pathway to predator eradication, and suppression of predators in the wider Bay of Islands landscape (81,300 ha).

The project has progressed significantly with project partners planning for an agreed approach to deliver eradication of predators over the three peninsulas in the Bay of Islands and suppression of predators throughout the wider landscape of Bay of Islands. Engaging with iwi and hapū has been a significant component of this stage of the project, which is providing guidance and direction on how the project can support the needs and aspirations of Māori within the Bay of Islands. The project has established two operational working groups to help guide operational planning and the development of technical eradication plans for Rakaumangamanga and Russell peninsulas, comprised of iwi, hapū, local community groups and agency representatives.

Work on Purerua peninsula is already underway, with Kiwi Coast Trust leading an eradication project funded by Kiwis for Kiwis from additional funding through Jobs for Nature funding.

Tiakina Whangārei

Launched in August 2019, Tiakina Whangārei is a community led urban initiative helping people connect with their environment through conservation activities. The Tiakina Whangārei operational area includes all urban Whangārei, and also has some work done within the forest fragments adjacent to the city, such as Parihaka and Pukenui.

Tiakina Facebook page 2020-2021	
Page views	873
Post reach	97,732
New page "likes"	249
New page "followers"	258
Post engagement	11,594
Video clip views	815

Predator Free Onerahi stall at the Onerahi Markets.

The 2020-21 year saw steady growth in Tiakina Whangārei. The conspicuousness of the project has increased because of a more focussed online presence and the development of the Predator Free Onerahi sub-project launched in late 2020.

In addition, a greater emphasis was put into the development of larger projects that are aligned with the objectives of Tiakina Whangārei. This included the development of a proposal to increase predator control across Parihaka. The Parihaka proposal has been supported in the Whangārei District Council Long Term Plan and will begin in 2021-2022.

Several surveys were also conducted during the year including:

- **Predator surveys:** This included a Department of Conservation one night tracking tunnel survey (rodents) and National Pest Control Agency seven night chew card survey (possum) conducted at 15 urban and forest sites in September-October.
- **Ship rat : Norway rat ratio:** With support from NorthTec, kill trapping was conducted between August-October to determine the distribution and composition of rat species across Whangārei.

Tiakina engagement 2020-2021	
Public events	6
Facebook posts per month	4+
Print articles	4
Tiakina newsletters	4
School visits	12

Tiakina TrapNZ

From top left:
Rats (Rattus) are urban predators targeted through Tiakina's trap promotion.
Backyard trapping.
The Whangārei Men's Shed is now both making and selling Tiakina rat traps.

Tiakina TrapNZ 2020-2021	
Traps sold	437
TrapNZ registrations	348
Traps uploaded	304
Pests removed	681

7.4 Community engagement

2020-2021 pest animal community engagement activities in a glance

8
School visits / events
19 since 2018

10
Kiwi releases & associated events
33 since 2018

2
A&P Shows / Field Days
12 since 2018

25,745
YouTube channel views

14,043
Pest control hub total page views
33.6 days viewing

13,400
Facebook video views

38
Stakeholder activities
51 since 2018

121
Students attained NCEA credits
977 since 2011

27
Pest workshops
58 since 2018

Performance Measure	Result	Details
Community engagement – events and activities Total number of engagement events conducted to increase awareness of animal pests is maintained, or greater than the previous year.	Achieved	

Refer Appendix for more details	2018-19	2019-20	2020-21
Field Days / A&P Shows	5	5	2 [10]
Community events	4	10	4
School visits and workshops	2	9	8
Enviroschools workshops	6	7	7
Stakeholder activities	4	9	38
Pest workshops and contractor training	4	27	28
Kiwi releases and activities	8	15	10
Controlled substances licence courses	*Data n/a*	7	5
Total	**35**	**89**	**102**

Enviroschools students with NCEA credits	
2018-2019	110
2019-2020	146
2020-2021	121
Since 2011	**977**

Clockwise from top right:

Secondary school students gain NCEA credits whilst learning how to set traps and help protect the environment (March 2021).

The annual Northland Pest Control Wānanga (co-hosted by Ngāti Rēhia at Whitiora Marae this year) drew 180 participants (June 2021).

Pest control attracted a lot of attention at the Paparoa A&P show (February 2021).

Pest animal community engagement

2020-2021

[10] Several events were cancelled because of Covid-19 restrictions.

Kiwi Releases

Over 250 people attended the Tāheke Kiwi Release (February 2021)

Boxed kiwi ready for transport from Motuora Island.

Whakawātea ceremony for kiwi prior to the Backyard Kiwi release.

Kiwi releases are an important part of ongoing kiwi recovery work in Northland. The releases and the follow up radio monitoring of the kiwi are a cornerstone of engaging locals with their local kiwi.

Biosecurity staff assisted with four kiwi releases during the year:

- **Pukenui Western Hill Forest Trust**, February 2021
  Biosecurity staff assisted with the night capture of 14 kiwi on Motuora Island for translocation into the forest. Four of the kiwi were taken to Whangārei Intermediate School where a crowd of about 100 people gathered to meet the kiwi before they were released.

- **Backyard Kiwi Annual Kiwi Release (Pārua Bay)**, February 2021
  The Biosecurity team also assisted with the annual Backyard Kiwi release. Five kiwi were captured on Matakohe/Limestone Island and released into the Pārua Bay area. Around 90 people attended the whakawātea ceremony blessing the kiwi on their arrival. Around 250 people later attended the release at Pārua Bay.

- **Tawapou (Tutukaka High Value Area) Release**, April 2021
  Four kiwi were welcomed to Tawapou farm by nearly 300 visitors who had a chance to see the birds up close before they were released into the wild.

- **Tāheke Landcare Release**, April 2021
  The release of ten kiwi into Tāheke Landcare (within the Kiwi Link Community Pest Control Area) for the first time was a milestone event for the Landcare. The group have been working hard since 2013 removing pests and building a community of committed dog owners keen to restore a local wild kiwi population. The release was well attended by over 250 people.

Kiwi meet and greet at the Tāheke Landcare kiwi release.

Performance Measure	Result	Details
Community engagement – online media Level of social media interactions to increase the awareness of animal pests is maintained or greater than the previous year.	Achieved	

Refer Appendix for more details	2018-19	2019-20	2020-21
Council Facebook page posts	19	6	25
Council Facebook most popular post	3	1	2
Council Facebook video collection – views	*Data n/a*	50,300 [11]	13,400
Pest control hub – page views	*Data n/a*	2,708	14,043
Pest control hub – total page view time	*Data n/a*	9.1 days	33.6 days
Council YouTube channel views	*Data n/a*	6,269	25,745
Stories	4	3	4
Press releases	3	1	3

Most popular Facebook page post
August 2020
Feral deer hui

Performance Measure	Result	Details
Bicultural collaboration The number of relationships or collaborative projects underway with hapū, whanau or iwi increases by a minimum of 5% annually.	New measure	*Baseline establishment of a new performance measure 2020-2021.* At the end of 2020-2021, the Partnerships and Predator Free biosecurity teams have five collaborative relationships established with hapū, whānau or iwi. These collaborations are with: • Kaitiaki Kiwi CPCA • Maunganui Bluff CPCA • Te Toa Whenua CPCA • Te Tangi O Te Ata CPCA • Rāwhiti 3B2 Trust
Bicultural capability All permanent staff will have achieved competency level 1 in council's Te Whāriki workshops.	Achieved	*Baseline establishment of a new performance measure 2021-2022.* All permanent staff on the Partnerships and Predator Free biosecurity teams have achieved competency in level 1 of the Te Whāriki workshops.

[11] Detailed metric data not available for Facebook video clips – 2019-2020 clip view and reaction data run from inception to October 2020.

Te Toa Whenua CPCA

Te Toa Whenua is an ecological restoration project of 900 ha of land along the Waipoua River returned to Te Roroa as part of the Treaty of Waitangi Settlement process. The Te Toa Whenua project combines wāhi tapu preservation and protection, with large scale native forest restoration including pest control and intensive weed management.

Council is supporting Te Roroa aspirations by providing funding towards ground based possum control. In 2020-2021 Te Roroa established a bait station network across 1800 ha of land that encompasses and surrounds the Te Toa Whenua project area. Within the possum control area there are virgin stands of forest with kauri and associated taraire and towai with frequent rimu, Northern rata, tawa, and pukatea, as well as significant areas of riparian vegetation including stands of totara, kohekohe and kowhai that are being heavily impacted by possum browse.

Bait stations were placed on existing Kaitiaki Kiwi mustelid trap lines within Te Toa Whenua as well as the marking, cutting and installation of new bait station lines. Kauri protection was at the forefront of the bait station installation and lines were placed to avoid going through kauri stands and strict hygiene practices are in place.

The Te Toa Whenua project coordinator fills a bait station with feratox on one of the bait station lines.

Three bait station fills have been completed this year by Te Roroa Te Toa Whenua and Environs team members, local contractors, and agency staff from council and the Department of Conservation. Feratox pellets (encapsulated cyanide) and chicken feed sized prefeed is placed within a large Philproof bait station with a flour-icing sugar blaze on the tree to entice the possums in. This method is achieving high removal rates at each station and an estimated 7,000 possums have been eliminated.

The post monitor result from this year's control was 9% Residual Catch Trap which was below the threshold of 10% that is required to maintain a healthy canopy in the Waipoua Forest. Rapid reinvasion from surrounding native and plantation forest is likely to be an issue, therefore result monitoring will continue to be used to refine the timing and frequency of operations to further improve results.

The extensive bait station network installed by Te Roroa at Te Toa Whenua with funding support form council.

8. Kauri protection | **Kia tūpato**

Kauri trees killed by Phytophthora agathidicia.

2020-2021 at a glance – kauri protection

28
Sites Sampled

200
Hygiene kits distributed

950 since 2018

10
Kauri protection workshops

8
Management plans

53 since 2018

3
New high risk properties

58 high risk properties contained

67
Mitigation advices

142 since 2018

24
School visits / events

48 since 2018

10
Hygiene stations installed

20 since 2018

960
Students educated about kauri dieback

1,740 since 2019

Programme objectives and aims

Sustained controlled diseases are those widespread throughout Northland in suitable habitats. 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.

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Soil sampling
Completion of aerial survey sites[12] (52 sites left of 305 identified in 2017-2018) and follow up sampling of positive sites.</td><td>Achieved in part</td><td>
<table>
<tr><th>Sample site</th><th>2018-19</th><th>2019-20</th><th>2020-21</th><th>Total</th></tr>
<tr><td>Aerial surveillance</td><td>183</td><td>70</td><td>14</td><td>267</td></tr>
<tr><td>Requests / follow ups</td><td>25</td><td>9</td><td>14</td><td>48</td></tr>
</table>
Overleaf is a map of Northland sample site locations.
Positive sites identified 2020-2021 = 3
</td></tr>
<tr><td colspan="3">The majority of the remaining 38 sites identified in the 2017-2018 aerial survey now are landowners who either do not want Biosecurity staff on their property, or who were unable to be contacted. There are a few landowners who will allow access, but weather conditions have prevented staff from completing site visits.</td></tr>
<tr><td>Management plans
All high risk properties [13] have management plans.</td><td>Achieved in part</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th><th>Total</th></tr>
<tr><td>High risk properties</td><td>40 [14]</td><td>15</td><td>3</td><td>58</td></tr>
<tr><td>Plans prepared</td><td>12</td><td>33</td><td>8</td><td>53</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Plan preparation for high risk properties has been prioritised and is proceeding as quickly as is possible within constraints of staff availability. Some sites are on Māori land with multiple landowners and further work is required to engage with the multiple landowners to develop a plan.</td></tr>
</table>

Mitigation advice

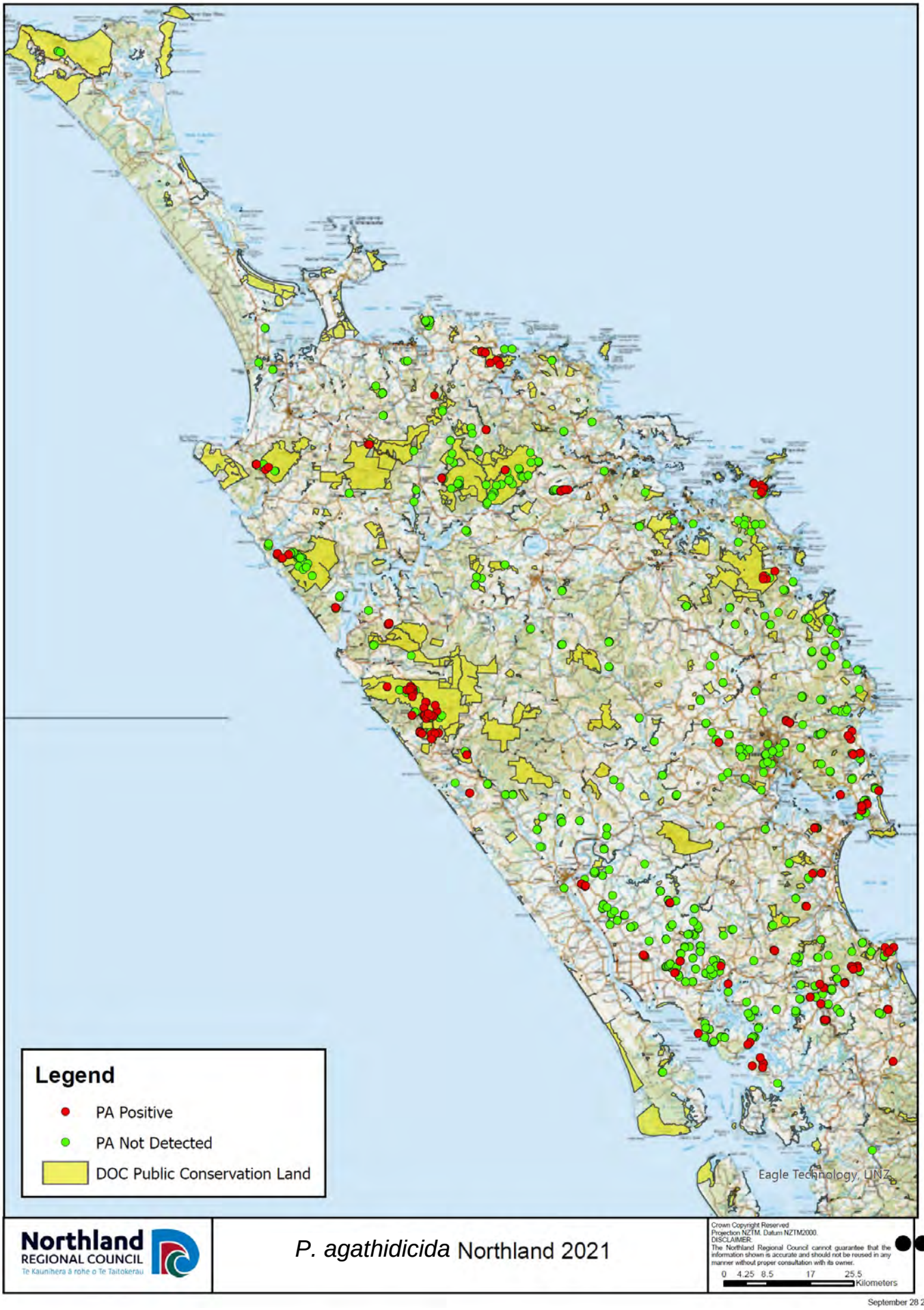
Landowners with sites that have tested negative or deemed to be low risk for *P. agathidicida* are supplied with a mitigation advice plan. This landowner support is undertaken outside of the Pest Plan and is considered a valuable additional measure to help prevent the spread of *P. agathidicida.*

Mitigation advices issued	
2018-19	18
2019-20	57
2020-21	67
Total	**142**

[12] Aerial surveillance sites are not the same as the number of properties visited as multiple aerial surveillance sites can be located on a single property.

[13] High risk properties are those either infected with *P. agathidicida*, or at risk of becoming infected because of proximity to an infected property.

[14] Positive properties include 30 historical cases identified prior to the aerial surveillance done in 2017-2018.


Legend
PA Positive
PA Not Detected
DOC Public Conservation Land
Eagle Technology, UNZ
Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau
P. agathidicida Northland 2021
Crown Copyright Reserved
Projection NZTM. Datum NZTM2000.
DISCLAIMER:
The Northland Regional Council cannot guarantee that the information shown is accurate and should not be reused in any manner without proper consultation with its owner.
0 4.25 8.5 17 25.5
Kilometers
September 28 2021

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Request response times
Requests from the public shall be responded to within 5 working days.</td><td>Achieved</td><td><table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Requests received</td><td>48</td><td>18</td><td>25</td></tr></table></td></tr>
<tr><td colspan="3">All requests received were responded to within 5 working days.</td></tr>
<tr><td>Incident response times
All incidents are recorded, and a response plan developed and implemented within 20 working days</td><td>Not achieved</td><td><table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Incidents reported</td><td>38</td><td>16</td><td>15</td></tr></table>All incidents were responded to, and a plan formulated within 20 days, but plans could not always be implemented.</td></tr>
<tr><td colspan="3">This performance indicator is difficult for the team to achieve because:
• P. agathadicida sampling can not be performed in wet conditions and testing takes two months to complete.
• A full response is not always practical or necessary within 20 days.</td></tr>
<tr><td>P. agathadicida distribution
Maintain a record of distribution of P. agathidicida disease across Northland.</td><td>Achieved</td><td>Data has been recorded on both national and council databases. Sampling data is recorded in ARCGIS online and viewed through a P. agathidicida viewer.</td></tr>
<tr><td>Hygiene stations
A minimum of 5 hygiene stations installed to improve track hygiene in 2020-2021.</td><td>Achieved</td><td><table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Stations installed</td><td>3</td><td>7</td><td>10</td></tr></table></td></tr>
<tr><td colspan="3">In addition to the 10 hygiene stations installed in Northland, a further 24 stations were sold to the Department of Conservation (Thames, Coromandel).</td></tr>
</table>

Hygiene stations

Hygiene stations are an important part of helping ensure visitors to our kauri arrive (and leave) with clean footwear. This year the Biosecurity kauri protection team gave out 10 hygiene stations across Northland. The barrel and grate stations come in two sizes for tracks with varying volumes of traffic.

Newly installed hygiene station on the Harambee entrance to the Kauri Mountain section of the Te Araroa Trail.

Council Chief Executive Malcolm Nicolson makes good use of a hygiene station on the Te Araroa trail.

Hygiene stations 2020-2021	
New hygiene stations provided	10
Replacement guns for existing stations	20
Sterigene concentrate provided	72 L
Construction jobs Whangārei Men's Shed	5
Construction jobs Waipū Menzshed	5
Locals involved in station maintenance	4
Local staff employed	16
Vehicle cleaning stations	2
Hygiene stations sold to another agency	24

Kauri Mountain Te Araroa trail upgrade

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

Kaikohe based, Johnson Contractors Ltd has a team of 16 staff working on the 14 month project, which includes a series of eight tracks upgrades to the national standard for mitigating *P. agathidicida*, including boardwalks, box steps and resurfacing.

The newly unobstructed view of Ocean Beach to Bream Head from the new viewing platform at the top of the Kauri Mountain track.

Kauri Mountain Te Araroa trail upgrade	
Track upgraded	1,300 m
Aggregate filled box steps	>400
Flights of box steps	50
Boardwalk	48 m
Geoweb mat	80 m
Aggregate resurfacing	500 m
Local staff employed	16

A recently completed upgrade in the Kauri Mountain area, east of Whangārei, saw 1,300 metres of track heavily upgraded, with more than 400 aggregate filled box steps installed (encompassing more than 50 flights), along with two lengthy boardwalk sections, one of 30 m, the other 18 m. There was also more than 500 m of aggregate resurfacing as part of the upgrade. Sections where kauri trees were close to track were protected with 80m of 'geoweb', a special honeycomb style mat that's filled with bark and aggregate to help protect and promote the growth of delicate kauri roots.

The upgrade also included a new 5.2 m diameter viewing platform at the peak of the roughly 250 m high Kauri Mountain. The interesting thing about the platform is that it was deliberately constructed to match the diameter of one of the Waipoua Forest's largest kauri, Te Matua Ngahere, which has a girth larger than its famed cousin Tāne Māhuta.

The project is scheduled to finish in January 2022.

From left:
Box steps leading up to new boardwalk.
Geoweb matting before filling with bark and aggregate.
Boardwalk wending its way through young trees.

Performance Measure	Result	Details

Community engagement – events and collateral
Deliver a minimum of 10 public engagement events annually.

Achieved

Refer Appendix for more details	2018-19	2019-20	2020-21
Field Days / A&P Shows	3	2	0 [15]
Community events (includes sponsorships)	7	6	3
School visits and workshops	11	13	24
Stakeholder activities	11	11	9
Kauri protection workshops	-	1	8
Pig hunting competitions	1	10	2
Total events	**33**	**43**	**46**
Collateral distributed – hygiene kits	250	500	200
Collateral distributed – visitor leaflets	-	-	3,000

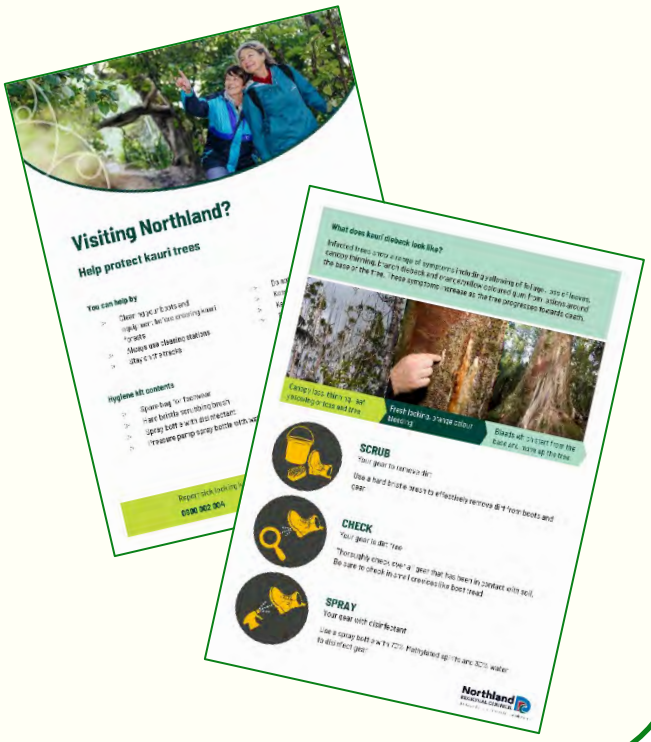
Hygiene kits

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

Hygiene kits distributed *(approximate)*	
2018-2019	250
2019-2020	500
2020-2021	200
Total	950

Tourist information brochures

These brochures are full of key information for Northland visitors about how they can help protect kauri. Through the Whangarei District Council, **3,000** brochures were issued in 2020-2021.



[15] Events were cancelled by Covid-19.

Clean Card

Kauri Protection Workshops

Northland communities include a variety of forest users and people who interact with our forest environment. Whether it be on two legs or four wheels, from hikers to hunters and everything in between, the forest is an integral part of Northland communities, and it is important that our communities can continue this relationship without causing harm to kauri.

In 2020 the kauri protection team created the "Clean Card" workshops which aim to upskill Northland communities on how they can protect kauri whilst still being able to undertake their chosen forest activity.

Target audience?

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

Where?

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

Clean Card Workshop at Matauri Bay marae

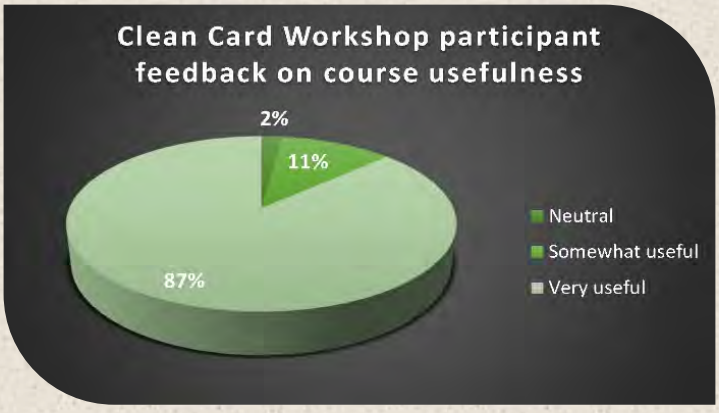
Hands on learning at the Matauri Bay workshop

What do the workshops involve?

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

Feedback

The team completed **eight** workshops in 2020-2021 and have received positive feedback. Survey results from 78 participants during the year showed **87%** found the course very useful.



<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Community engagement – online media
Level of social media interactions to increase the P. agathidicida awareness is maintained or greater than the previous year.</td><td>Not Achieved</td><td>
<table>
<tr><th>Refer Appendix for more details</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Council Facebook most popular post</td><td>-</td><td>1</td><td>-</td></tr>
<tr><td>Council Facebook video collection – views</td><td>data n/a</td><td>86,600 [16]</td><td>3,100</td></tr>
<tr><td>Stories published</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Council YouTube channel – views</td><td>data n/a</td><td>747 [17]</td><td>2,063</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Staff resources have been focussed on face-to-face community engagements during the year such as the Kauri Protection Education programme in Northland schools and the Clean Card workshops.</td></tr>
<tr><td>Bicultural collaboration
The number of relationships or collaborative projects underway with hapū, whanau or iwi increases by a minimum of 5% annually.</td><td>New measure</td><td>Baseline establishment of a new performance measure 2020-2021.
At the end of 2020-2021 the kauri protection team have three collaborative relationships established with hapū, whanau or iwi. These include:
3B2 Trust Rāwhiti
Patuharakeke
Ngāti Rēhia.</td></tr>
<tr><td>Bicultural capability
All permanent staff will have achieved competency level 1 in council's Te Whāriki workshops.</td><td>Achieved</td><td>Baseline establishment of a new performance measure 2020-2021.
All permanent staff on the kauri protection team have achieved competency in level 1 of the Te Whāriki workshops.</td></tr>
</table>

Kauri protection monthly updates

When Covid-19 restrictions impeded face-to-face stakeholder engagement activities in March 2020, the kauri protection team began a monthly update to key stakeholders.

The update email was reformatted in March 2021 to a monthly newsletter and is now distributed to **50** kauri protection stakeholders every month.

[16] Detailed metric data not available for Facebook video clips – clip view and reaction data is from inception to October 2020.

[17] Detailed metric data not available for YouTube video clips – clip view data runs between November 2019 and October 2020

Little paws make big impression

Oi, the first kauri protection engagement canine comes complete with his own hi vis jacket.

Kauri protection education in Te Taitokerau schools has taken on new appeal with Oi the kauri protection engagement canine on the job.

In February 2021, the kauri protection team welcomed Stella Kake-Schmid and her dog Oi on board to focus on engagement in Northland schools. The aim is to connect with the next generation and build awareness of the importance of their role as kaitiaki and protectors of the environment. This relationship will strengthen the uptake of kauri protection practices within the wider community.

Kauri protection school programme 2020-2021	
Northland schools	19
students	791
teachers	80

An educational programme was created to turn the hearts and minds of the next generation towards our environment. A key part of the programme was the inclusion of Oi the first kauri protection engagement canine. Oi plays an integral part in visually promoting the message that even the dirt on his small paws can have a huge impact on our environment. The kauri protection presentation was delivered to 19 schools that reached 791 students in 2020-2021.

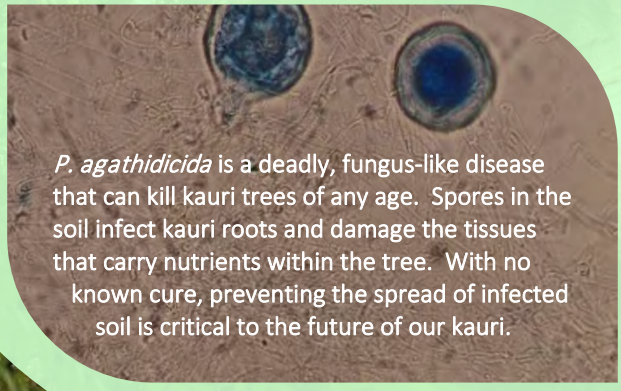
Council works with schools and early education across the region through the Enviroschools Programme, and kauri protection education is a natural fit with the living landscape's theme area. Enviroschools facilitators have helped link the kauri protection workshops into the school curriculum through learning areas like the nature of science, the living world, place and environment and continuity and change. During Stella and Oi's two-hour interactive workshop students learn about kauri trees, how *P. agathidicida* works and what we can all do to protect the kauri in our forests.

Oi makes his appearance to illustrate how even little paws like his can spread around infected soil – a pinhead size of soil is enough to spread the disease.

"Scrub, check, spray so you arrive clean and leave clean when you're in Northland's kauri forests", is Stella's message.

"Having that integration into the curriculum helps ensure the learning around kauri protection is embedded and continues to grow long after Oi and I have visited."

Stella and Oi demonstrating how even Oi's little paws can spread around infected soil.



P. agathidicida is a deadly, fungus-like disease that can kill kauri trees of any age. Spores in the soil infect kauri roots and damage the tissues that carry nutrients within the tree. With no known cure, preventing the spread of infected soil is critical to the future of our kauri.

"We talk with the tamariki about thinking of a forest like a house – you wouldn't go into someone's house with dirty shoes, and we need to have the same respect and care for our ngahere."

9. Freshwater pests | **Riha wai māori**

Red eared slider turtle

2020-2021 at a glance – freshwater pests

0
Exclusion species incursions

9
Eradication species incidents

1
Multiple agency response

3
Stakeholder activities

27
Customer requests

9
Shows and CCD events

4
Educational activities

7 since 2018

3,388
Pest Control Hub page views

7.7 days of viewing

6
Pest workshops

15 since 2018

9.1 Exclusion freshwater pests

Key points of the exclusion freshwater pest programme

- Enforcement of rules relating to exclusion freshwater pests.
- Eradication of exclusion freshwater pests found in Northland.
- Inspection and enforcement of rules relating to plant nurseries and retail outlets (National pest plant accord). This performance measure is reported in *Section 9.2 Eradication freshwater pests.*

Progress in achieving aims

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Identify new sites
New incursion sites of exclusion freshwater pests are identified.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Confirmed incursions</td><td>0 *</td><td>0</td><td>0</td></tr>
</table>
* There were 2 suspected incursions referred to other authorities in 2018-2019.
</td></tr>
<tr><td>Incident investigation and response
• Initial investigations for all reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days.</td><td>Not applicable</td><td>No incursions were identified.</td></tr>
</table>

Water poppy

Looking like a water lily, the water poppy has thick, glossy, floating leaves attached to rubbery creeping stems and yellow flowers up to 8 cm across.

Out-competing native species, the water poppy is an aggressive colonizer of ponds, streams, farm dams and lake margins. It quickly forms mats that block waterways and drains causing flooding.

9.2 Eradication freshwater pests

Red eared slider turtle

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).

Progress in achieving aims

Performance Measure	Result	Details
Identify new sites New incursion sites of eradication freshwater pests are identified.	Achieved	See table below

New sites identified	2018-19	2019-20	2020-21
Red-eared slider turtle	14	5 *(3)*	9 *(9)*
Salvinia	3	3 *(2)*	-
Eastern water dragon	1	-	-
Snake-necked turtle	-	3 *(2)*	-

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

There were seven reports arising from turtles caught by members of the public (usually caught on land, but near water sources). All of these turtles were subsequently re-homed in secure enclosures.

Of the seven incidents arising from public capture of turtles, two turtles were retrieved from a single site around settling ponds on a farm near Mangawhai, and one Whangārei stream site remains an active management site because only one of two observed turtles were caught.

One public report was related to a resident wild turtle sighted in a stream at Langs Beach. This turtle was caught after council staff deployed a trap in-situ for three months.

One further public report was received for a turtle(s) sighted at an existing active management site where turtle(s) have been reported previously but not captured.

Cunning and wary. Seen here basking on his favourite log in the sun, this resident turtle of a stream at Langs Beach was caught after three months of in-situ trap deployment.

Salvinia

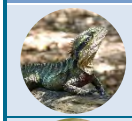
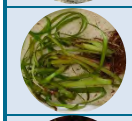
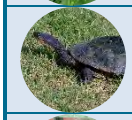
One Salvinia report was investigated but was found to be common aquatic pest species.

	Result	Details
Incident investigation and response • Initial investigations for all reports undertaken within 5 working days. • Response plans developed and implemented within 20 working days.	Achieved in part	See table below

	2018-19	2019-20	2020-21
Incidents reported	14	14	11

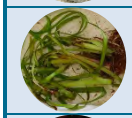
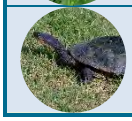
11 reports of freshwater eradication species were responded to in 2020-2021. Two of those reports took longer than the target time for initial response to requestors, and two of those reports did not have control action initiated within 20 days.

Resources and staff capacity for freshwater work continue to be a barrier to resolving new reports of eradication species and managing existing sites (currently one staff member), particularly for the increasing number of red-eared slider reports and management sites. Turtles that are established in the wild are extremely wary and need focussed intensive control efforts (timed for suitable conditions) to be successful.

Performance measure		Result	Details
Best practice management All management sites visited on scheduled best practice rotation.		Achieved in part	Refer species specific details below.
Eradication freshwater pest management site visits 2020-2021			
Eradication species		Results	Details
	Eastern water dragon	Not applicable	No active management sites.
	Eel grass	Not applicable	No active management sites.
	Nardoo	Achieved	One surveillance site confirmed to still be free of nardoo.
	Red-eared slider turtle	Not achieved	After a full review of older data records and reports there are currently eight active management sites where turtles were seen or reported but have not been retrieved (including the unresolved site report identified this year). Four of these sites are in a related river system (the Hātea river and one of its tributaries) and may be interconnected. A further two sites need further investigation to confirm if turtles are resident. Trapping and surveillance effort was undertaken at two newly reported sites, and one existing site. As there is no current set best practice for turtle eradication, capture methods remain experimental and require adaptation to the habitat where the turtle is living. Equipment is also subject to vandalism or theft at public sites. A new more robust and transportable basking trap has been imported and tested, resulting in the capture of one resident turtle. However, the trap was on site for three months before the turtle acclimated to it, thus whilst in place it was not available for use elsewhere. Additionally, trap deployment would not be possible without the assistance of local volunteers to undertake the frequent trap checks. More intensive research and trial work is required; however, the sole freshwater Biosecurity Officer did not have capacity required because of other pest fish management activities, including the major koi carp incursion response at Lake Taharoa.
	Salvinia	Not applicable	Sites are managed by the Ministry for Primary Industries.
	Senegal tea	Achieved	One active site visited annually.
	Snake-necked turtle	Not applicable	No active management sites.
	Water hyacinth	Not applicable	Sites are managed by the Ministry for Primary Industries.

Performance measure	Result	Details
Progress toward eradication Annual decrease in number of adult plants or the infestation area at existing council managed sites.	Achieved in part	This measure is used to demonstrate whether inspection and control frequencies for known management sites have been successful in preventing eradication freshwater species from maturing. Preventing maturation reduces the risk of spread to new sites. Refer species specific details below. *Note: Neither of the two freshwater eradication species with active sites currently warrant infestation area measurement, so only adult count data is presented.*

Eradication freshwater pest management site visits 2020-2021

Eradication freshwater pest		Adult count 2019-20	Adult count 2020-21	Details
	Eastern water dragon	0	0	No change. No active management sites.
	Eel grass	0	0	No change. No active management sites.
	Nardoo	0	0	No change. This aquatic pest plant is approaching eradicated status.
	Red-eared slider turtle	5	5	Five existing active management sites where a turtle is believed to be resident in the wild but could not be captured. The count is currently based on one adult turtle per site, but one site potentially had more than one turtle present (yet to be confirmed).
	Senegal tea	0	2	Two plants with mature foliage found.
	Snake-necked turtle	0	0	No change. No active management sites.

Turtle trapping

Wild turtles are not an easy catch!

The turtle must be allowed time to get used to the trap in their space before they will approach it.

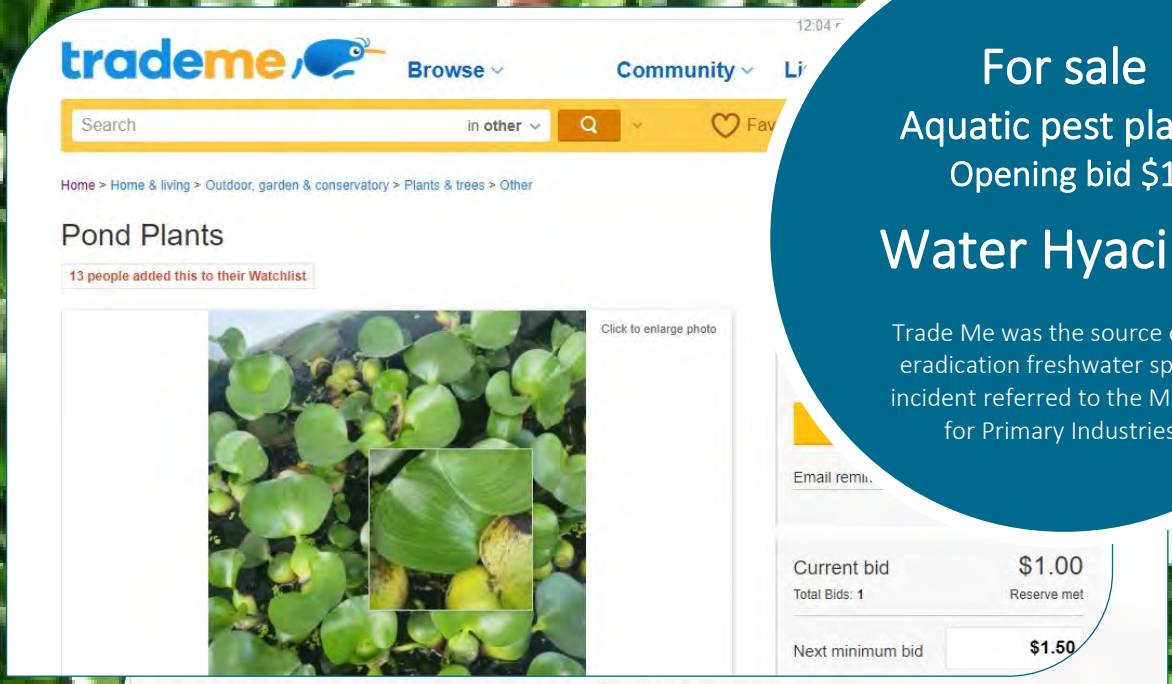
Plant retail outlet compliance

Performance Measure	Result	Details
Plant retail outlet compliance All known plant outlets in Northland are aware of obligations and inspected annually for species identified in the National Pest Plant Accord (NPPA) and Pest Plan.	Achieved in part	<table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Nurseries inspected</td><td>0%</td><td>61%</td><td>72%</td></tr></table> **72%** of known plant outlets inspected. There were no instances of freshwater exclusion or eradication species being sold.

Existing capacity constraints were exacerbated by the major response effort into the potential koi carp incursion at Lake Taharoa. The resulting impact on programme delivery meant that only a proportion of nurseries and outlets could be targeted for inspection, and the inspections were delayed. Priority was given to the larger nurseries and retail outlets selling exotic species rather than those that have been identified as being native only nurseries. Additional support has been identified in 2021-2022 which should address these capacity issues.

Trade Me was also monitored through saved searches for freshwater exclusion and eradication species.

During the year there was one reported instance of the freshwater eradication species water hyacinth being offered for sale on Trade Me. This was referred to the Ministry for Primary Industries.



For sale

Aquatic pest plants

Opening bid $1

Water Hyacinth

Trade Me was the source of this eradication freshwater species incident referred to the Ministry for Primary Industries.

One of the world's most serious water weeds, water hyacinth is fast growing, forming dense mats, reducing water quality, and crowding out native species.

9.3 Progressive containment freshwater pests

Key points of the progressive containment freshwater pest 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.

Catching freshwater pests requires more than just getting your feet wet…

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 reports undertaken within 5 working days.
• Response plans developed and implemented within 20 working days.</td><td>Not achieved</td><td><table><tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr><tr><td>Public reports</td><td>7</td><td>13</td><td>6</td></tr></table>There were 6 reports of freshwater progressive containment species (koi carp) responded to. Two of those reports took longer than the target time for initial response to requestors.</td></tr>
<tr><td colspan="3">Initial investigation of reports frequently takes longer than 5 working days, especially where staff are engaged in intensive field work over summer and may be in the field for significant periods. Resources and staff capacity for freshwater work (currently one staff member), continue to be a barrier to resolving new reports as well as undertaking management work at existing sites.</td></tr>
<tr><td>Maintain distribution record
Maintain an updated distribution record of progressive containment freshwater species.</td><td>Achieved</td><td>Restructure of council’s existing database was completed, and a GIS viewer developed to display the data. All management sites now reflect site status and the relationship to containment zones. Management sites for unconfirmed reports where more intensive surveillance needs to be planned are also included.</td></tr>
<tr><td>Management site visits
All management sites visited on scheduled best practice rotation.</td><td>Not achieved</td><td>Refer overleaf (annual status reports) for the status of work undertaken.</td></tr>
<tr><td colspan="3">Whilst best practice is highly specific to the situation of each waterbody and pest fish status, every pest fish management site, requires intensive management to be effective. Netting of pest fish sites (both control work at management sites, and surveillance at unconfirmed sites) needs to be conducted between February – April when seasonal water temperature and depth requirements are optimal.

Unfortunately, the seasonal and labour intense nature of pest fish work combined with the limited staff and contract resources available to council limit work to a proportion of sites. In addition, the response effort for the potential koi carp incursion in Lake Taharoa in the Kai Iwi lakes group also had a major impact on planned control efforts at existing management sites. Annual plan and long term plan bids were submitted to address the capacity issue but were unsuccessful.</td></tr>
</table>

Annual status reports

Annual reporting on the status and number of new sites of all progressive containment freshwater pests is required in the Pest and Operational Plans. The 2020-2021 status reports are detailed below.

Annual status report – koi carp


Koi carp

Outside the containment area

A planned fortnight of intensive surveillance netting of unconfirmed management sites in March – April 2021 had to be postponed because of the Lake Taharoa incursion response. It was then further impacted by severe weather reducing the number of sites that could be effectively targeted. Environmental DNA (eDNA) sampling was conducted during the netting, but whilst informative, this methodology is not considered to be definitive (the techniques are still in development). The surveillance work was coordinated with Department of Conservation staff from outside of Whangārei and used additional contract staff. This increased both expertise and available resources. It also provided a valuable training opportunity to upskill council staff.

Confirmed sites outside the containment area (**2 sites**)

Location	Type of site	Date confirmed	Activity undertaken 2020-2021
Ōmāmari	Dune lake/ wetland	2012	No management work was undertaken (it was on the list for summer surveillance work but was impacted by other response work). The site has previously been scoped for potential for netting work, but it will be very difficult because of dense reed beds. Sandy substrate is likely to make it an inappropriate target for piscicides. The species confirmation data is not robust, so the site should be targeted for further species confirmation.
Kaingaroa – Mangatete River	River system	September 2020	This site identified in the Kaingaroa in the Mangatete River is a major cause for concern and represents a significant range expansion outside of the known containment areas. Delimitation of the range of this incursion is required but would require intensive effort. Control in rivers is not likely to be feasible given the current resources and tools available. This highlights the need to increase the intensity of engagement and community awareness to prevent new releases.

Potential sites outside the containment area to be confirmed (**11 sites**)

Location	Type of site	Activity undertaken 2020-2021
Fairburn, Karemuhako stream	River system	The site was scheduled for May 2021 surveillance but impacted by severe weather. eDNA samples taken were positive for goldfish but not koi. Some limited netting has been undertaken – finding goldfish, gambusia, and grass carp but not koi. Further investigation is required to rule out the presence of koi, especially given the connection to the Awanui river.
Tangowahine, Awakino river	River system	The site was visited as part of May 2021 surveillance work. A variety of native fish, one catfish, and multiple baby goldfish were caught. eDNA sample results were positive for goldfish. The site could possibly be considered a goldfish site (free of koi) but a further surveillance visit, and sampling would be beneficial.
Mangapai, Tauraroa river	River system	The site was scheduled for May 2021 surveillance, but this was prevented by severe weather. The report descriptions suggest possible goldfish.
Ruawai	Drainage canal	Surveillance planned for Sept 2020 (to coincide with fish activity and water presence in drains with reduced vegetation), did not take place because of a temporary vacancy in pest fish role.

Location	Type of site	Activity undertaken 2020-2021 *(continued)*
Arapohue	Drainage canals	Surveillance planned for Sept 2020 (to coincide with fish activity and water presence in drains with reduced vegetation), did not take place because of a temporary vacancy in pest fish role.
Ngāraratunua	Pond	Visual inspection by non-specialist biosecurity staff suggests goldfish. The site is a low priority for netting work but needs to be definitively confirmed before removal from management.
Maungatāpere	Dam	No work undertaken in 2020-2021 and considered a low priority for investigation. Previous netting by the Department of Conservation has only caught goldfish.
Parapara stream, Taipā	Stream	*New report 2020-2021.* The site was scheduled for May 2021 surveillance, but this was prevented by severe weather. eDNA samples taken were positive for goldfish and grass carp but not koi. Descriptions are suggestive of goldfish, but further investigation required to rule out the presence of koi.
Rangitāne river, Kerikeri	River	*New report 2020-2021*. This was confirmed as grass carp. They probably escaped during floods from Stanner's Road dam (where there is an illegal grass carp release site).
Lake Taharoa, Kai iwi	Dune lake	*New report 2020-2021*. An incursion response was launched to potential sighting in Lake Taharoa in the Kai iwi group *(refer incursion report on the facing page for more information).*
Makaka Creek, Te Kōpuru,	Creek	*New report 2020-2021.* No surveillance work was undertaken. An old 2015 report has been found during traceback activities, but with very limited information. Further investigation is required.

Sites now classified as free of koi outside the containment area (**7 sites**)

Location	Type of site	Activity undertaken in 2020-2021
Lake Ngatu, Awanui	Dune lake	Further surveillance and netting in 2021 detected only goldfish (of which many were very large and likely to have been misidentified as koi by previous public reports). Based on this and previous surveillance and netting results, the site has been updated to 'Not Detectable'.
Ruatangatata West	Farm dam	Further traceback activity on original report confirmed it to be misidentified goldfish. This combined with previous surveillance activities has seen the status updated to 'Not detectable'.
Tikipunga	Pond	*New report 2020-2021*. Inspection confirmed the report as goldfish.
Aranga	Farm dam	*New report 2020-2021.* Netting and eDNA undertaken during surveillance work May 2021. No koi carp not caught or detected. Goldfish were both caught and detected in eDNA results. The site status was updated to 'Not detectable' on this basis.
Rangitāne River, Kerikeri	River	*New report 2020-2021.* Inspection confirmed as grass carp.
Tāheke river tributary, Whareora	River	*New report 2020-2021*. Inspection confirmed as goldfish.
Taheke river tributary, Pātaua North	River	*New report 2020-2021.* Confirmed during flooding to be goldfish.

Inside of the containment area

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

Potential koi incursion response
Lake Taharoa, Kai Iwi group, February 2021

Following a reported koi carp sighting in Lake Taharoa at the beginning of February 2021, council initiated a large scale, multiple agency surveillance response with Te Roroa, the Department of Conservation, Northland Fish & Game, the Kaipara District Council, and the Taharoa Domain Governance Committee.

Press release image of a koi carp showing its distinctive feelers.

A koi carp release into these lakes would result in severe ecological damage, ruin recreational activities, affect revenue from tourism and negatively impact on Māori cultural values.

Surveillance and detection tools used in the response:

- Underwater drone surveillance.
- Deployment of two baited pod traps.
- Surveillance via kayak and boat.
- eDNA sampling of Lake Taharoa, Waikare, and Kai Iwi.
- Three rounds of intensive netting were undertaken in Lake Taharoa involving staff from the participating agencies. These were labour intensive operations with up to 15 staff required onsite over 3 – 4 days per round, to deploy, monitor and manage the potential risk to birds and lake users.
- An underwater remote operated vehicle survey was undertaken, focussing on key habitats including the charophyte beds.
- Baited underwater cameras were also tested.

Public communications and engagement included:

- Signage installed at all key public entry points and campground facilities with key messaging to report any unusual fish. This signage remains in place.
- Staff conducted visits to engage with lake visitors in person.
- Media release, council Facebook page posts, and a radio interview to raise awareness and encourage vigilance and reporting of unusual sightings.
- The Kai Iwi Open Day event display focussed on pest fish and reporting.

The initial phase of the response is largely complete, with no evidence of koi carp found to date, nor any further reports or sightings. However, given the known difficulty of detecting fish species at low density in a waterbody of this size, there will be additional ongoing surveillance actions undertaken into the future.

Overall, the response was an excellent example of multiple agency collaboration. It also provided an opportunity for considerable staff upskilling and access to additional tools to trial. It did however highlight the lack of resource and capacity within our current business as usual funding to respond to similar events at less high profile sites. The focus on the Lake Taharoa response also disrupted other pest fish work planned for the summer season and impacted on other areas of the Biosecurity team from where staff were sourced to support the response.

Clockwise from top left:
Kayak safety watch for set nets.
Response team members deploying surveillance nets.
Rigging the baited underwater drone.
Centre
An incidental find – New Zealand's only fresh water crab (Amarinus lacustris). This tiny crab grows to just 10 mm in size.

Annual status report – perch


Perch

Outside of the containment area

Confirmed sites outside the containment area (**none**)

There are no perch sites confirmed outside of the containment area. One site was reported in the 2019-2020 operations report as being outside the containment zone, but this was misclassification of a site within the containment area.

Potential sites outside the containment area to be confirmed (**2 sites**)

Location	Type of site	Activity undertaken 2020-2021
Wairua river, Pīpīwai,	River	The site was scheduled for May 2021 surveillance, but the work was prevented by severe weather.
Mareretu	Pond and stream	No surveillance was undertaken in 2020-2021. The site was added based after reference found in 2014 NIWA report. Further investigation is required.

Inside of the containment area

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

Additional funding provided through the Freshwater improvement Fund was utilised in 2019-2020 to start work at one of these sites but access permission issues made further work untenable in 2020-2021.


Tench

Annual status report – tench

Outside of the containment area

Confirmed sites outside the containment area (**1 site**)

Location	Type of site	Date confirmed	Activity undertaken 2020-2021
Lake Kapoai, Te Kopuru	Dune lake	2017	This site is a 1.6 ha dune lake (depth undetermined). It has been scoped for potential for netting work, but eradication through netting would be very unlikely with current technology and resources, given the scale of the lake. The sandy substrate also excludes the use of piscicides. Additional funding provided through the Freshwater Improvement Fund was utilised in 2019-2020 to undertake netting and trapping to investigate the population structure and attempt to disrupt the reproductive success of tench. Over 5,000 juveniles were removed over 4 days of control effort.

Potential sites outside the containment area to be confirmed (**1 site**)

Location	Type of site	Activity undertaken 2020-2021
Arapohue	Pond	No surveillance undertaken in 2020-2021. The site was added after a reference was found in the *Smith Diaries* (a summary of historic release activities undertaken by Stewart Smith). Traceback investigation has identified this site, but Google Earth image review indicates the pond has dried out and refilled multiple times over the years, so it is unlikely the fish have survived. Whilst the site is a low priority for follow up, further investigation is still required to confirm its status.

Inside of 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.

9.4 Sustained control freshwater pests

Key points of the sustained control freshwater pest programme

- Enforcement of rules relating to sustained control freshwater pests.

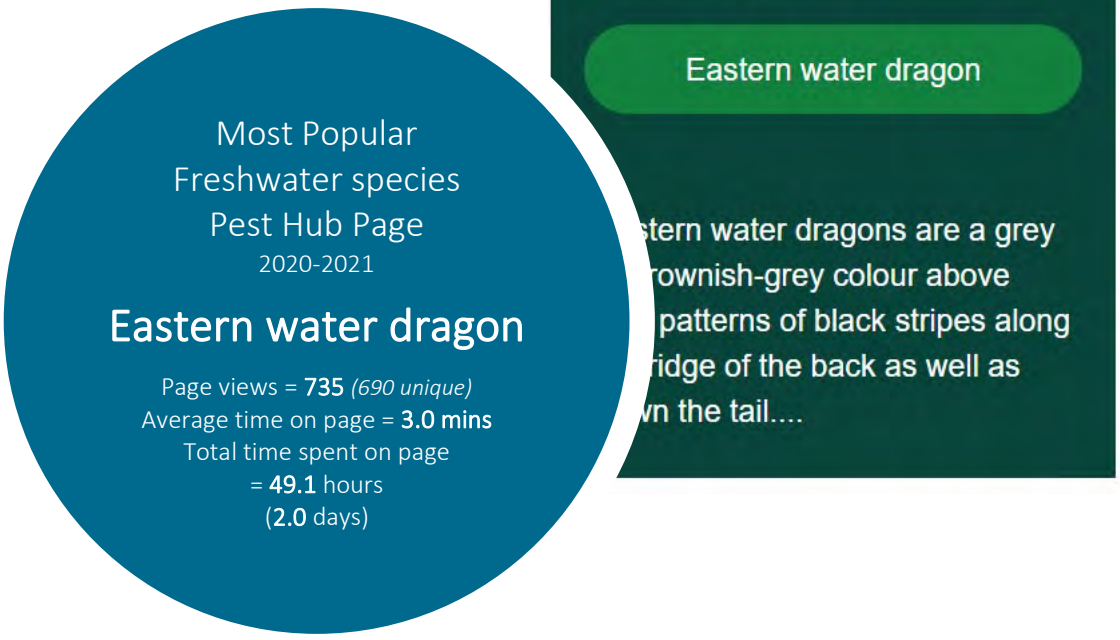
Progress in achieving aims

Performance Measure	Result	Details
New requests and response times • The number of requests received is tracked. • Reports from the public responded to within 20 working days.	Achieved in part	2018-19: Public reports 1; 2019-20: 20; 2020-21: 5 Staff received 5 tracked requests for freshwater sustained control pests. Two of those reports took longer than the target time for initial response to requestors.

Additional funding provided through the Freshwater improvement Fund was utilised in 2020-2021 to continue rudd eradication monitoring efforts at Lake Rotuna. Lake Rototuna has been the subject of multiple netting and control efforts, and the 2020-2021 netting, trapping and surveillance showed no further sign of rudd at this lake. Rudd have now not been recorded at this site since 2019 when surveillance (including an electrofishing boat brought up from the Waikato) caught one large female. A lack of suitable recruitment conditions has been suggested as a possible reason for the success of the netting methodology for eradication purposes at this site.

9.5 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>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Field Days / A&P Shows</td><td>4</td><td>2</td><td>1 [18]</td></tr>
<tr><td>Community events / waka ama</td><td>3</td><td>7</td><td>8</td></tr>
<tr><td>School visits and workshops</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Stakeholder activities</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Pest workshops</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>Total</td><td>12</td><td>17</td><td>22</td></tr>
</table>
</td></tr>
<tr><td>Community engagement - media
Level of social media interactions to increase the 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>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Pest control hub – page views</td><td>Data n/a</td><td>1,523</td><td>3,388</td></tr>
<tr><td>Pest control hub – total page view time</td><td>Data n/a</td><td>4.1 days</td><td>7.7 days</td></tr>
<tr><td>Council Facebook most popular post</td><td>1</td><td>1</td><td>-</td></tr>
<tr><td>Council press releases</td><td>2</td><td>-</td><td>1</td></tr>
</table>
</td></tr>
</table>



[18] Several events were cancelled because of Covid-19 restrictions.

Check, Clean, Dry (CCD)

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

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

Clockwise from top left:
CCD collateral.
CCD advocate at the Whangārei A&P show.
CCD stand at the Waitangi Day Festival.

Check, Clean, Dry Advocacy
2020-2021

Check, Clean, Dry Events 2020-2021	Location
Whangārei A&P show	Whangārei
Ngā Hoe Horo 33rd annual waka ama regatta	Lake Ngatu
Dune lakes education days	Pāwarenga
Waitangi Day Festival	Waitangi
Dragon Boat Association training camp	Lake Taharoa
Fireco Triathalon	Lake Taharoa
Kai Iwi Lakes Open Day	Lake Taharoa
Whānau at the Falls	Whangārei Falls

Te Noho Taiao o Ngāpuhi

March 2021

On 30 March, Biosecurity joined Biodiversity and Enviroschools staff at a 'getting to know your awa day' as part of Te Noho Taiao o Ngāpuhi at Mōria Marae in Whirinaki – a freshwater and coastal ecology education event.

The first ever such event held by Ngāpuhi, and it proved to be an excellent opportunity to incorporate mātauranga Māori into engagement. Fifty Ngāpuhi rangatahi and accompanying adults enjoyed the interactive workshops covering tuna (eels), ika (fish), water quality testing and amphibious plants.

Te Noho Taiao o Ngāpuhi

Clockwise from top right:
A Biosecurity Officer guides pupils in net setting.
Students examining the catch.
Meeting freshwater fish.

10. Marine pests and pathways
Riha tai me te huarahi ki mua

Marine pest *Sabella spallanzani* (Mediterranean fanworm)

2020-2021 at a glance – marine biosecurity

2,144
Hulls surveyed

6,230 since 2018

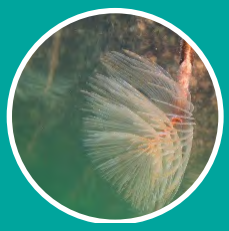
1
Range extension

↓ 7 from 2019-20

12
Community / school / stakeholder activities

31 since 2018

3
Pest workshops



9 since 2018

169
Incidents

44.6%
Vessel compliance

0
New to Northland marine pests

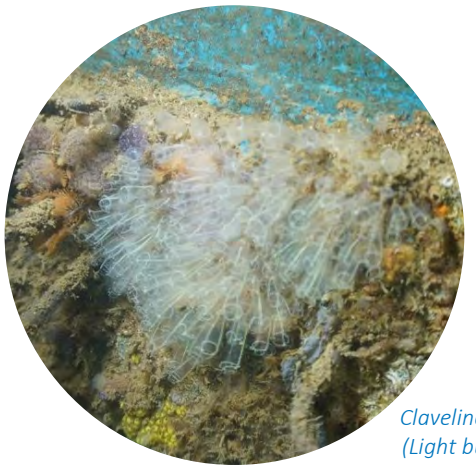
1
Bicultural collaboration partnership

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 new marine pest introductions to Northland.
- 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 marine pests and potential risk organisms 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.



Clavelina lepadiformis (Light bulb sea squirt)

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

Programme implementation – year 3

Programme implementation in 2020-2021 included:

- The hull surveillance programme continued as per previous years with levels of fouling recorded and any vessel carrying a named marine pest placed under a Notice of Direction and directed to have the vessel cleaned. This year the 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 the Marine Pathway rules. Simultaneously, existing communication and engagement programmes have continued to assist vessel owners and stakeholders with ensuring compliance.
- Where Notices of Direction were issued to the owners of vessels found with listed marine pests, these enforcement notices were tracked in IRIS (council's incident logging database) and regular contact was made with vessel owners to ensure they had met the requirements of the notice.

Progress in achieving aims

Vessel compliance to the Marine Pathways Management Plan

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Hull survey
Inspect a minimum of 2,000 vessel hulls annually.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Hulls surveyed</td><td>2,037</td><td>2,048</td><td>2,144</td></tr>
</table>
</td></tr>
<tr><td colspan="3">2,144 hulls were assessed, representing between 50 – 60 % of the vessels that pose a risk for the spread of marine pests in Northland.</td></tr>
<tr><td>Vessel compliance reporting
Compliance with the pathway plan and all incidents shall be reported monthly.</td><td>Achieved</td><td>
<table>
<tr><th>Vessel Compliance</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Overall compliance</td><td>59%</td><td>47.5%</td><td>44.6%</td></tr>
<tr><td>Recent arrivals</td><td>data n/a</td><td>data n/a</td><td>74.9%</td></tr>
<tr><td>Incidents</td><td>317</td><td>145</td><td>169</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Hull surveillance and vessel compliance data is reported monthly in the Chief Executive's report to council.

Approximately 44.6% of the vessels inspected met the required biofouling threshold (these are vessels that would be compliant with the Marine Pathway Management Programme rules if the vessel moved between designated areas).

Covid related lockdowns and travel restrictions meant that a larger proportion of the fleet had been stationary for longer periods of time than usual when inspected, leading to higher fouling levels, which explains the downward trend in compliance. In addition, as the surveillance programme predominantly inspects stationary vessels it is not an accurate proxy of true compliance. Therefore, surveillance efforts this year targeted more 'recent arrivals' (arriving to the region within the previous 4 weeks) in marinas and vessels on anchor to provide a more accurate measure of pathway compliance levels and to target the greatest risk hulls. Of the 167 vessels that were inspected that had recently arrived, compliance was 74.9%.

Education around being 'clean before you go' continues so vessel owners are aware that their vessel needs to be compliant when they move.</td></tr>
</table>

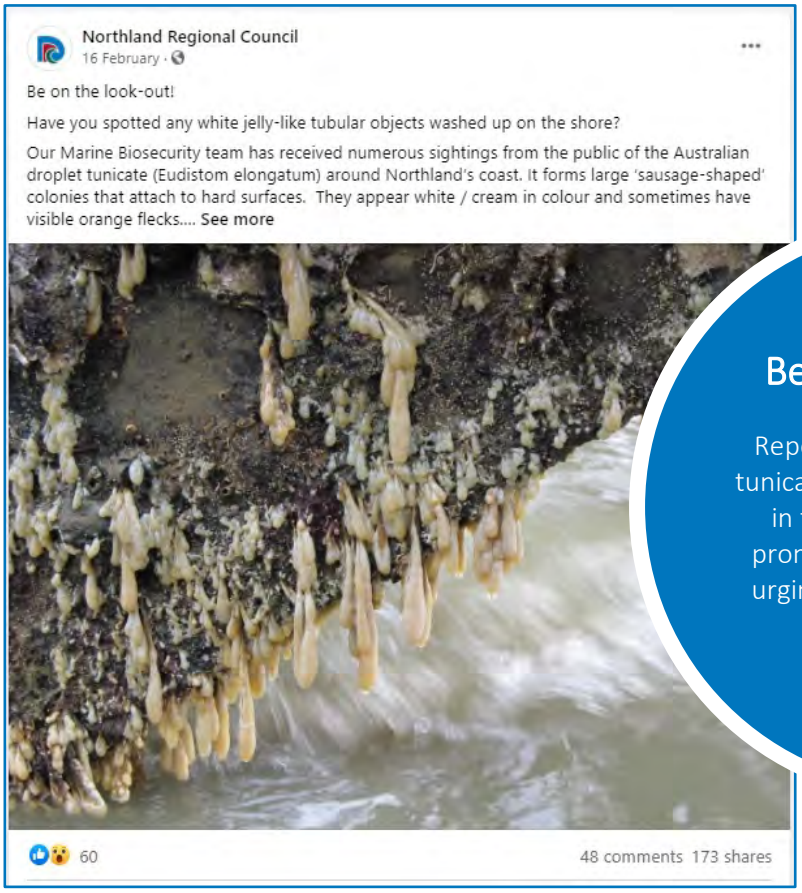
A marine Biosecurity Officer inspects vessel hulls in Whangārei Harbour.

Introduction and spread of marine pests in Northland

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>New marine pests
Introduction of new marine pests to Northland is reported.</td><td>Achieved</td><td>
<table>
<tr><th>New Pests Reported</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>From hull surveillance</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>From NIWA divers</td><td>0</td><td>2</td><td>0</td></tr>
</table>
</td></tr>
<tr><td colspan="3">There were no new species reported in Northland from sources including:
Hull surveillance
NIWA surveillance
Public surveillance</td></tr>
<tr><td>Range extensions within Northland
Spread of established marine pests within Northland is reported and trends over the duration of the plan analysed.</td><td>Achieved</td><td>
<table>
<tr><th></th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Range Extension Reports</td><td>8</td><td>6</td><td>1</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Public reports –Bay of Islands

Although not an expansion to a new harbour, the Australian droplet tunicate (Eudistoma elongatum) was reported to have spread further to the outer Bay of Islands (Moturua Island and Urupukpuka Islands).

Council officers – Mangawhai Harbour
Undaria pinnatifida within Northland was detected by council officers during hull inspections in Mangawhai Harbour. The individual was removed, and no new individuals have been found to date in follow up surveys.</td></tr>
</table>



Be on the lookout!

Reports of Australian droplet tunicate (*Eudistoma elongatum)* in the outer Bay of Islands prompted this Facebook post urging the public to help with monitoring of the marine pest.

Strengthening national marine partnerships

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

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

Drafting the proposed plan, including the required Biosecurity Act documentation, and a multi-agency management agreement setting out roles and responsibilities for governance and implementation is close to completion. Early testing with elected members, mana whenua, and key stakeholders has shown strong support for the plan and formal public consultation is expected in 2022.

Members of the marine biosecurity team with TON partners promoting the marine biosecurity message at the Hutchwilco Boat Show, Auckland, May 2021.

TON Partnership engagement 2020-2021	
Newsletter subscribers	402
Facebook – likes	502
Facebook – reach	137,919
Facebook – impressions	252,983
Instagam reach	54,004
Website visits	13,572
Google ads and video displayed	>1,100,000
Google ad clicks	13,500
Google video views	140,000

Performance Measure	Result	Details
Incidence response All incidents are recorded, and a response plan is developed and implemented within 5 working days.	Not achieved	Incident response recorded as > 5 working days: 2019-20: 58; 2020-21: 32
32 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.		

Incursion response

Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

With support from Biosecurity New Zealand, council has funded several responses to marine pest incursions during 2020-2021.

Whangaroa Harbour

During routine hull surveillance, marine biosecurity dive contractors found a heavily fouled vessel with a high density of Mediterranean fanworm (*Sabella spallanzanii*) in Ratcliffe Bay (Whangaroa Harbour) where Mediterranean fanworm is not established. Whilst divers were able to remove the larger individuals, it was determined that the risk to the area was not eliminated. This prompted a quick response from marine biosecurity staff to encapsulate the vessel to treat and contain the Mediterranean fanworm over 24 hours. After treatment the vessel and surrounds were checked for any remaining fanworm. No other evidence of an established population was found, and it appears the infestation was caught early enough to stop the pest establishing.

That's a wrap!
A vessel with heavy biofouling including numerous Mediterranean fanworm was encapsulated and treated in Whangaroa Harbour.

Ōpua Harbour

This year has seen divers conduct several different search and destroy surveys in and around the Ōpua basin. Divers have successfully combed the sea floor covering the whole marina footprint, including all marina and surrounding artificial structures, and mooring blocks within the Ōpua basin. While this massive effort did result in a moderate number of Mediterranean fanworm being detected, histological analysis on a subset of these individuals revealed that they were in a critical phase of their reproductive cycle and had not spawned yet. Independent scientific advice remains that the population is very limited and being regulated by the unique environmental parameters of the area.

Splash! A diver enters the water to inspect vessel hulls in the Ōpua marina.

A heavily fouled boat propellor harbouring numerous marine pests.

Community engagement

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

Refer Appendix for more details	2018-19	2019-20	2020-21
Boat shows and community events	5	1 [19]	4 [20]
School visits / workshops	3	2	5
Stakeholder activities	1	6	3
Marine pest workshops	2	4	3
Total	12	13	15

Clockwise from top right:
Whangārei Girls High School students dissect Mediterranean fanworm.
The annual Reotahi Marine Reserve snorkel survey.
Demonstrating remote operated vehicle use with students at Ngā Tupuranga o Te Taitokerau programme in Waitangi.

Marine biosecurity community engagement

2020-2021

[19] Covid restrictions in 2019-2020 caused the cancellation of most marine events.

[20] Covid restrictions caused the cancellation of some key marine events such as the Auckland Boat Show.

<table>
<tr><th>Performance Measure</th><th>Result</th><th>Details</th></tr>
<tr><td>Community engagement – media
Increase in awareness of the risk hull fouling poses to marine pest spread.</td><td>Achieved</td><td>
<table>
<tr><th>Refer Appendix for more details</th><th>2018-19</th><th>2019-20</th><th>2020-21</th></tr>
<tr><td>Pest control hub – page views</td><td>data n/a</td><td>1,275</td><td>3,425</td></tr>
<tr><td>Pest control hub – total page view time</td><td>data n/a</td><td>3.9 days</td><td>9.3 days</td></tr>
<tr><td>Council YouTube channel – clip views</td><td>data n/a</td><td>1,615 [21]</td><td>7,654</td></tr>
<tr><td>Council Facebook page posts</td><td>15</td><td>8</td><td>13</td></tr>
<tr><td>Council Facebook most popular post</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Press releases</td><td>6</td><td>3</td><td>2</td></tr>
<tr><td>Marine advertisements</td><td>5</td><td>3</td><td>1 [22]</td></tr>
</table>
</td></tr>
<tr><td>Bicultural collaboration
The number of relationships or collaborative projects underway with hapū, whanau or iwi increases by a minimum of 5% annually.</td><td>New measure</td><td>Baseline establishment of a new performance measure 2020-2021.

At the end of 2020-2021 the marine biosecurity team have one collaborative relationship established with hapū, whanau or iwi. This collaboration is with the Patuharakeke Trust Board.</td></tr>
<tr><td>Bicultural capability
All permanent staff will have achieved competency level 1 in council's Te Whāriki workshops.</td><td>Achieved</td><td>Baseline establishment of a new performance measure 2020-2021.

All permanent staff on the marine biosecurity team have achieved competency in level 1 of the Te Whāriki workshops.</td></tr>
</table>

Workshop participants check out the displays.

Marine pest identification workshop

March 2021

Marine biosecurity staff supported the Ministry for Primary Industries and NIWA's Marine Invasives Taxonomic Service to provide a free training workshop to help our communities recognise marine pests in March 2021.

The workshop was well attended by hapū members and kaitiaki, vessel cleaning facility staff, Experiencing Marine Reserves charity staff, mooring contractors and other council staff either involved in biosecurity or coastal work.

Our communities and these organisations are an important part of Northland's surveillance network and keeping them informed of marine pests and what to look out for is a key component of our marine biosecurity engagement programme.

The live displays were especially popular.

Patuharakeke participants who attended the workshop.

[21] Detailed metric data not available for YouTube video clips – clip view data runs between November 2019 and October 2020.

[22] Council funded marine advertising has been scaled back as TON partnership engagement has increased.

Blue Cradle and council hold workshops on the fight against microplastics and marine pests, June 2021

In June 2021, a team of scientists on board the *S/V Manawanui* stopped off in Marsden Cove, Whangārei. The crew were on a 14 day expedition between Tāmaki Makaurau/Auckland and Ōpua to shed light on how microplastic pollution impacts these environments and the ecosystem based industries they support. The expedition is a collaboration between ocean nonprofit Blue Cradle Foundation, Cawthron Institute, Institute of Environmental Science and Research, University of Auckland, and Algalita South Pacific. It kickstarts Aotearoa's participation in the United Nations Decade of Ocean Science for Sustainable Development (2021-2030).

Whilst in Marsden Cove, the expedition participated in two workshops organised in collaboration with Northland Regional Council.

Attendees of the first workshop included representatives from local communities, hapū and iwi, central government, and science research institutions.

The workshop included presentations by scientists involved in the cruise providing an overview of the purpose and background of the expedition. They then talked about microplastics and new early detection tools for marine biosecurity surveillance. Attendees got the chance to test out different monitoring tools and discuss how we can put these monitoring capabilities into the hands of everyday citizens.

Blue Cradle workshop participants at Marsden Cove.

"It's important to be able to empower people. If we give them the tools, they can help our ocean environments that are under pressure because of microplastics and the spread of marine pests."

The second workshop saw students from several schools on the *S/V Manawanui* for a hands-on, onboard educational experience.

About 100 students had the opportunity to learn about microplastics, marine biosecurity and our ocean environment.

Students from local schools onboard the S/V Manawanui learn about microplastics and marine pests.

A. Public engagement activities
Ngā hui i te hapori

Kāretu School children ham it up for the camera with Oi the kauri protection canine.

A1 Council Facebook page

https://www.facebook.com/NorthlandRegionalCouncil/

Most popular Facebook post

This is a monthly assessment of council's most popular Facebook post. The post is assessed on two industry metrics:

M1 Engagement / Total Fans = Likes + Comments + Shares (of post) / Total fans

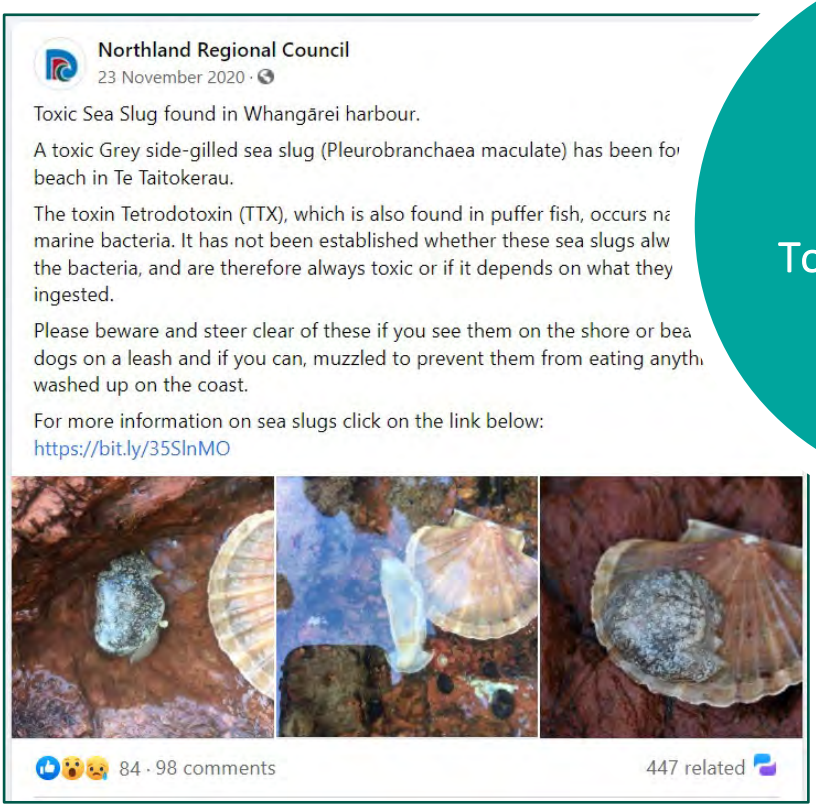
*This metric has an industry average of **1 – 2%***

M2 Engagement / Reach = Likes + Comments + Clicks + Shares (of post) / Reach

*This metric has an industry average of **10 – 20%***

Biosecurity related posts were the most popular on the council Facebook page for **five** months of the year.

Month	Category	Subject	Reach	Reactions	Post Clicks	M1	M2
Aug 20	Eradication	Feral deer hui	10,797	132	1,576	1.3%	15.8%
Nov 20	n/a	Toxic sea slug found	67,397	1,263	4,623	1.3%	8.7%
Dec 20	Eradication	Batwing passionflower	20,389	266	2,154	2.4%	11.8%
Feb 21	Marine Pathways	Australian droplet tunicate	31,108	611	2,681	5.5%	10.5%
Mar 21	Sustained control	Enviroschools Project Pest Control	3,140	54	244	0.5%	9.5%



Most Popular Facebook Post
November 2020

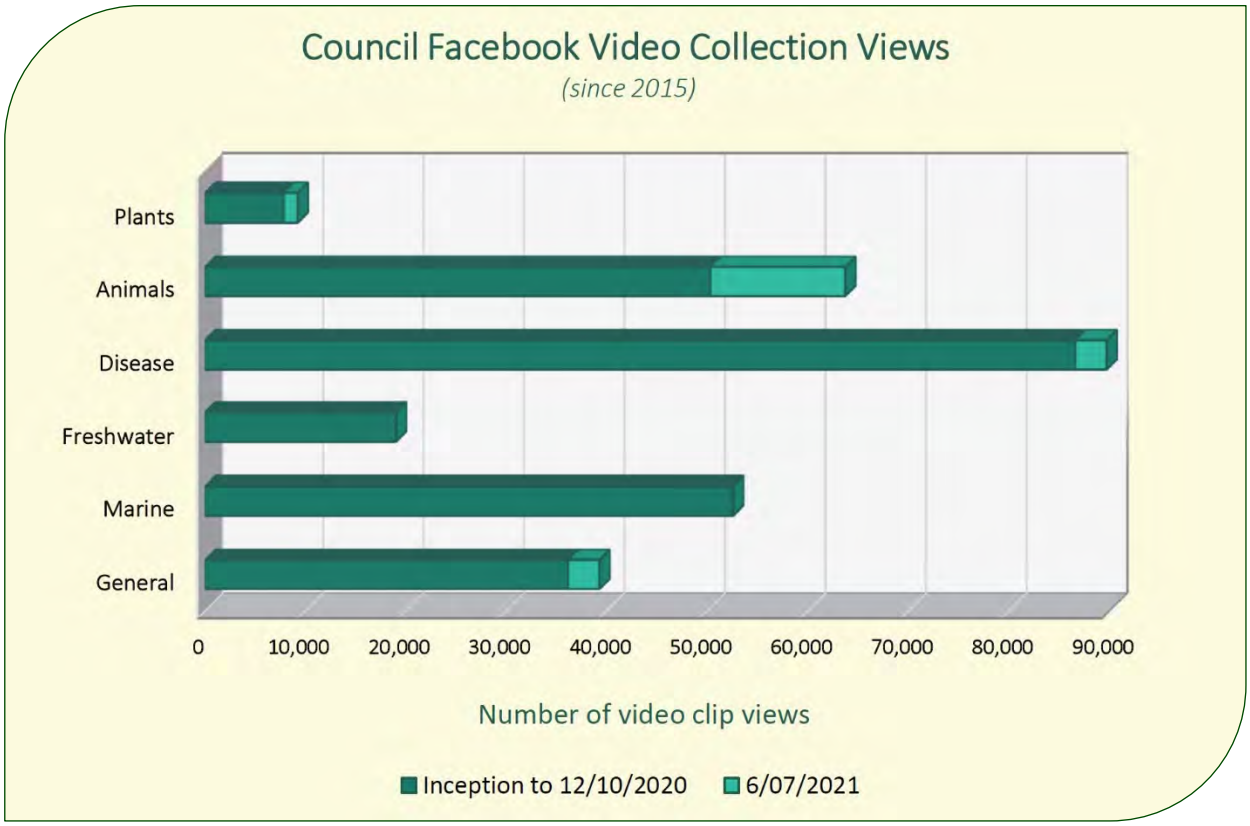
Toxic sea slug found

Reach = **67,397**
Reactions = **1,263**

Facebook video collection

On the Facebook page there is a large collection of videos covering the range of services provided by council as well as promotional clips. Biosecurity was a significant component of **113** video clips at the end of June 2021. Facebook does not offer detailed metric data for videos, however limited clip view data from inception is available and details are summarised in the table below and shown graphically underneath.

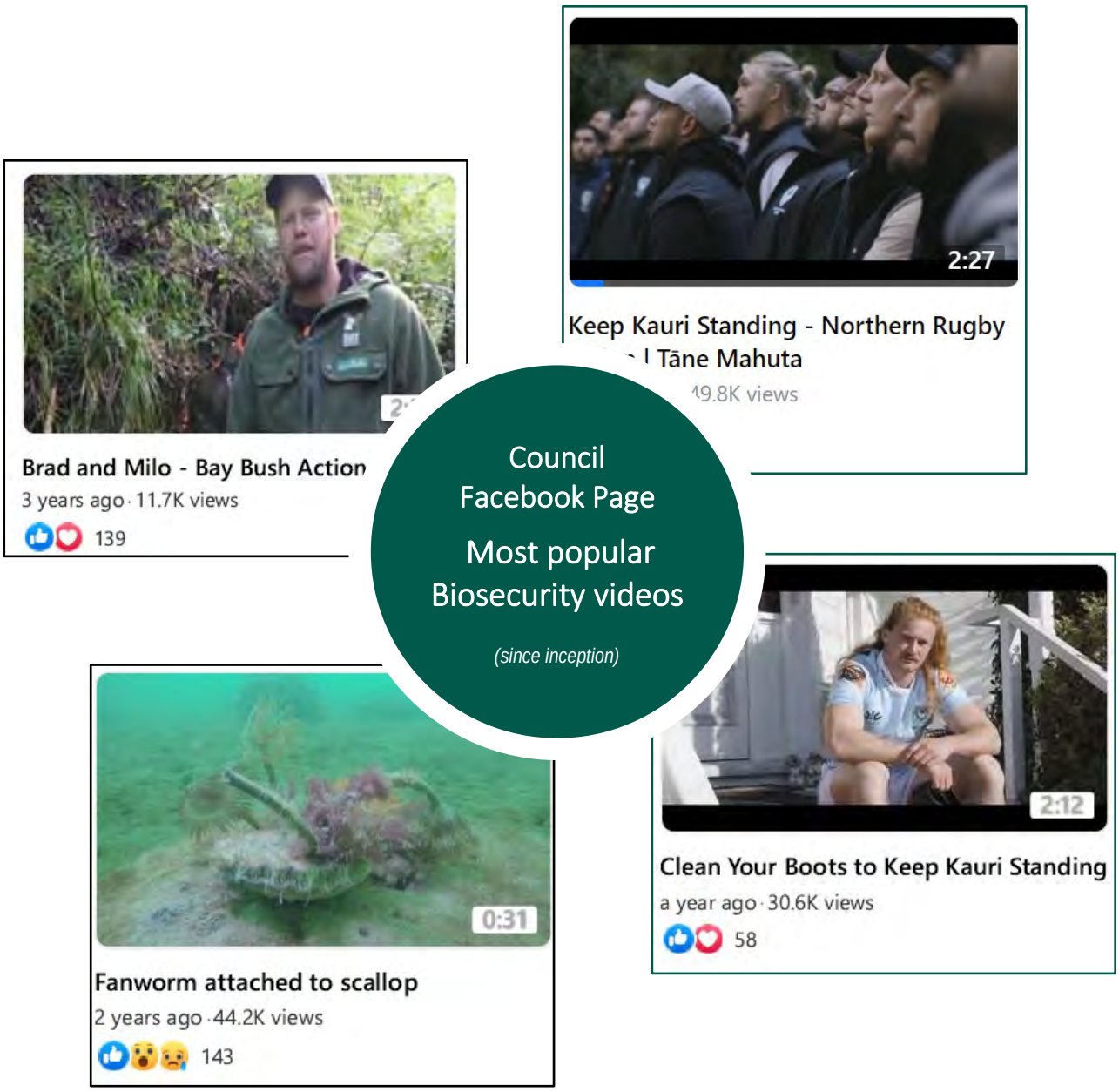
Category	Number videos on page		Page views [23]		Page views 2020-21
	12/10/2020	6/7/2021	12/10/2020	6/7/2021	
Animals	36	46	50,300	63,700	13,400
Plants	13	15	7,900	9,200	1,300
Disease	8	10	86,600	89,700	3,100
Freshwater	8	8	19,000	19,000	<100
Marine	8	8	52,400	52,500	100
General	24	26	36,200	39,300	3,100
Biosecurity sub-total *(% of page total)*	**97** *(21%)*	**113** *(22%)*	**252,400** *(40%)*	**273,400** *(36%)*	**21,000** *(18%)*
Facebook page total	*458*	*525*	*631,900*	*749,400*	*117,100*



[23] Clip view numbers >1,000 are rounded to the nearest hundred.

Biosecurity related videos were popular on the page drawing **18%** of the viewing audience in 2020-2021. Biosecurity related clips continue to feature prominently in the most popular videos on the page with in **four** of the eight most popular videos on the page as detailed below.

Facebook Page Clip Ranking	Title	Category	Views *(since inception)*
1	Keep Kauri standing – Northland Rugby Union / Tāne Māhuta *(Aug 2019)*	Disease	49,700
2	Fanworm attached to a scallop *(Sep 2018)*	Marine	44,200
3	Clean your boots (Northland Rugby Union) *(Aug 2019)*	Disease	30,600
8	Brad and Milo – Bush Bay Action *(Jul 2017)*	Animal	11,700



A2 Pest Control Hub

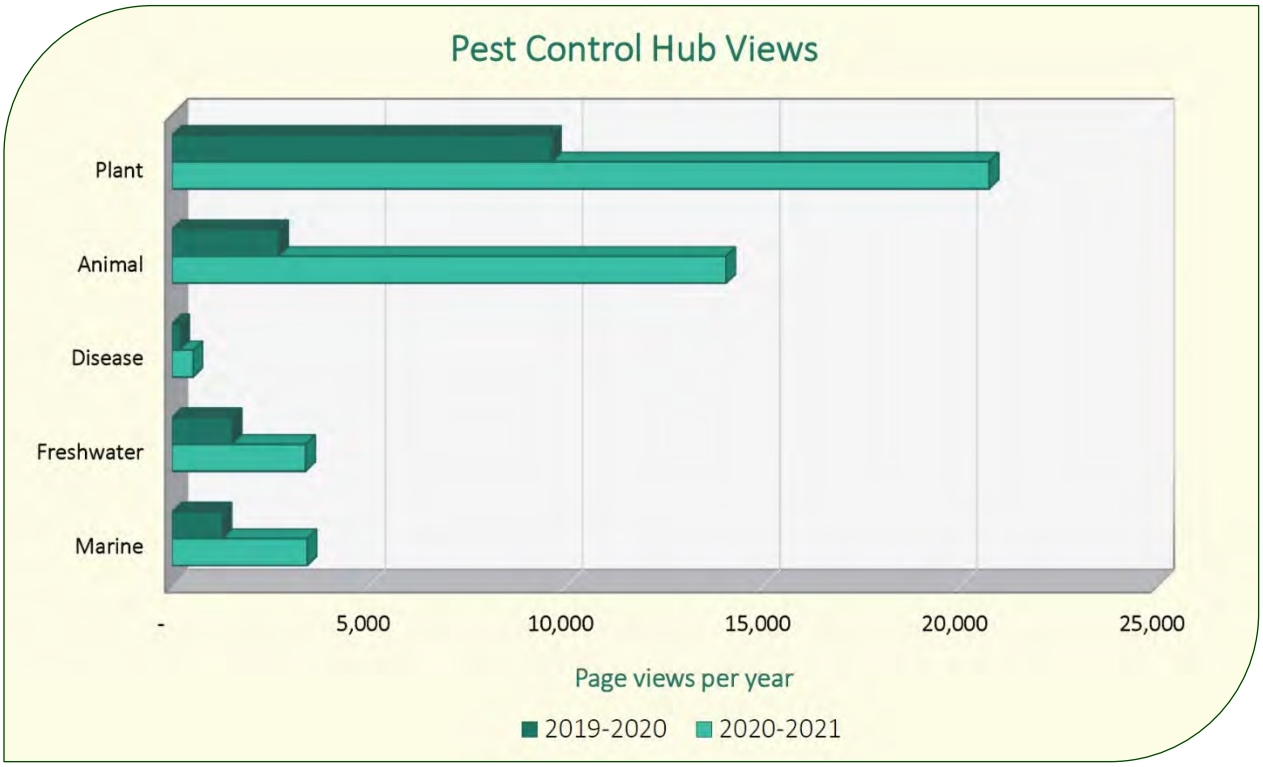
https://www.nrc.govt.nz/environment/weed-and-pest-control/pest-control-hub/

Developed in Northland, this user friendly portal provides the means for people to learn more about Northland's worst pests, how to control them, and the rules regarding their control. The Hub also provides a way for the public to report new pests and incidents, thereby increasing the regions ability both to detect new pests early and manage existing ones.

The layout of the portal allows easy searching on the basis of both pest type (eg. animal, plant etc) and classification under the Pest Plan. Included on the front page of the Hub is a *Pest of the Month* highlight bar which is used to raise the profile of selected pests on a seasonal basis.

With 191 pest species included in the Hub, it is a comprehensive pest database that has usage tracking data available to allow analysis of site traffic including the number of page view, unique page views, and time spent on pages. Data for the 2020-2021 season is detailed in the table below and shown graphically (in comparison to the 2019-2020 season underneath).

Pest Control Hub section	Number pages in the Hub	Pest Control Hub usage data 2020-2021					
		Number of pages viewed	Total page views [24]	Total unique page views [25]	Average time on page *(minutes)*	Total time on page *(hours)*	Total time on page *(days)*
Animal	35	35	14,043	12,865	2.9	806.5	33.6
Disease	3	3	532	470	3.5	36.0	1.5
Freshwater	24	24	3,388	3,149	2.3	185.1	7.7
Marine	17	17	3,425	3,018	3.3	224.8	9.3
Plant	112	111	20,711	18,938	2.4	1,063.9	44.3
Total	**191**	**190**	**42,421**	**38,742**	**2.6**	**2,334.9**	**97.3**
2019-2020	*191*	*170*	*15,331*	*13,978*	*3.4*	*1,127.9*	*47.0*



[24] Page views are the total number of pages viewed. Repeated views of a single page are counted.

[25] Unique page views are the number of sessions during which the specified page was viewed at least once.

The Pest Control Hub was considerably busier in 2020-2021 than the preceding year (**42,421** views, a **176%** increase). With plants making up nearly 60% of the species in the Hub, this group of pests continue to dominate Hub usage statistics. The most popular Hub page for each pest type is detailed in the table below.

Pest Control Hub Section	Most popular Pest Control Hub pages 2020-2021					
	Pest	Total Page Views [24]	Total Unique Page Views [25]	Average time on Page *(minutes)*	Total time on page *(hours)*	Total time on page *(days)*
Animal	Myna	1,981	1,818	2.0	145.9	6.1
Disease	Kiwifruit PSA	381	330	2.4	27.6	1.1
Freshwater	Eastern water dragon	735	690	1.8	49.1	2.0
Marine	Asian paddle crab	848	737	3.6	67.6	2.8
Plant	Rhus tree	1,386	1,257	1.9	65.2	2.7

Most Popular Pest Hub Page
2020-2021

Myna

Page views = **1,981** (1,818 unique)
Average time on page = **2.5 mins**
Total time spent on page
= **145.9** hours
(**6.1** days)

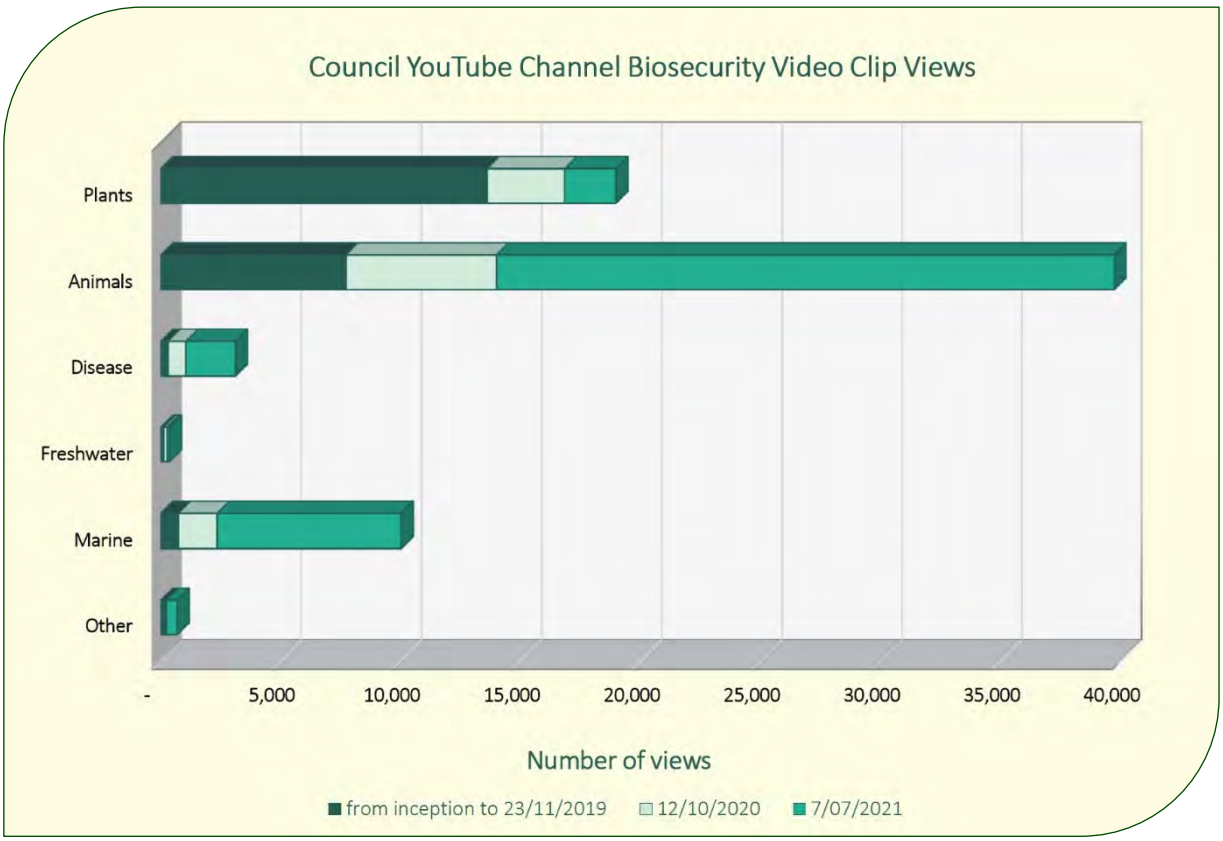
A3 Council YouTube channel

https://www.youtube.com/user/NorthlandRegCouncil/playlists

Council maintains a YouTube Channel of videos covering the range of services provided. The channel had 12 new video clips added to it during the 2020-2021 year (new total of 198 videos on 30 June 2021). Biosecurity was a significant component of three of the new videos to the channel in 2020-2021.

The YouTube Channel is not actively promoted by Council but still attracted **37,954** views (approximately **4,700** views per month) between October 2020 and June 2021. Detailed metric data is not available for the channel; however, limited clip view data is summarised in the table below and shown graphically underneath.

Category	Number of Video Clips 7/7/2021	Total page views since inception			Views in 2020-2021
		23/11/2019	12/10/2020	7/7/2021	
Plants	9	13,585	16,811	18,939	2,128
Animals	19	7,708	14,147	39,722	25,745
Disease	5	303	1,050	3,113	2,063
Freshwater	5	129	265	362	97
Marine	4	734	2,349	10,003	7,654
Other	13	213	248	685	437
Biosecurity sub-total *(% of page total)*		**22,672** *(49%)*	**34,870** *(54%)*	**72,824** *(67%)*	**37,954** *(86%)*
Channel total views (all clips)		*46,152*	*65,081*	*109,133*	*44,052*



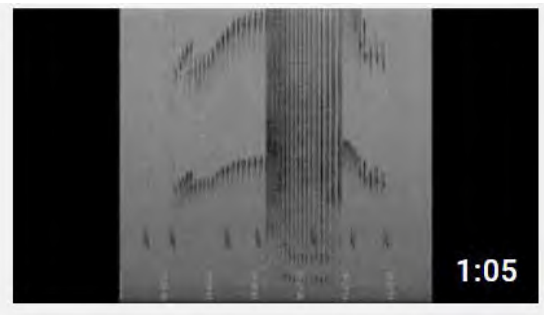
There were 55 Biosecurity related videos in the channel (28% of the 198 video clips) on 30 June 2021. These videos continue to be extremely popular on the channel drawing two thirds of total channel views since inception and 86% of the viewing audience in the last year alone. Biosecurity features in **eight** of the ten most popular videos on the channel as detailed below.

YouTube Channel Ranking	Title	Category	Views 2020-2021	Total views since inception
1	Kiwi call – male and female *(Jun 2018)*	Animals	19,400	21,000
2	Weeds – Japanese Honeysuckle *(Nov 2012)*	Plants	900	14,000
3	Japanese Mantis shrimp *(Oct 2018)*	Marine	7,600	9,400
5	How to trap and kill rats *(May 2019)*	Animal	4,200	8,200
6	Enviroschools Project Possum *(Jan 2013)*	Animals	<100	3,700
8	Northland rugby players: Clean your boots *(Aug 2019)*	Disease	1,900	2,700
9	Weeds – Basal bark control method *(Aug 2017)*	Plants	600	2,500
10	How to set a Timms trap *(Jun 2017)*	Animals	600	2,300

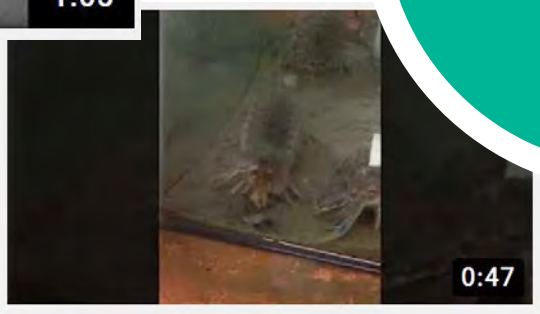
YouTube Channel

Most Popular Biosecurity videos

2020-2021



Kiwi call – male and female
19,400 views



Japanese Mantis Shrimp
(*Oratosquilla oratoria*)
7,600 views

How to trap and kill rats
4,200 views

A4 Council press releases

https://www.nrc.govt.nz/news/

Biosecurity was involved in eight of council's 66 press releases in 2020-2021. These are summarised in the table below.

Date	Subject	Category	Programme
Jul-20	Wilding pine removal boosts Lake Ngatu restoration	Plants	Sustained control
Jul-20	Predator Free Whangārei receives $6M from Predator Free 2050 Ltd, PGF	Animals	Sustained control
Aug-20	Public praised for successes in ongoing marine pests battle	Marine	Pathways
Oct-20	Hunt for marine pests resumes, extra vigilance sought	Marine	Pathways
Feb-21	Where's Wall(ab)y? Wallaby curry for NRC field days treat	Animals	Exclusion
Feb-21	Public help wanted to find suspected Lake Taharoa koi	Freshwater	Progressive containment
May-21	DNA from deer droppings aids eradication plan	Animal	Eradication
Jun-20	Free weed workshops back again	Plants	

Minister of Conservation Eugenie Sag
Predator Free Whangārei celebration.


ues, left, and NRC Biosecurity Incursion Management Officer Curtis Harris, with some of the
to this year's Wallaby curry giveaway at the Northland Field Days.

Some of the Biosecurity related council press releases in 2020-2021


A file image of a koi carp recovered in Northland and showing the unwanted fish's distinctive feelers.

A5 Council stories

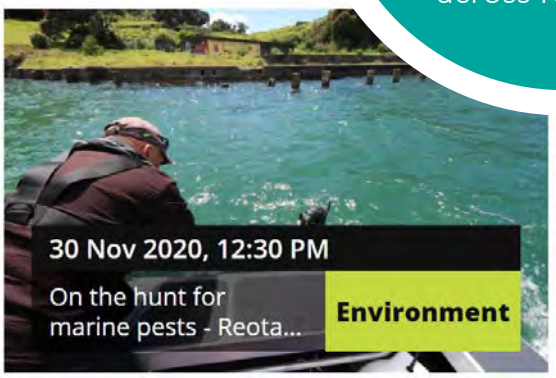
https://www.nrc.govt.nz/our-northland/stories/

The Stories page was a new addition the council's website in June 2018. A total of 14 stories were added in 2020-2021, of which Biosecurity was involved in six.

Biosecurity related stories are summarised in the table below.

Date	Subject	Category	Programme
Jul-20	Controlling our pests with compassion	Animals	Sustained control
Sep-20	Almost $35K funding for schools' environmental projects	Animals	Eradication
Nov-20	On the hunt for marine pests – Reotahi Marine Reserve snorkel survey	Marine	Pathways
May-21	Wilding pine blitz in Pataua South inspires iwi to upskill	Plants	Sustained control
May-21	Helping biodiversity flourish in the Piroa-Brynderwyn High Value Area	Animals	Sustained control
Jun-21	Little paws make big impression	Disease	Sustained control

Covering many aspects of pest control, the council's Stories page showcases many biosecurity activities across Northland



A6 Events

Covid 19 restrictions cancelled a number of events normally attended by the Biosecurity team such as the Northland Field Days, several Agricultural and Pastoral shows, and the Auckland Boat Show. Events and other activities that were completed in the year as summarised below.

Event Type	Number of Events Attended 2020-2021				
	Plants	Animals	Disease	Freshwater	Marine
Agricultural and Pastoral Shows	1	2		1	
Kiwi Releases and Activities		10			
Other Community Events	1	4	3	8	3
Enviroschools Workshops		7		2	
School Visits and Workshops		8	24	2	5
Stakeholder Activities	13	38	9	3	3
Pest Workshops	8	27	8	6	3
Contractor training		1			
Pig Hunting Competitions			2		
Boat shows					1
Controlled substance licencing		5			
Total	23	102	46	22	15

What's in there?

A Biosecurity Officer introduces students to freshwater ecology at Te Noho o Taioa Ngāpuhi

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