

Regional Pest Management Plan 2022-2032

Pūronga ā-Tau mō te Mahere Mahi **Operational Plan Annual Report 2022-23**

Prepared by Biosecurity Section, Integrated Catchment Management



Rārangi kaupapa

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Evergreen buckthorn.


He tīmatanga kōrero

Introduction

This annual report summarises all operational work completed, and progress made, against the objectives of the *Waikato Regional Pest Management Plan 2022-2032 (RPMP)* for the 2022/23 financial year (1 July 2022 to 30 June 2023).

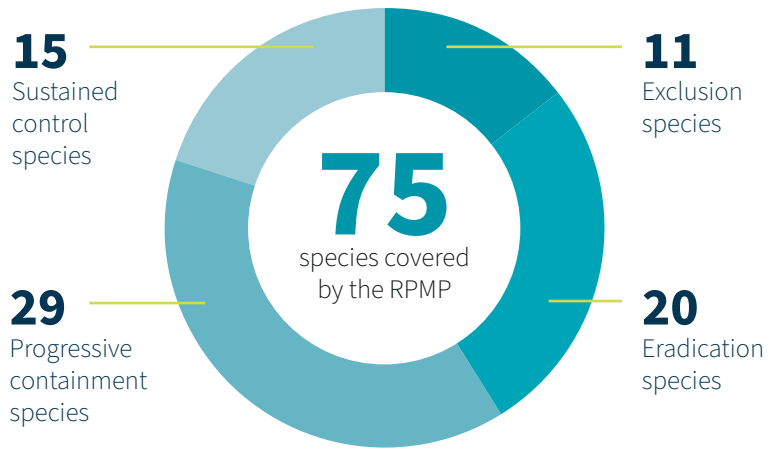
It also highlights non-regulatory work undertaken by Waikato Regional Council (the council) aligned with the key regional priorities set out in the *Waikato Biosecurity Strategy 2022-2032*.

An annual report is a statutory requirement under section 100B (2) (a) of the Biosecurity Act 1993. Financial information is provided in summary form only.




Dama wallaby.

Key stats 2022/23



80% of programmes on track

12 community events attended

37,360  hectares inspected for RPMP pest plants

25,456  wilding conifers controlled on the Coromandel

1000  marine hull inspections

6 new eradication sites found

0 new exclusion sites found

45,683  website hits for pest plants species

27,829 website hits for pest animal species


585 hectares of Hamilton Halo possum and rat control

20 biocontrol releases


- 8 tradescantia spot fungus
- 6 moth plant beetle
- 3 tradescantia leaf beetle
- 3 green thistle beetle

149,867  hectares of priority possum control area (PPCA) controlled

6451  hours on goat control

8967  kilometres walked or flown (drones) for wallaby surveillance outside of the containment area

Enforcement **1** notice of direction 

84 non-programme letters 

17 programme reports and letters

Incidents and requests for service

478  incidents received and assessed

422  requests for service

Financial summary

Original budget:

\$12,709,658

Actual expenditure:

\$13,502,147

Expenditure	Original Budget (\$)	Actual Expenditure (\$)	Difference (\$)
Pest plants	5,718,063	5,181,319	(536,745)
Pest animals	6,991,595	8,320,828	1,329,233
Totals	12,709,658	13,502,147	792,489

There is a \$792,489 variance from the original budgets:

- the pest plant programme had an underspend of \$536,745 mainly due to weather impacts on programme delivery (refer below)
- the pest animal programme had an overspend of \$1,329,233 which was largely due to COVID-19 delayed contracted control work (and budget associated with it) being carried over from 2021/22 into 2022/23 and unspent wallaby research budget with that associated work in 2021/22 also delayed.

In 2022/23 the drivers for variation of spend and completion of work within programmes included:

- severe weather events that impacted pest plant and pest animal work programmes, for example by:
 - hindering access to sites for surveillance and control work
 - preventing control work due to flooding of pest plant infestations or areas within priority possum control areas (PPCA)
 - delaying aerial pest animal control work requiring fine weather windows
- COVID-19 related impacts
 - lingering impacts of COVID isolation requirements on available contractor workforce.

Funds for any delayed direct control programmes, for example progressive containment pest plant work, will be carried over with the work to be completed in 2023/24.

Additional funding was received in 2022/23 from:

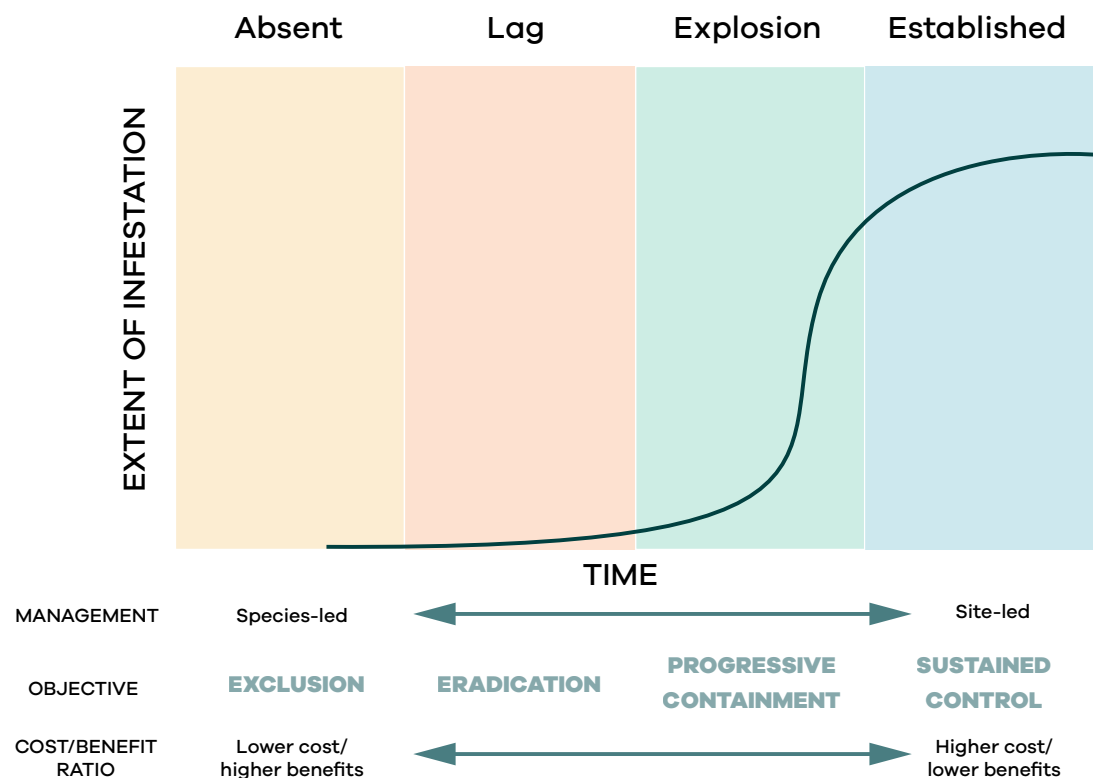
- MPI for the council's kauri protection (as part of Tiakina Kauri) and wallaby (as part of Tipu Mātoro) programmes in the Waikato region
- Land Information New Zealand (LINZ) and MPI to manage infestations of wilding conifers, alligator weed and yellow flag iris, including those within Taupō geothermal sites
- MPI for caulerpa and sabella surveillance, which helped fund the council's joint regional marine surveillance work with Bay of Plenty Regional Council
- Waikato River Authority as a contribution to the joint council/DOC/Te Riu o Waikato koi carp management programme.



Planning a biosecurity operation.

RPMP programmes

Pests are managed within five programmes depending on their effects, distribution, density, control methods available and cost.



The council achieves practical pest management objectives using the following approaches.

Service delivery

This is pest control that the council funds and undertakes, for example, for high threat, low incidence pest plants in a 'pest-led' management approach, or to protect specific values on private land in the region, under a 'site-led' approach. The council may also provide control tools, including the sourcing and distribution of biological control agents.

Monitoring and surveillance

The council undertakes property inspections to determine where pests are present, and make sure RPMP rules are being adhered to. Monitoring is also undertaken to confirm the need for pest control (for example, pest animal trend monitoring) and that control targets have been achieved. Surveillance activities allow for new pest incursions to be promptly detected and appropriate responses initiated.

Requirement to act

The RPMP has a set of rules that require occupiers or other persons to act, for example, the requirement to report a pest or undertake pest control, prepare and submit a biosecurity management plan, or to not spread a pest. Every effort is made to encourage and assist occupiers to achieve voluntary compliance. Appropriate enforcement action is taken against occupiers who fail to comply.

Advocacy and education

The council provides practical biosecurity advice, education and awareness through its website (waikatoregion.govt.nz), factsheets, field days and its 24-hour freephone number (0800 800 401). The council also promotes industry biosecurity requirements and best practice and facilitates and commissions research on biosecurity issues.

Report format

This annual report should be read in conjunction with the *Waikato Regional Pest Management Plan 2022-2032*, the *2022/2032 RPMP Operational Plan* and the *Waikato Biosecurity Strategy 2022-2032*.

The implementation of the RPMP is undertaken by the council's pest plant and pest animal biosecurity teams and a range of pre-approved contractors.

This report deals primarily with pest management projects under the RPMP pest management programmes. The objective(s) and outcome(s) for each management programme, and the status and results against key performance indicators in the operational plan for each species is included in this annual report.



Collecting data with Plantell

Case study

Plantell is a mobile-friendly spatial (geographical) data system for viewing and recording pest plant infestation data using a suite of integrated apps that run off smart-phones and tablets in the field.

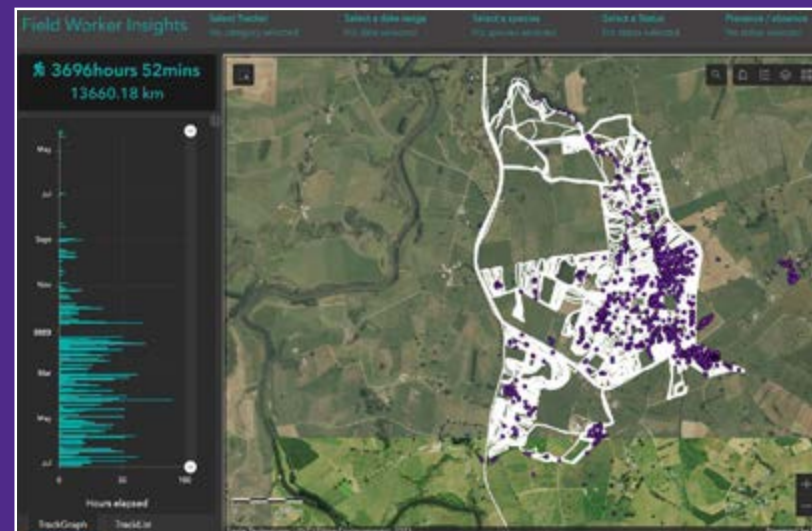
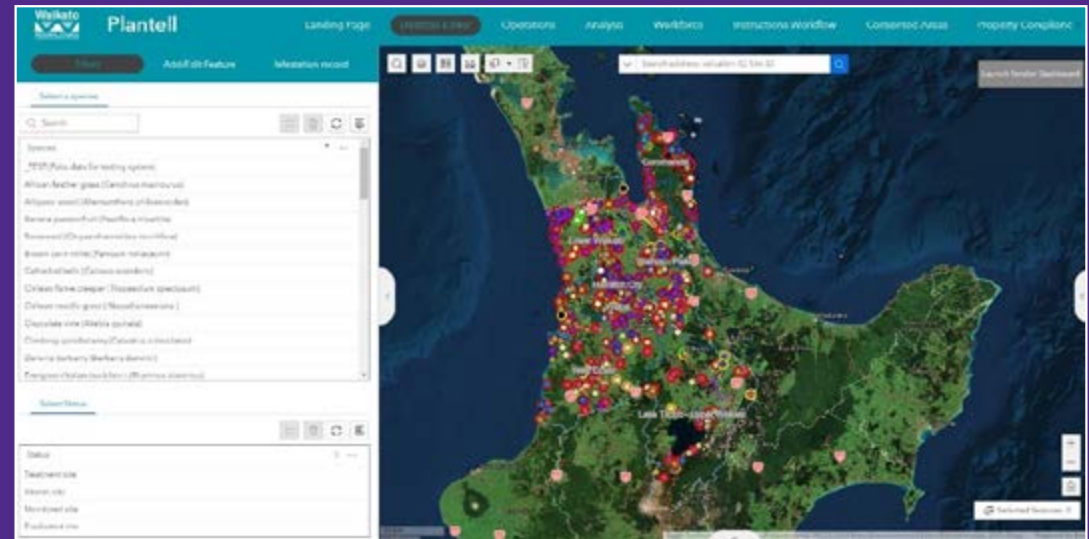
Data is simultaneously saved directly in a centralised cloud-based database in ArcGIS Online for access back in the office.

The benefits of Plantell to our programme have been:

- providing a spatial view of pest species in the region
- ensuring field workers are collecting real-time data
- requiring data to be collected and entered only once, allowing for more field time
- providing reliable information that can be used for strategic decision making.

The data from Plantell informs the basis of the annual report, especially for pest plants.




Pest programme management will become even more robust as more pest data is captured. This data will confirm or highlight emerging trends and allow pest programme progress to be more accurately reported against RPMP objectives and outcomes.



Part 1: Ngā whakamārama o te hōtaka whakahaere kīrearea Pest management programme reporting

This section provides an overview for each pest management programme, including the objectives and outcomes of each programme.

It also includes the status ratings of the management of each pest species within the programmes as follows.

Status	Description
	On track – pest management programme is considered on track to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .
	At risk – pest management programme is considered at risk of not meeting some of the Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> . ¹
	More input required – pest management programme did not meet any of the Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

¹ Explanations for individual species status is provided under Part 3 'Species Pages'. Programmes may not meet all their Key Performance Indicators in the *Waikato Biosecurity Operational Plan 2022-2032* for a range of reasons, including severe weather events that impact on a season's pest control operations by limiting site access and contractor availability.

Exclusion programme

The exclusion programme covers pests that the council has opted to be the lead agency or partner in managing.

Most of these pests are present outside of the Waikato region, or have recently been eradicated from it, and have the potential to establish here or expand their range and become a problem.

Objective Over the duration of this plan, preclude the establishment of pests in the exclusion programme within the Waikato region to prevent adverse effects and impacts as defined in the RPMP.

Outcome No pests in the exclusion programme are established in the region.

Pest plant species	Status	Known infestations within the region	Infestations discovered 2022/23
Broom corn millet	●	0	0
Chilean needle grass	●	0	0
Freshwater eel grass	●	1	0
Fringed water lily	●	0	0
Horsetail (field/common)	●	2	0
Kudzu vine	●	0	0
Marshwort	●	1	0

Pest animals	Status	Animals reported or confirmed
Wallaby:	●	0
Bennett's wallaby		
Brush-tailed rock wallaby		
Parma wallaby		
Swamp wallaby		

Keeping out field horsetail

Field horsetail is a hard to control pest plant with the potential to invade damp ground in natural areas and pasture and grow through and damage footpaths and roadways in urban areas.

A new field horsetail site was discovered in the region in January 2022. Initial control work was carried out at the site in May 2022, with a small patch of regrowth treated during the next routine inspection in October 2022.

The site was inspected again in February and June 2023 with no horsetail found at either visit. Regular monitoring at the site will occur again later in 2023, with more control undertaken then if required.



Field horsetail.

Eradication programme

The eradication programme is used to manage pests that the council considers can be eradicated from the region over the period of the RPMP due to their low density and/or distribution.

The council has a lead role in the management of these pests through advocacy and education, inspection and service delivery. Comprehensive programmes of work are developed for all eradication pests. These programmes are high priority. Preventing eradication pests from becoming more widely established in the region will have huge benefits to the region's social, economic, cultural and environmental values.

Objective Over the duration of the RPMP, reduce the level of infestation of eradication pests within the Waikato region to zero density to prevent adverse effects and impacts as identified in the RPMP.

Outcome All known or new pest infestations are controlled to zero density within the duration of this RPMP.

Pest Plants	Status	Number of sites	Area managed (ha)	Area of plant cover (m ²)
African feathergrass	●	12	388.1	300
Cathedral bells	●	16	7.7	19
Chilean flame creeper	●	1	20.8	1,481
Evergreen buckthorn	●	See species page for break down in results.		
Horse nettle	●	2	39.4	0
Horsetail (rough)	●	14	15.4	13.2
Knotweed (giant and Japanese/Asiatic)	●	23	2.4	119
Mile-a-minute	●	21	8.4	134
Nassella	●	16	1.6	610
Nassella tussock	●	13	0.2	276
Noogoora bur	●	10	207.9	2,996
Purple loosestrife	●	2	0.5	0

Biosecurity detector dogs 'pawsome' pest finders!

Biosecurity detector dogs have become an integral part of the council's biosecurity programmes, undertaking valuable pest surveillance work with their well-trained noses.

In any one week there are up to four dog handlers and their dogs working to detect wallabies for the National Wallaby Programme in the Waikato region.

In addition, dogs like Uzi and Wink are sniffing out pest plants like alligator weed, noogoora bur and velvetleaf in natural areas and on farmland. This helps us find these pests and control them before they become a significant problem.



Uzi, the alligator weed detector dog.

Pest Plants	Status	Number of sites	Area managed (ha)	Area of plant cover (m ²)
<i>Rhododendron ponticum</i>	●	2	41	35
Sagittaria/arrowhead	●	3	165.9	34
Senegal tea	●	4	26.8	626
Spartina	DOC are the lead management agency for most sites of spartina in the Waikato region. The council contributes financially towards the programme. This year we also undertook surveillance in the Waihou River site and no spartina was found.			
Variegated thistle	●	4	919	15,000
Water poppy	●	4	9.1	36
Totals		147	1854.2ha	21,679.2m²

Pest Animals	Status	Confirmed rookeries	Number of active nest sites	Active nest sites controlled	Nest sites abandoned (due to weather events)
Rook	●	4	10	3	7



Rook control contractors prepare for take off.

Weather impacts programme delivery

Case study

The pest plant team has experienced a difficult spray season with the occurrence of two major weather events, Cyclone Hale and Cyclone Gabrielle, and overall higher than average rainfall. As a result, we've seen markedly increased water levels in our streams, rivers and dams and flooding, which have affected many of our operational sites and significantly impacted the delivery of some pest plant programmes, for example, the yellow flag iris, Manchurian wild rice and alligator weed control programmes.

The weather impacts led to:

- delayed or cancelled pest plant control work, resulting in a significant decrease in completed control work across the pest plant programme
- additional spread of pest plants via plant fragments down waterways due to flooding, requiring increased surveillance effort to identify new sites, and additional control effort to treat them
- impeding access to pest sites due to road closures, wet races and wet or flooded paddocks
- impacts on contractor and staff availability with only short windows of good weather available to complete their work programme.



Japanese knotweed: New small infestations of Japanese knotweed have established downstream from known sites due to plant fragments being moved in floodwaters.



Alligator weed: Large rafts of alligator weed were scoured from river margins during flood and also redistributed elsewhere.



Manchurian wild rice: Sites of Manchurian wild rice along the Waihou River margin, usually easily accessible on foot, were only accessible by boat this season due to very wet boggy ground. The wet weather has allowed Manchurian wild rice to thrive, even re-establishing at sites where it had been controlled. Staff responsible for spraying Manchurian wild rice were redeployed to flood protection and river management works.

Progressive containment programme

The progressive containment programme is used to manage pests that are well established but which can be feasibly reduced in geographic distribution and thereby impacts, in all or part of the region.

It is appropriate for the council to manage some of the pests in the progressive containment programme (for example, giant gunnera, alligator weed and climbing spindleberry), rather than rely solely on voluntary action, because:

- successful containment of these species requires co-ordination of action at a regional scale
- the benefits of the control of many of these pests accrue to a wider community than those directly affected by the presence of the pests on their property.

For some pests in the progressive containment programme, control is the occupier's responsibility to control (for example, control of lantana and chocolate vine). Occupiers may also need to produce biosecurity management plans if planning subdivision or land development activities where pest plants like alligator weed are present. The council provides advice and information on the identification, impacts and, where appropriate, the control of the progressive containment pest species.

Objective	Over the duration of the plan, contain and where practicable progressively reduce the geographic distribution or extent of progressive containment pests within all or specific parts of the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified in the RPMP.
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- | | |
|----------------|---|
| Outcome | <ul style="list-style-type: none">• Reduction in extent and density of these pests.• Areas that are clear of these pests will remain so. |
|----------------|---|

Area differences

Three pest plants are included in the progressive containment programme for the Taupō and Rotorua districts only: banana passionfruit, moth plant and woolly nightshade. Elsewhere in the Waikato these pest plants are in the sustained control programme.

In the case of banana passionfruit, while climate modelling suggested it could only occur in certain parts of the Taupō and Rotorua districts within the Waikato region, the potential impact of this pest in those areas could be significant.

The council's control of banana passionfruit infestations within these colder districts will contribute to a reduction in its extent, thereby minimising the threat it poses to environmental, and amenity/recreational values.



Banana passionfruit vines can blanket and out-compete desirable vegetation.

Pest plants	Status	Number of operational sites	Total area of operational sites (ha)	Pest plant cover (m ²)
Alligator weed	●	212	2,342	10,797
Banana passionfruit (Taupō and Rotorua districts)	●	4	16.8	486
Boneseed	●	17	132.3	125
Climbing spindleberry	●	56	901.9	714
Darwin's barberry	●	2	3,290.2	-
Giant gunnera	●	-	-	-
Golden dodder	●	-	-	-
Mexican waterlily	●	2	50	300
Moth plant (Taupō and Rotorua districts)	●	0	0	0
Old man's beard	●	54	2,391.4	696
Velvetleaf	●	41	1,937	156
Wild kiwifruit	●	8	1.1	5
Woolly nightshade (Taupō and Rotorua districts)	●	1	513.2	153
Yellow flag iris	●	54	1,040.2	2,374
Totals		434	12,483.8ha	15,681m²

Pest animals	Status	Public sightings reported	Total area of wallaby indicator dog and drone surveillance	Direct control
Dama wallaby (outside containment area)	●	30	71,108ha covered 8,967km walked or flown	135 wallabies shot 11,500ha aerial control



Pod-like capsules and leaves of velvetleaf.

Wilding conifer programme

Case study

The wilding conifer programme is a progressive containment programme that targets the control of exotic conifers, specifically 11 species that have established by natural means (wilding) and are not located within a forest plantation (defined as an area of more than one hectare).

While conifers within production forestry make an important contribution to the economy of the Waikato region, unplanned and unmanaged wilding trees can have a range of negative impacts. They invade and alter our native ecosystems, obscure views, increase fire risks and reduce stream water yield in flow-sensitive catchments.

In 2022/23, the council undertook significant control operations on the Coromandel Peninsula in support of community group work. In addition, the council completed a 10-year Coromandel Wilding Pine Control Strategy that prioritises sites for future wilding conifer control, with the aim to bring together agencies, community groups, iwi, forestry and private landowners to tackle the wilding conifer issue on the peninsula.

Objective Over the duration of the RPMP, reduce the level of infestation of eradication pests within the Waikato region to zero density to prevent adverse effects and impacts as identified in the RPMP.

Outcome All known or new pest infestations are controlled to zero density within the duration of this RPMP.

Project	Hectares cleared	Trees controlled (all size classes)
KUAOTUNU		
A Black Jack Scenic Reserve	21	1,926
B Matarangi Bluff Scenic Reserve	40	3,355
C Waitaia Bay	85.2	3,664
D Opito Bay	243	1,353
E Coromandel State Forest	155.2	3,627
H Otama	120	3,460
WHITIANGA		
I, F and G Back-Drop Trust Site and two DOC/ Ngati Hei managed sites ¹	207.85	8,071
TOTAL	872.25	25,456



Significant control was undertaken in the Coromandel Peninsula, where wilding conifers had invaded and altered native ecosystems.

¹ This is a large-scale project is soon to include further control operations on adjacent private land.

Sustained control programme

The sustained control programme is used to reduce the impacts of well established pest plants and animals on biodiversity and economic values, and their spread to other properties.

The council's role is to respond to complaints from members of the public, who are taking reasonable measures to control the pest plant and want an adjacent or nearby occupier to undertake control of the same to prevent spread across land they occupy. The RPMP has rules to prevent spread from transport corridors, cycleways and quarries. This includes to neighbouring properties and areas where control is already being undertaken. It also includes preventing spread from transport corridors, cycleways and quarries.

The council will work with land occupiers to help them comply with RPMP rules, providing advice and information, and taking enforcement action if necessary. To this end, all quarries within the region have received a letter updating them on their responsibilities in relation to sustained control species in the new RPMP.

Objectives

- Over the duration of the RPMP, prevent the spread of sustained control pest plants to neighbouring properties where those pest plants are being actively managed. Ensure transport corridors and quarries reduce the risk of sustained control pest plants being spread around the region.
- Over the duration of the RPMP, sustainably control common brushtail possums within priority possum control areas and across the Waikato region to minimise adverse effects and impacts as identified in the RPMP and their spread to neighbouring properties.
- Over the duration of the RPMP, sustainably control feral rabbits to level 4 or below on the Modified McLean Rabbit Infestation Scale 2012 where they have been identified as having adverse effects on environmental, production, cultural and amenity values in the Waikato region, and to reduce their impacts on neighbouring properties.
- Over the duration of the RPMP, sustainably control magpies and common and German wasps within the Waikato region where they present a risk to public health to minimise adverse effects and impacts as identified in the RPMP.

Outcome

- Impacts of these pests are managed to an acceptable level.
- The spread of these pests across boundaries are managed.
- Strategic investment in areas where it will support meaningful outcomes.

Using biological control agents

The council releases available biological control agents, where possible, to support land occupiers in controlling sustained control species. In the last two financial years, we have conducted 61 releases of two biocontrol agents for nodding thistle. Together, the nodding thistle crown weevil (*Trichosirocalus horridus*) and nodding thistle gall fly (*Urophora solstitialis*) can reduce the impact of nodding thistle on productive farmland.



Nodding thistle crown weevil hiding in soil.

Priority possum control

Case study

The council undertakes maintenance possum control in priority possum control areas (PPCA) and at Hamilton HALO sites, covering over 500,000 hectares. This control work complements pest animal control undertaken by the Department of Conservation, iwi, community groups and land occupiers across the region.

HALO sites are controlled annually, particularly for rats and possums. To identify when maintenance control is required within PPCA, the council undertakes trend RTC² monitoring to determine possum population levels. When a PPCA has a trend result above the 5% RTC index threshold, this triggers the need for maintenance control. Control is generally undertaken on a three-to-four-year cycle depending on the RTC results achieved and trend monitoring results overtime.

Objective Minimising the adverse effects and impacts caused by possums on economic and environmental values within Priority Possum Control Areas (PPCA) and prevent their spread to and impacts on neighbouring properties where they are being actively managed.

KPIs All PPCA ground control operations achieve a mean 5% RTC, and aerial control operations achieve a mean 3% RTC within the contract timeframes.

Annual HALO ground control operations are completed by 30 September.

Maintenance possum control is carried out to best practice standards and in accordance with relevant legislation.

Results

2022/23 PPCA results (149,867ha)

- Otahu Farmland – 0.85% RTC
- Port Waikato Bush – 0.0% RTC
- Port Waikato Farmland – 4.1% RTC
- Te Kohanga Sector 1 – 4.52% RTC
- Te Akau – to be completed early 2023/24
- Naike - to be completed early 2023/24
- Waipa Bush- 0.0% RTC
- Waipa Farmland- 2.39% RTC
- Waipa Puniu II – 3.13% RTC
- Arohena 1 – 4.47% RTC
- Arohena 2 – 0.0% RTC
- Pirongia North – 2.05% RTC
- North Taupō – 1.82% RTC
- West Taupō – 1.32% RTC
- Hauturu Bush – 0.74% RTC
- Hauturu Farmland – 4.71% RTC
- Mahoenui Farmland – 4.46% RTC
- Waotu – 1.12% RTC

Hamilton HALO results (585ha)

- Johnstone's Block – 1.82% RTI (rat tracking index)
- Hope Bush – 0.0% RTI
- Pukemako – 3.33% RTI
- Tirohanga – 0.0% RTI

2023/24 PPCA planned operations

- Waikaretu
- Rangariri
- Matira
- Waingaro
- Mount Karioi South
- Pirongia West Buffer
- Waikite Valley Farmland 2A and 2B Forest blocks
- Aria
- Tiroa
- Ngaroma 1
- Oparau
- Mokauiti 2 Farmland
- Mokauiti 1 Farmland (carried over to 2023/24)
- Mokauiti 1 Bush (carried over to 2023/24)
- Whareorino Bush – (DOC/WRC) (carried over to 2023/24)
- Whenuakite Farmland (TBC)
- Whenuakite Bush (DOC)
- Hauhungaroa Bush (DOC/WRC)

Hamilton HALO planned operations

- Johnstone's Block
- Hope Bush
- Pukemako
- Te Miro
- Tirohanga

² The residual trap-catch (RTC) index is a method of determining relative possum density. Lines of 10 leg-hold traps, spaced 20 metres apart, are set for three consecutive nights in random locations within the treatment area, before and after control. The number of lines used is determined by the size of the management area. The standard performance target commonly set for a reduction in possum densities, is an RTC of < 5% (i.e. less than 5 possums caught for every 100 trap-nights).

Audits

A selection of PPCA are audited each year using the council's auditing standard operating procedures, as follows.

- All aerial operations are audited.
- Every animal pest contractor is audited at least once every year.
- New animal pest contractors are audited on their first control.
- Any breaches identified in council audits are resolved by following SOP guidelines, within the timeframes of each PPCA project.

A total of 14 audits were completed in the 2022/23 financial year, including:

- nine audits of ground control operations (six operational and three decontamination audits) in PPCA and HALO areas
- four audits of the four aerial control operations (two by council staff, two by DOC staff) in PPCA
- one audit of the council's operational performance monitoring (result/trend RTC/RTI).

Audits are undertaken to identify areas for improvement in the delivery of the PPCA programme. Contractors are always notified of any issues or breaches identified in audits, with follow up by council to ensure contractor processes and procedures are modified accordingly or improvements made. Our contractors exhibit a continuing commitment to health and safety practices in a high-risk industry, with all identified issues addressed and resolved this financial year.

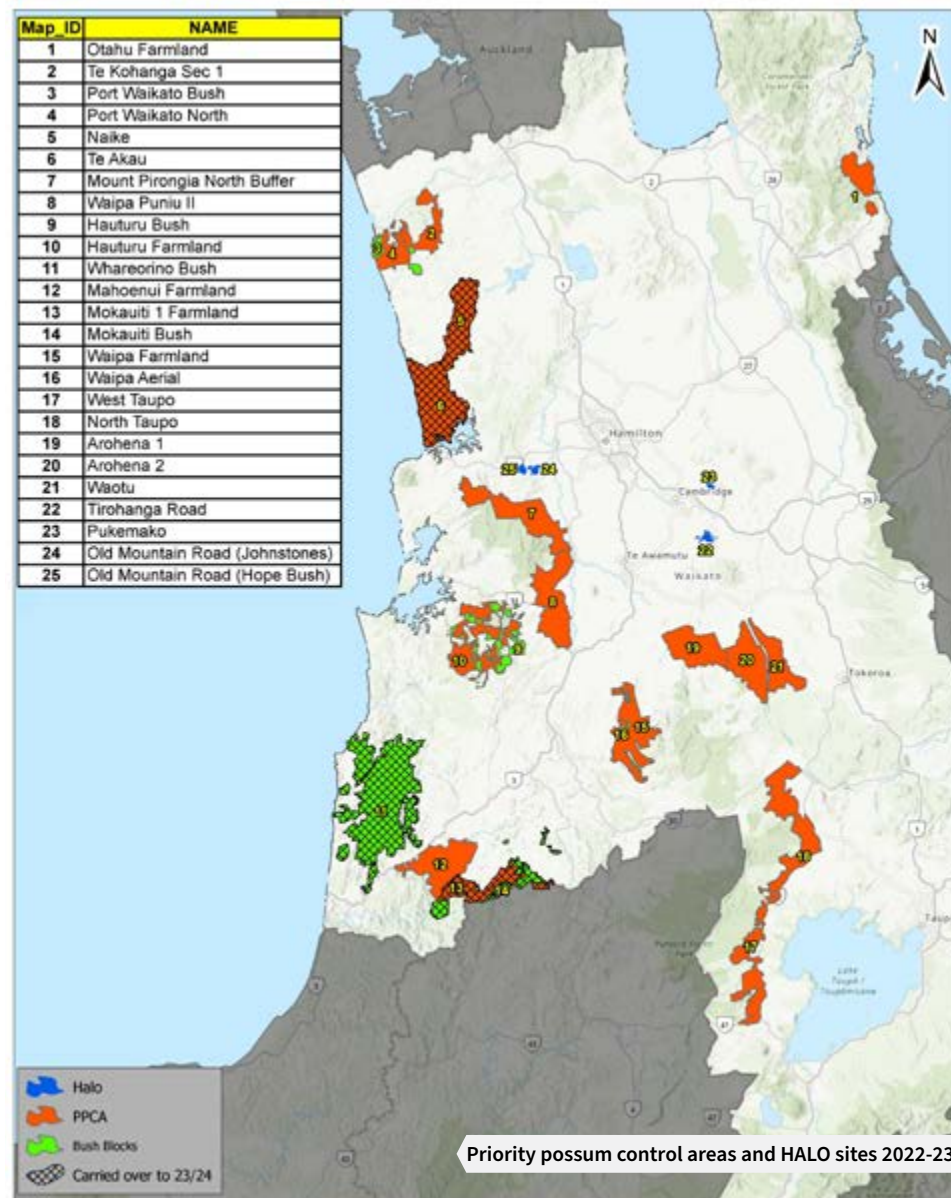
There were two non-compliant reportable events (operational) relating to the 2022/23 pest animal programme, with no serious non-compliance observed during the council's auditing programme. There was one non-compliant reportable event (procedural) identified in March 2023 for last financial year (2021/22).

The two non-compliant operational events relate to the aerial and ground operations in Hauturu PPCA. One was a theoretical misapplication that occurred during the toxic delivery of the aerial 1080 operation.

When flight data was analysed, the spatial buffer on the flight line extended slightly into the public health unit (PHU) buffer. The spatial buffer area was over forest in steep terrain. No bait was detected in follow-up ground searches on the day of and day after delivery, on either the closest road or forest area.

The contractor submitted an investigation report on this incident to the Environment Protection Authority (EPA).

The second non-compliant operational event was the expiry of VTA approval for the ground control in Hauturu PPCA. Delays to the ground operation meant the rework required at the end of the operation were undertaken after the permission had expired. As soon as the contractors became aware of the expiry, EPA was notified and a new approval sought, and procedural changes have been instigated to prevent this occurring again.



Site-led pest management programmes

Site-led pest management is about preserving the values of a place, rather than targeting a specific pest species.

Three site-led programmes have been identified in RPMP:

- the Hūnua Ranges Pest Management Area (programme administered by Auckland Council)
- Wetlands
- Project Yellow.

The pests targeted under a site-led programme vary, depending on the effects of pests on the site's values.

Wetlands site-led programme

There are 24 pest plants and four pest animals (all turtles) included within the wetland site-led programme. These pests have the potential to impact wetland environments. If a wetland site meets the site-led RPMP criteria, then there are rules in the RPMP to support occupier or community-group led wetland restoration work. To date there are no wetland site-led programmes in the Waikato region.

Objective	Over the duration of the plan, the impacts of the pests listed in table 14 and 15 of the RPMP in wetland sites of high ecological value, or high value to the community or occupiers, are minimised.
Outcome	Community groups and stakeholders are supported in minimising the adverse effects of specified pests on the values of identified wetland sites.

Turtles breeding in the wild

Red-eared sliders are now successfully breeding in the wild in the Waikato region. While only baby male turtles have been found, warming average temperatures may mean female young will also hatch in the future. Community-run turtle traps at Cooks Beach have caught almost 70 red-eared slider

turtles from water retention ponds in the last few years. To protect the values of wetlands, a rule in the RPMP¹ makes it an offence for anyone to release or spread within natural inland wetlands², red-eared sliders and any of the other exotic turtle species listed in the plan.



- 1 RPMP Rule WET-1: No person shall propagate, release, or spread any of the species listed in table 14 and table 15 within wetlands in the Waikato region.
- 2 Site-led Wetlands Criteria: for a wetland to be classed as a place that is subject to the rules under this site-led pest programme it must meet the definition of a 'natural inland wetland' as stated in the National Policy Statement for Freshwater Management 2020 or any subsequent revision.

Project Yellow site-led programme

Project Yellow targets three yellow-flowered, nitrogen-fixing pest plants: broom, gorse and tree lupin/yellow bush lupin.

Eight organisations, including Waikato Regional Council, work collaboratively to protect the unique natural values and natural vistas of the tussocklands of the Central North Island, between Rangipo in the north and Waiouru in the south, from the impacts of these pest plants.

In 2022/23, the council engaged contractors to undertake ground control of broom and gorse across 1 hectare of tussockland.

The council also contributed to the cost of capturing a high-resolution aerial photo to help detect and delineate tree lupin infestations among tussockland vegetation as part of the programme's regular surveillance and outcome monitoring. Tree lupin's bright yellow flowers stand out among the softer hues of the native vegetation. However, the warmer, wet summer weather meant lupin flowered earlier than normal this year, and the flowering was not captured at the time of surveillance.

Objective	Over the duration of the plan, control of the pest plants listed in table 16 of the RPMP will be undertaken so that the environmental, social, cultural, amenity and recreational values of the Central North Island Desert Road tussocklands are protected from the impacts of these pests.
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Outcome	Community groups and stakeholders are supported in minimising the adverse effects of specific pests on the values of identified Desert Road tussocklands.
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Activity	Cost
High resolution photo	\$1,828.00
Ground control	\$5,000.00
Total 2022/23 spend	\$6,828.00

Project Yellow partners:

- Department of Conservation
- Genesis Energy
- Horizons Regional Council
- Lake Rotoaira Forest Trust
- New Zealand Defence Force
- Transpower
- Waikato Regional Council
- Waka Kotahi NZ Transport Agency





Contractor drilling a wilding conifer.

Part 2: Ētehi atu mahi tiakitanga taiao

Other biosecurity activities

Waikato Biosecurity Strategy 2022-2032

The strategy sets out the council's blueprint for ensuring we operate and maintain a collaborative, cohesive and comprehensive biosecurity system within the Waikato region over the next 10 years.

The strategy, which is non-statutory, integrates the council's regulatory (RPMP) and non-regulatory biosecurity functions (all other biosecurity activities such as monitoring and surveillance, research, incursion responses and collaborative action). Strategic goals and key regional priorities are outlined to guide the delivery of our wider regional biosecurity activities.

Biosecurity work relating to these regional priorities are highlighted in this section of the annual report.



Effective leadership and governance

The council undertakes a range of actions to provide effective leadership and governance for regional biosecurity.

Kauri Protection Programme

The council's Kauri Protection Programme promotes and advocates for the protection of the unique and special 'southern' kauri in the Waikato rohe through a wide scope of work that includes science and research, marketing and communications, behavioural change, and on the ground works and operational activities.

The overall aim of the programme is to engage with specific audiences, including rural landowners, community group members, schools, iwi, stakeholders and industry groups, to spread the key messages around kauri protection in a positive way.

Highlights for 2022/23 have included:

- the creation of the Wētā Workshop kauri tree model
- a Kauri Pou Kaitiaki virtual reality experience
- publication of a two-part Forest & Bird Magazine article on Southern Kauri
- construction of a kauri protection station at Waiomu Beach café
- eDNA sampling in kauriland catchments
- establishment of control trees as part of a phosphite delivery trial
- rural fencing of kauri areas
- community group support.

Wētā Workshop kauri tree model

The kauri tree model, made by Wētā Workshop, is a unique and incredibly detailed 1:82 scale model based on a kauri tree that once stood at Mill Creek, Whitianga, known as the 'Father of the Forest'. That tree was approximately 7.5 metres in diameter, which is 2 metres wider than Tāne Mahuta, God of the Forest.

The model provides the viewer with a visual representation of the overall proportions of a mature, healthy ancient kauri, including the potential size and spread of its root system (the area that is at risk of kauri dieback infection). It helps people understand the importance of keeping away from kauri and their root systems to protect them from kauri dieback disease.

The model was displayed at the Mystery Creek Fielddays in December 2022, which had approximately 75,000 people in attendance. Northland Regional Council also displayed the model at the Northland Fielddays, with other groups expressing an interest in using the model to support their kauri protection conversations.



Kauri Pou Kaitiaki virtual reality experience

The virtual reality experience includes visual narratives and a game to engage audiences and support kauri protection mahi.

Our Kauri Protection Team worked closely with a specially established Māori Advisory Group to help tell the traditional story of kauri, and with ecologists to visually reflect the ecology of a kauri forest as closely as possible.

The purpose of the VR experience is to:

- give people hope for the future of our beautiful kauri
- educate users around the importance of cleaning all dirt off footwear
- provide a positive and risk-free experience of a kauri forest and the creatures that might dwell within it.



Kauri protection station at Waiomu cafe

The council developed and installed signage and a bespoke cleaning station at Waiomu Beach Cafe on the Thames Coast. Council staff worked closely with local iwi, Ngāti Tamaterā, to include their history of the Wai-ō-umu area on the sign, which also has information on kauri protection and the nearby kauri grove walkway.

Café staff were given branded caps and drink bottles to reinforce kauri protection messages during the summer.

The café is a gateway to the Coromandel and a popular stop for visitors to the peninsula.



Kauri protection fencing

The council receives funding from Tiakina Kauri, the National Kauri Protection Programme (MPI), for fencing, which is being used to protect areas of old growth kauri, large kauri stands and PA positive (kauri dieback infected) kauri sites.

The fencing excludes stock from kauri areas, limiting the movement of soil and protecting kauri from physical damage. It also has the wider benefits of waterway and biodiversity protection and enhancement.

The council has provided funding for 15 kilometres of kauri protection fencing so far, with at least a further 2.5 kilometres of fencing planned for the next financial year.



National Interest Pest Responses

Waikato Regional Council partners with the Ministry for Primary Industries to manage high threat/low incidence unwanted and/or notifiable organisms to reduce their adverse effects, including:

- providing advice and information to the public on the adverse effects of unwanted and notifiable organisms included in pest animal and plant programmes led by MPI
- undertake management activities on behalf of MPI when required.

In 2022/23, this included the management of Manchurian wild rice and white bryony.

Manchurian wild rice

The size and density of infestations of this pest plant continue to reduce in the Waikato region. Unfortunately, severe weather events and continuous periods of rain and wind have hindered progress to control this pest plant at some sites this year (see *Weather impacts programme delivery* page 13).

In general, most of the changes in site status were positive, for example, with reduction in the size of infestations. Unfortunately, there were several new sites of MWR discovered this season during active surveillance. These are all in locations where MWR has been found historically but the exact mechanism of spread to those historic sites is unknown. It is possible that fragments were moved during flood events sometime in the past; this year, two sites were inaccessible to machinery.



White bryony

The council partners with MPI to manage high threat/low incidence unwanted and/or notifiable organisms to reduce their adverse effects. This includes managing the direct control of, and surveying for, white bryony at both Aria and Mokauiti, and providing staff resources for contract management and reporting services.

We also provide advice and information on the threats of white bryony to affected land occupiers and any other interested parties. This season, after three consecutive years of no plants being found, two white bryony plants were discovered in Tapuae Scenic Reserve in Aria. In Mokauiti, for the third consecutive year, no plants were found.



Working together as a region

The council undertakes a range of actions to promote and facilitate everyone working together to achieve regional biosecurity outcomes.

Freshwater biosecurity

Work has continued this financial year on the Koi Management Programme, a collaboration between the council, the Department of Conservation and Te Riu o Waikato, with additional funding from Waikato River Authority. The focus to date has been on eDNA analysis of lakes within the Waikato to identify koi-free catchments, and feasibility assessments for installing fish barrier infrastructure to prevent koi passage to maintain the koi-free status.

The programme recognises Lake Karāpiro as a high-risk waterbody for the spread of koi and other freshwater pest species due to its volume of users, so held a *Check, Clean, Dry* advocacy campaign on site over the summer to raise biosecurity awareness and make recommendations for future improvements.

Staff worked with organisers of events to gather key information about logistics to enable support of the Ministry for Primary Industries' *Check, Clean, Dry* programme at Lake Karāpiro. The goal of their advocacy was to ensure that human activities were not inadvertently bringing in or further spreading freshwater pests to waterbodies where they were not already present.

Between January and May this year, staff were present at 10 major watersports events attended by over 13,800 competitors and upwards of 25,000 spectators. The events included international, national and championship dragon boating, waka-ama, sprint kayaking, rowing and hydroplane racing series.

Information gathered at the events included:

- travel/cleaning equipment habits by athletes
- general attitudes towards the *Clean, Check, Dry* campaign
- current knowledge of the campaign and freshwater biosecurity measures
- any steps individuals were already doing to minimise the spread of freshwater pests
- suggestions for what could be done to improve the freshwater biosecurity outcomes at Lake Karāpiro and for the wider Waikato region.

It was noted that high volumes of equipment move between lakes, especially in the Auckland, Waikato and Bay of Plenty areas, with the possibility of pest species hitching a ride on equipment, boat trailers and in ballast water.

Lake Karāpiro is home to several highly invasive freshwater fish and weed species, including koi, goldfish, rudd, catfish, gambusia, possibly perch and the recently discovered gold clam. Other regions in New Zealand also have freshwater pests not found in the Waikato, such as didymo, which has so far been successfully contained in the South Island.

The information gathered this summer has also been valuable in helping MPI with its biosecurity response for gold clams.

Given the nature of freshwater pests and their ability to spread without regard for boundaries, staff continue to work with neighbouring regional partners and central government agencies to advocate for a national approach to emerging freshwater pests, such as red-eared slider turtles.



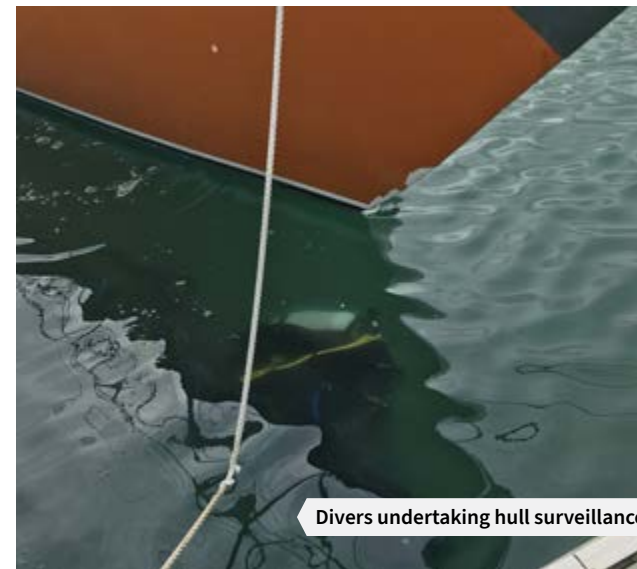
The Koi Management Programme recognises Lake Karāpiro as a high-risk waterbody for the spread of koi and other freshwater pest species due to its volume of users.

Marine biosecurity

Waikato Regional Council is a member of the Top of the North Marine Biosecurity partnership, a group of organisations dedicated to reducing the spread of harmful pest organisms in the marine environment. Activities include policy development, outreach and education.

A particularly successful part of this partnership is the *Clean Below, Good to Go* brand, promoted through social media, media and in person at boat shows. Over the four days of the Hutchwilco Boat Show, there were over 450 positive interactions with vessel owners keen to do the right thing and play their part.

This positive trend was seen in the vessel hull surveillance programme where, of the almost 1000 vessels surveyed, 73.8 per cent of the vessels showed no more than a slime layer and barnacles, and therefore a low risk of transporting marine organisms.



Divers undertaking hull surveillance.



Staff at the Hutchwilco Boat Show.

Feral goat control

The council and the Department of Conservation collaborate on a feral goat control programme in the Waikato region, within high biodiversity values areas. We contribute funding to the programme to cover control work on private land that complements work by DOC on public conservation land. Areas that benefit from this reduction in feral goat numbers include the Coromandel Peninsula, Kaimai Range, Mt Pirongia, Whareorino/Herangi Range and Rangitoto Range.



Hunters' dogs bail up a goat.



Hunters' camp.

This financial year the feral goat programme achieved the following great results.

Operational area	Hours	Goats controlled	Goats/hour	Funding contributions
Coromandel	465.50	127	0.27	DOC, WRC (biosecurity and kauri protection funding for kauri areas)
Kaimai	793.50	61	0.08	DOC, WRC and BOPRC
Pirongia	1,501.50	588	0.39	DOC and WRC
Whareorino	2,910.75	1,391	0.48	DOC and WRC
Rangitoto	780.00	383	0.49	WRC (biosecurity and catchment protection funding)
TOTAL	6,451.25	2,550	AVG 0.34	

Sustainable Food and Fibre Futures

The council has partnered with AgResearch to undertake a project designed to determine the on-farm impacts/costs of the pest plant alligator weed. The project also aims to provide practical mitigation and management advice and education to farmers, growers and rural contractors to help in excluding, eradicating and/or controlling alligator weed on agricultural, horticultural and arable farms. Outcomes from this research will support farm plans, multi-regional/sectoral pest management strategies and New Zealand weed pathway research.



Alligator weed infestation.

Valuing and building on our investments

The council undertakes a range of actions to protect regional investment into biosecurity programmes.

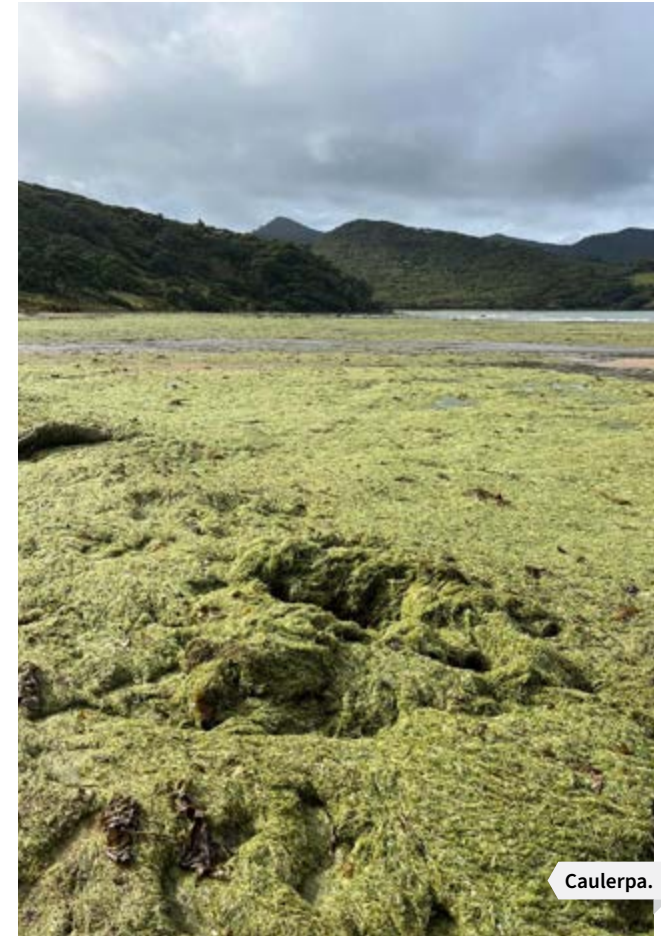
Supporting incursion responses by other agencies

The Ministry for Primary industries has responsibility for responding to new New Zealand pest species that pose a threat to our region. The council provides technical, governance and operational support to MPI's biosecurity responses as required, most recently following the discovery of gold clams, an invasive freshwater species, in the Waikato River.

Support may include sitting on governance groups, providing technical or operational advice, undertaking sampling, erecting signage, supplying spatial information, or helping to disseminate key information or messaging.



Invasive exotic gold clams.



Caulerpa.

We continue to support Biosecurity NZ in the response against the invasive exotic seaweed caulerpa, first found in Aotea Great Barrier Island in 2021 and which has since been found in the Bay of Islands and Ahuahu Great Mercury Island. Caulerpa grows rapidly and can form thick mats or meadows over just about any underwater surface.

Better surveillance and intelligence systems

The council undertakes actions to improve surveillance and intelligence in regional biosecurity, so ensure the right information is available to the right people, and to add confidence to biosecurity decisions and actions.

Using drones

Drones are now being used in a number of the council's biosecurity programmes to capture static or video imagery and provide staff with a view into hard-to-reach places. They offer a cost-effective way of undertaking surveillance over large or inaccessible areas for some pest species. We used them to search for Manchurian wild rice in Lake Kārapiro, alligator weed in the Ōhinemuri River catchment and wallabies at night (with thermal imaging cameras) at Wai-o-Tapu; to monitor kauri dieback sites on the Coromandel; and to see into rook nests high up in trees. In the case of the rooks, drones are less obtrusive and cheaper to use than helicopters, which are often used during nest control, therefore minimising the risk of birds abandoning the nest to go elsewhere. In kauri areas, aerial monitoring by drones reduce the need for 'boots on the ground' and therefore potential soil movement, but it's also a quick and effective way to yearly monitor canopy health and identify trees with ill thrift that may require ground truthing or soil sampling. Drones were also used for quick reconnaissance after flooding events to assess whether there had been any spread from known infestations.



Photo looking into a rook nest taken from a drone.

Pest animal apps

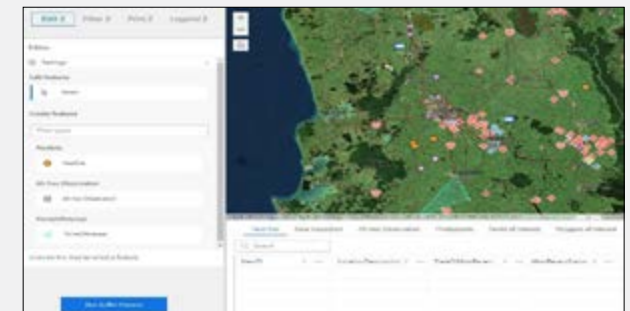
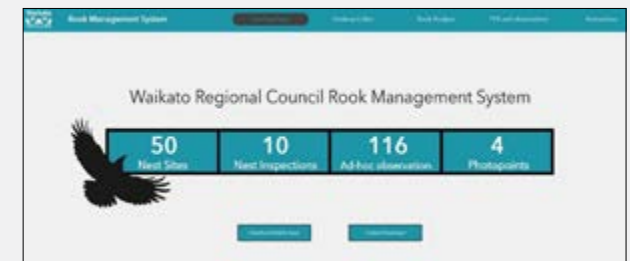
With smart phones now commonplace and the decreasing cost of developing new software/applications, the council's biosecurity team had two new pieces of software developed that interacts with the GIS-based platform PLANTELL.

The Rook Management System

The new GIS-based Rook App incorporates historic rook data and helps capture new rook-related data in the field. The app has enhanced query capabilities to identify areas of interest for locating rookeries that will help guide our engagement with landowners/occupiers, rook surveillance and control efforts. The app has capacity to capture photo points, prioritise areas for surveillance regarding reported rook sightings and identify properties for targeted mailouts.

As of late 2022, there were four confirmed rookeries in the Waikato region. The rookeries, in Paeroa, Tirau, Mangakino and Whakamaru/Marotiri, had a total of 10 nests. In mid-October last year, contractors controlled one nest in Paeroa (physical removal) and two nests in Mangakino. A further seven nests were abandoned due to weather events.

In 2023/24, reported public rook sightings will help delineate buffer zones for targeted council surveillance, centred around historic and new rookeries. There will be an initial focus on rookeries that have been active at some time in the last four years. Targeted surveillance will help our control efforts for 2023/24, as we work towards our goal of eradicating rooks from the region.



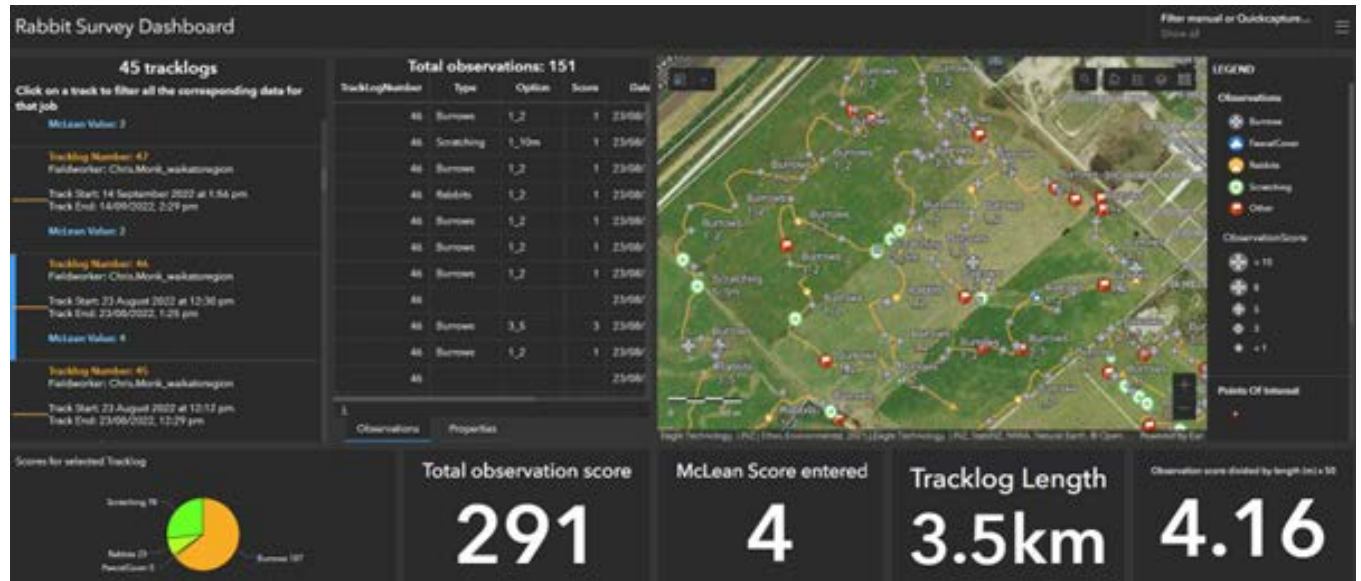
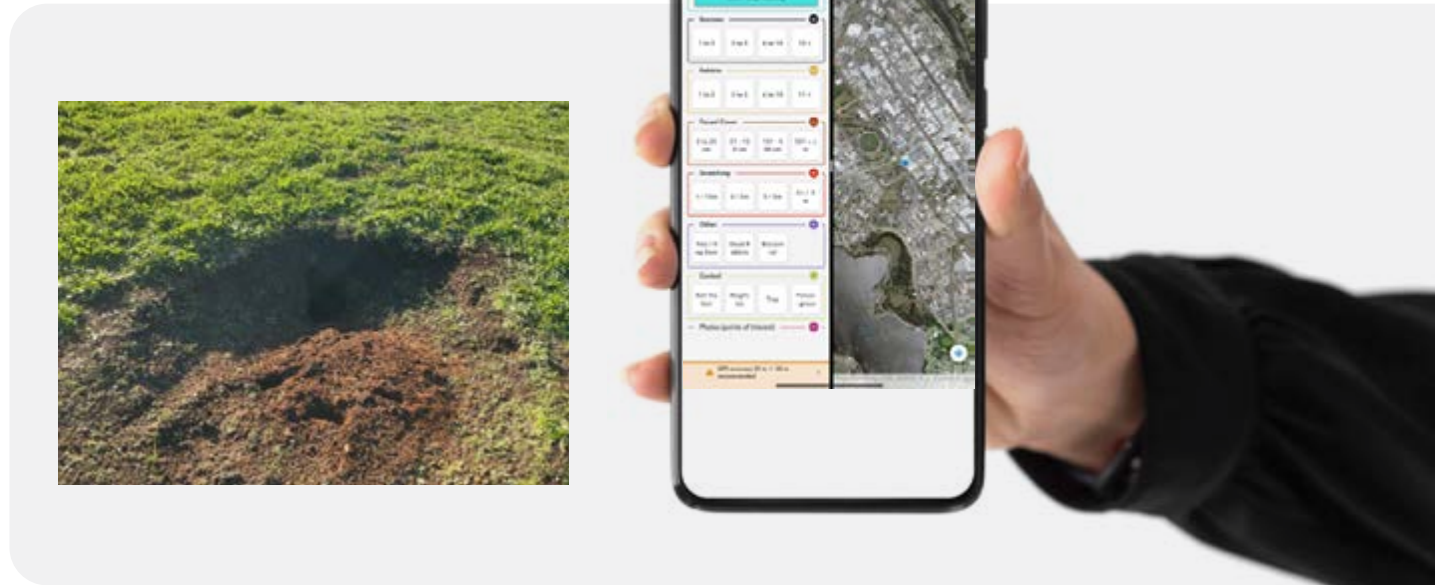
The Rabbit Management System

Under the RPMP, feral rabbit control is a land occupier responsibility. The council can require land occupiers to control feral rabbits on their property where the level of rabbits present exceeds level 4 on the Modified McLean assessment scale. The assessment scale combines numbers of rabbits observed, burrow densities, dung densities and damage caused by the rabbits to derive a level on the McLean scale. Historically this was done simply via observations to create the assessment. The intention of the new software is to input what is observed/ found, with the app then calculating an assessment score.

The app tracks where an assessor walks and where any feral rabbit sign is observed. This tracking is important as it allows the same assessment to be repeated at a point in the future, particularly if the area exceeds the allowable threshold. Each sign has a scale of intensity. This enables the assessor to quantify the sign to enable a more accurate overall modified McLeans score. A property layer is also incorporated in the app, meaning landowner information is readily available. This is particularly helpful if a feral rabbit problem is observed on another property while staff are in the field.

The other advantage of the app is the ability to take photos and link them to an assessment. The photos also provide a database of different signs and intensities that, in the future, could be used to assist landowners/occupiers to assess feral rabbit levels on their own properties before contacting the council.

All the data collected can be reviewed back in the office using the app's dashboards. Patterns of problem feral rabbit areas can be observed on a regional scale. All feral rabbit enquiries to the council are also logged in the app, so even if enquiries don't exceed the threshold or require an assessment, trends can be observed. Approximately 50 inspections from around the region are currently recorded in the system. Some are historic and entered from external data.



Bright ideas and better ways

The council undertakes actions to encourage innovation in regional biosecurity.

AT220 trial

The council has been trialling the use of AT220 traps as an alternative control tool to aerial or ground-based toxins as part of the council's possum priority control area (PPCA) programme. The trials are being held to determine whether AT220 traps can reduce possum numbers to required performance monitoring levels, for example, 3 per cent or 5 per cent residual trap catch (RTC) in large, forested areas on private land. AT220 traps are self-setting, automatically delivering lure to attract possums, rats and mustelids, and reset once a pest animal has been controlled.

Three trial sites have been established over the last 18 months. One trial site, in the Paeroa Range, has been completed. This trial used 105 AT220 traps across 500 hectares of native forest. The area returned a pre-control trend monitoring result of 13.75 per cent RTC (40 possums caught in 300 trap nights), indicating possum numbers were quite high.

After the AT220 traps had been operating for around eight months, the area returned a successful post-control monitoring result of 3.03 per cent RTC (nine possums caught in 300 trap nights).

The results suggest that AT220 traps have the ability to successfully reduce possum numbers to the required RTC levels in forested areas of PPCA if they are regularly maintained (serviced every two months to check the battery is charged, to fill with lure and ensure the trap mechanism is functioning), placed at approximately 150 metre intervals on best set locations and moved within the area as required to prevent complacency in the target pest species.

However, the cost of achieving this result was substantially higher than if the same area had received an aerial 1080 application, and it took a significantly longer amount of time to achieve the required reduction in possum numbers: six to 12 months to install and run the traps compared with days for an aerial application.

For these reasons, using AT220 traps is likely to be too expensive to deploy over larger and remote areas. The results of this and the other trials will help us to develop criteria around when and where this control method could be used to control pest animals at a landscape scale.

Biocontrol agents

Biological control agents offer hope against widespread and environmentally damaging exotic species. The council participates in the National Biocontrol Collective, which funds research into biological control agents for plant pests. In 2023, on behalf of the collective, we submitted an application to the Environmental Protection Authority to release the South American fruitfly *Anastrepha australis* as a control agent against moth plant¹. Council also contributes to a wasp biological control research programme lead by Manaaki Whenua – Landcare Research.

Between 2011 and 2018, four biocontrol agents were released in New Zealand to help control tradescantia (*Tradescantia fluminensis*): the leaf beetle *Neolema ogloblini*, stem beetle *Lema basicostata*, tip beetle *Neolema abbreviate* and the yellow-leaf spot fungus *Kordyana brasiliensis*. There are now more than 155 known established sites of beetles and spot fungus in the Waikato region. The leaf beetle and spot fungus have been the two most successful agents, spreading rapidly. Significant damage from them has been recorded at a number

of sites. In the Waikato, they are found in Raglan, Hamilton, Coromandel and South of Cambridge. In combination, the agents reduce the density and vigour of tradescantia, allowing other species to establish and grow in areas of previously dense tradescantia mats.



Damage on tradescantia leaves from the leaf beetle.

¹ Moth plant fruit fly » Manaaki Whenua (landcareresearch.co.nz)



Part 3: Whakahaere momo Species management

The following pages provide a summary of the status and progress of the management of each species against the key performance indicators and objectives of the *Waikato Regional Pest Management Plan 2022-2032* and *Biosecurity Operational Plan 2022-2032*.

For each species, a map shows the treatment sites and a graph shows data relating to the management of the pest.

- **Treatment:** Operational sites where control work (physical/chemical) was undertaken/treatment was applied.
- **Interim:** Operational sites where no green foliage was present on the pest plant. When an operational site has no green foliage for more than two consecutive years it moves to 'monitoring' status.
- **Monitored:** Operational sites being 'monitored' are those where no green foliage has been present for less than two years, but the species is not yet considered to be 'eradicated' from the site.
- **Eradicated:** Operational sites where the pest plant has been completely removed (the point at which eradication is achieved is species specific).

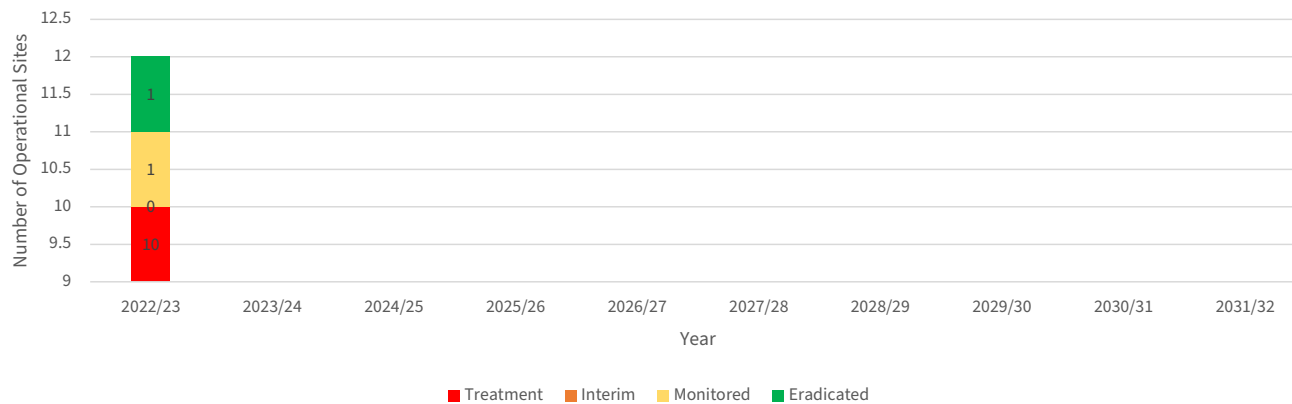
German wasp.

African feather grass (*Cenchrus macrourus*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 12
Total area of operational sites	● 388.1ha
Pest plant cover	● 300m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

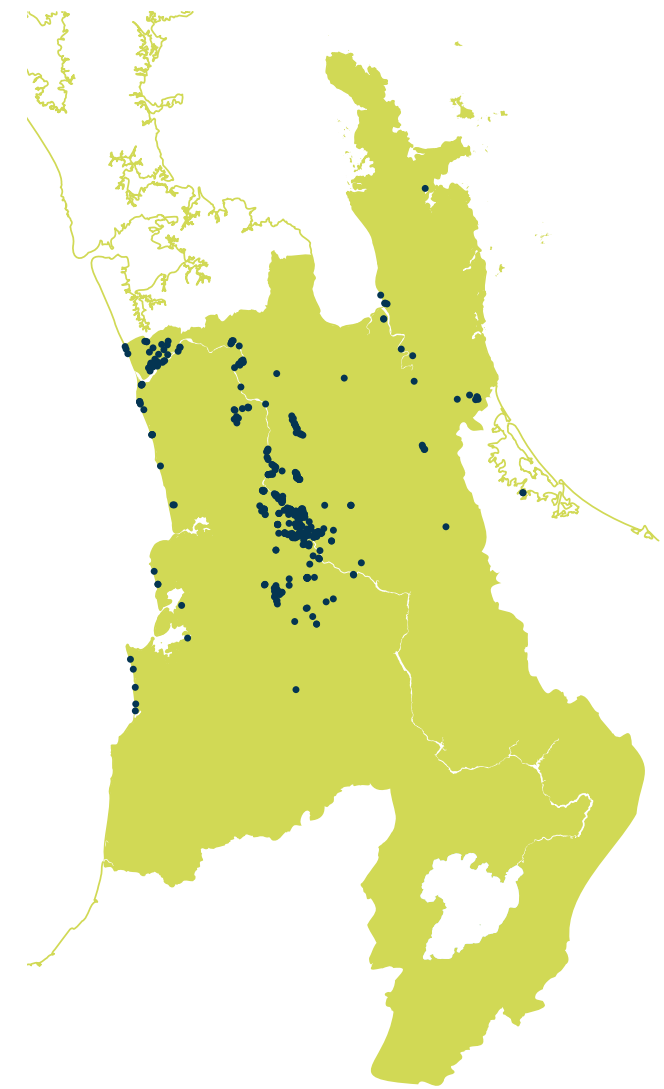
African feather grass



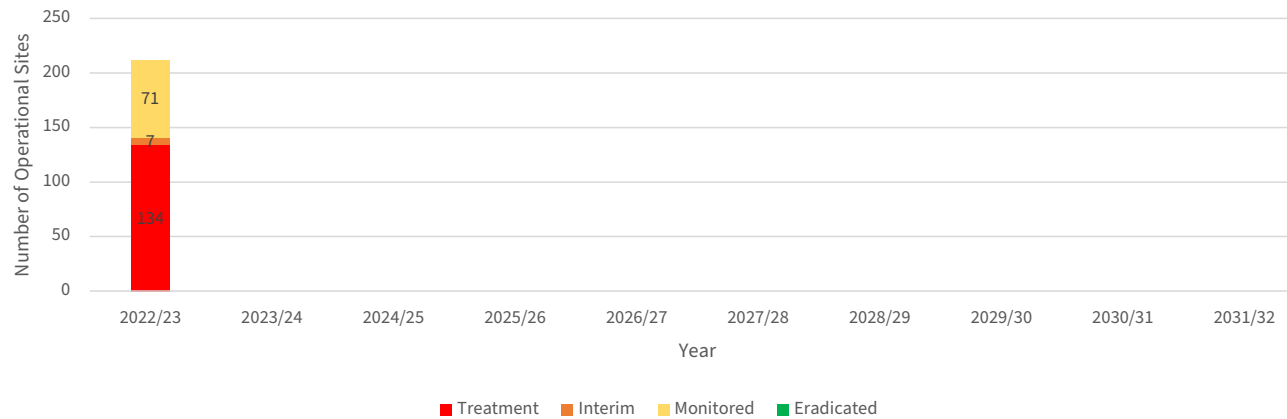
Alligator weed (*Alternanthera philoxeroides*)

RPMP classification	Area	Programme status
Progressive Containment	Whole of region	At-risk

Programme summary	Results
Number of operational sites	● 212
Total area of operational sites	● 2,342.7ha
Pest plant cover	● 10,797m ²
Comments	Alligator weed is one of our most significant pest plants and not all sites have received the service delivery required this financial year to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> . Weather has had a major impact on the alligator weed programme in 2022/23.



Alligator weed

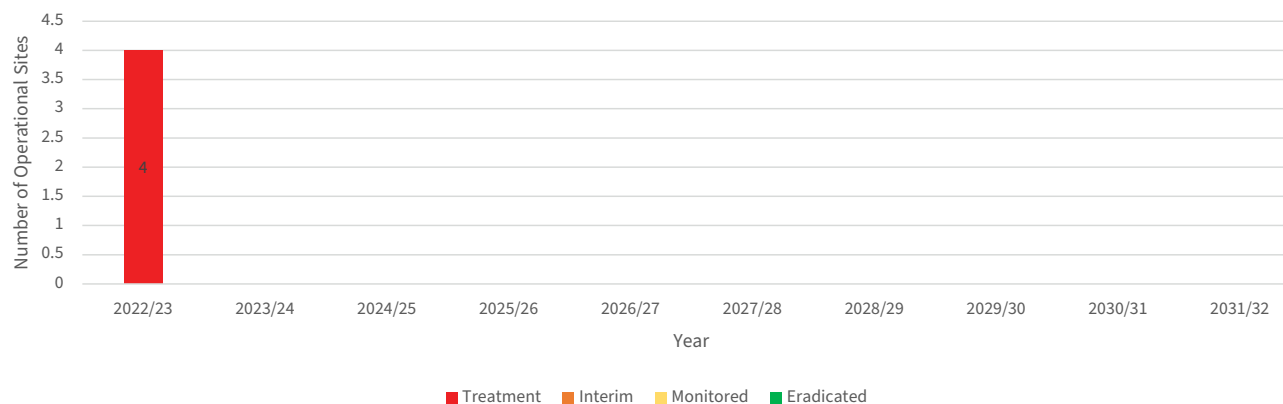


Banana passionfruit (*Passiflora tripartita*)

RPMP classification	Area	Programme status
Progressive Containment	Taupō and Rotorua districts	On track

Programme summary	Results
Number of operational sites	● 4
Total area of operational sites	● 16.8ha
Pest plant cover	● 486m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Banana passionfruit

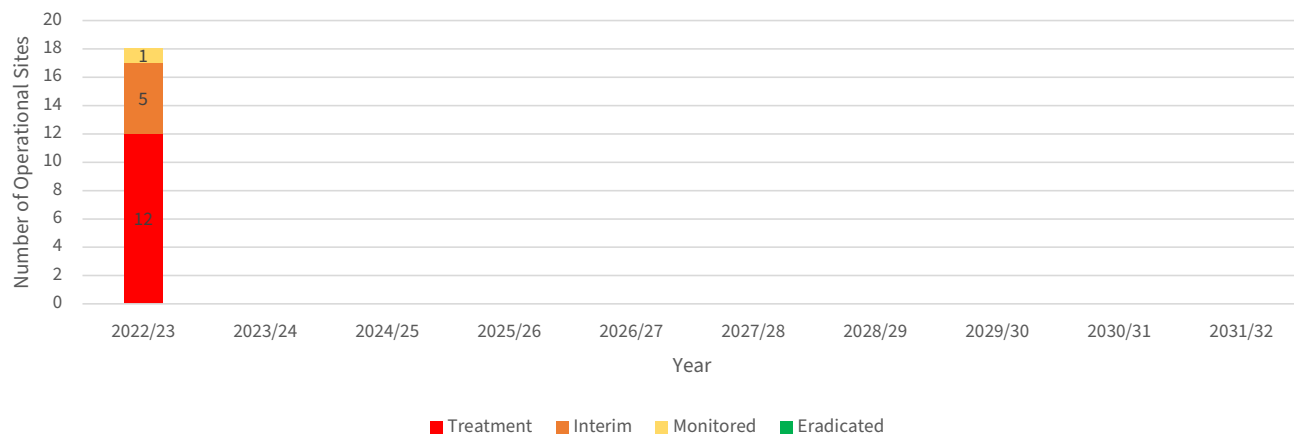


Boneseed (*Chrysanthemoides monilifera*)

RPMP classification	Area	Programme status
Progressive Containment	Whole of region	On track

Programme summary	Results
Number of operational sites	● 17
Total area of operational sites	● 132.3ha
Pest plant cover	● 125m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Boneseed

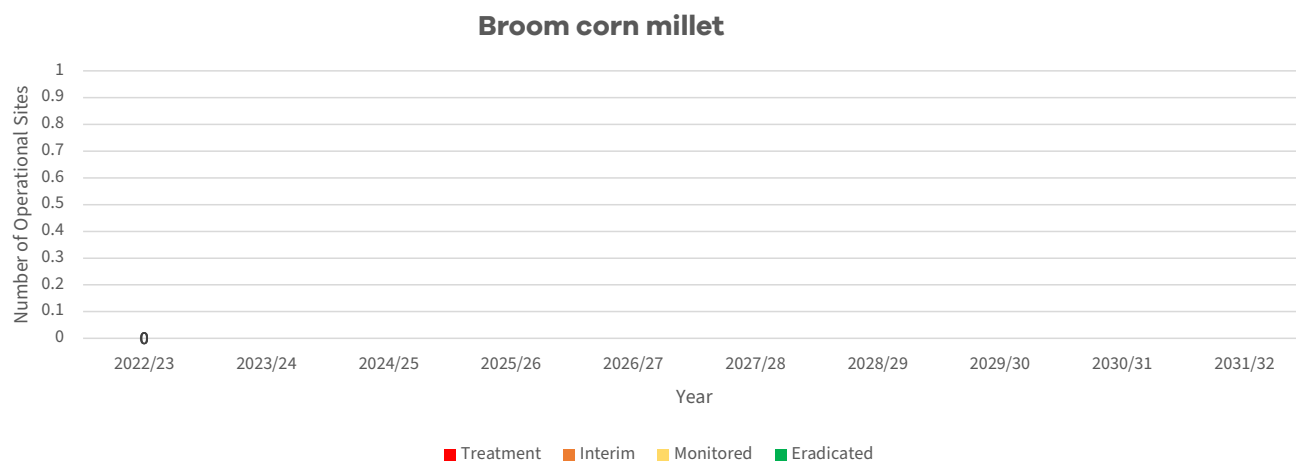


Broom corn millet (*Panicum miliaceum*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	On track

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Pest plant cover	● 0

Comments: This programme has met all Key Performance Indicators included in the *Waikato Biosecurity Operational Plan 2022-2032*.



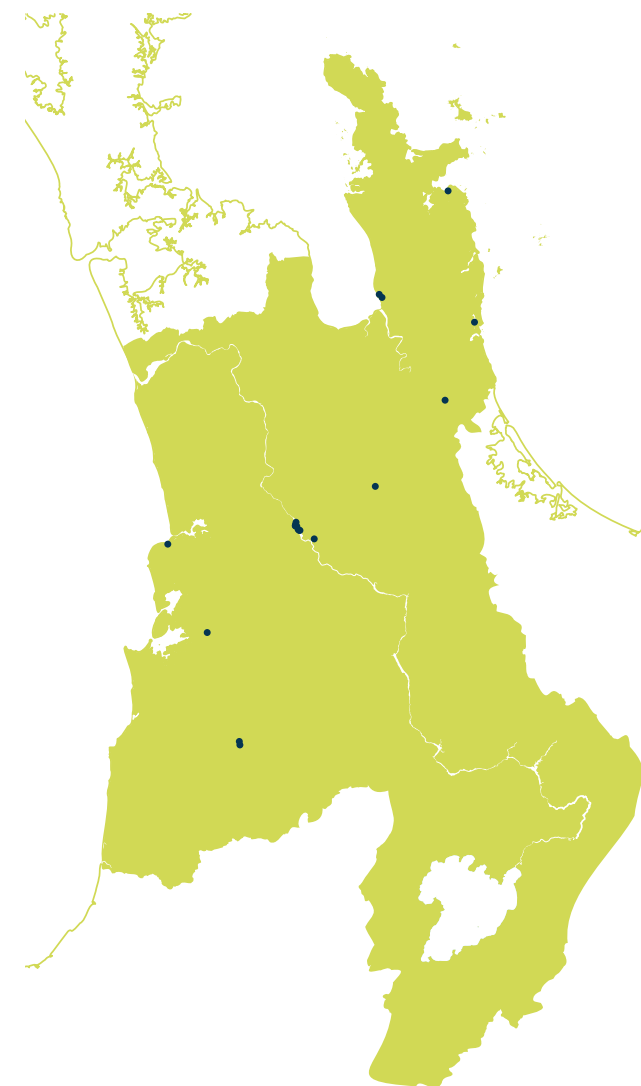
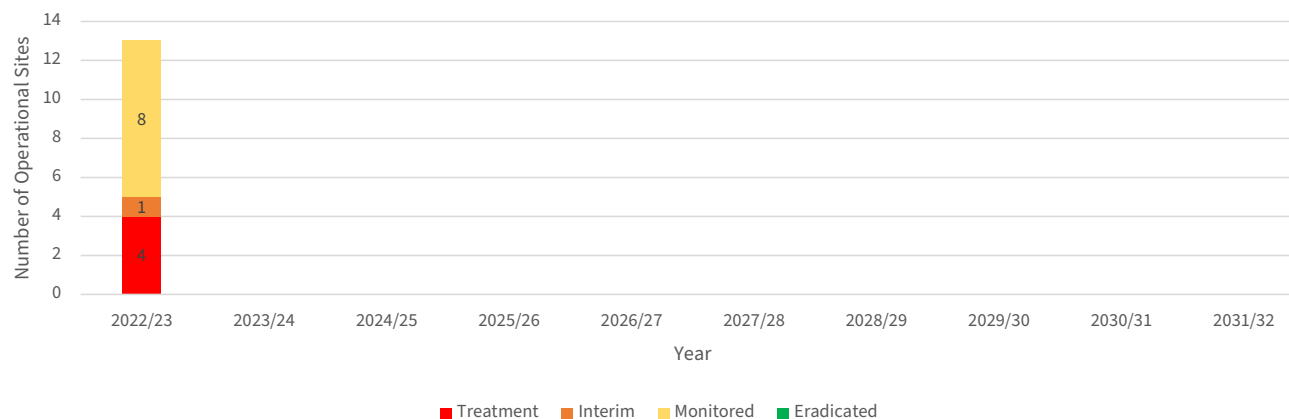
Broom corn millet.

Cathedral bells (*Cobaea scandens*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 13
Total area of operational sites	● 8ha
Pest plant cover	● 19m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Cathedral bells

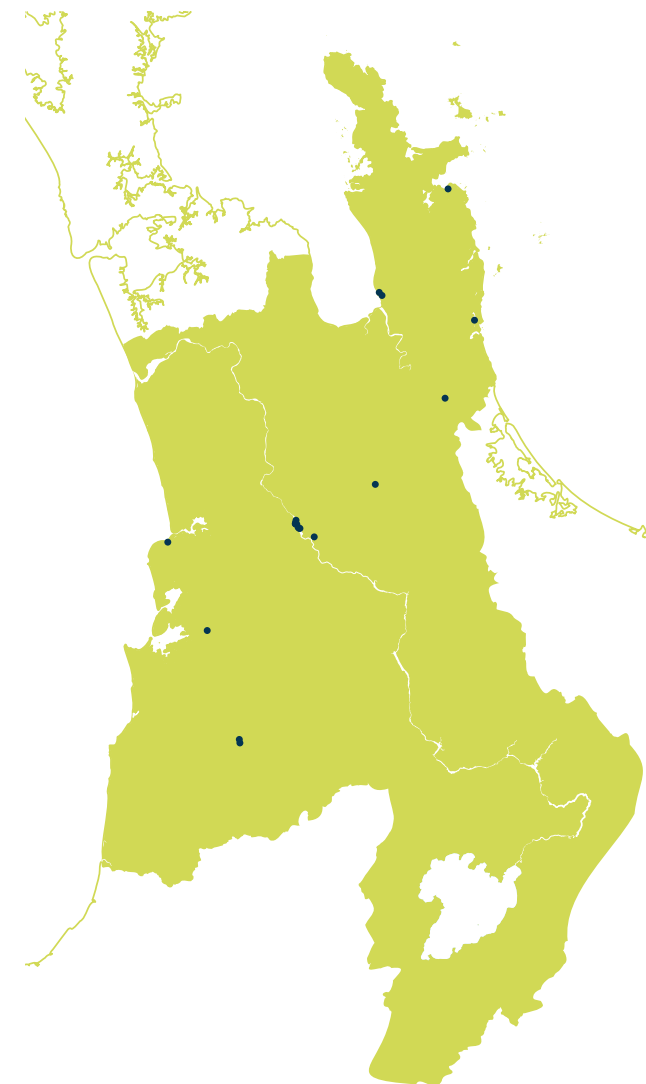
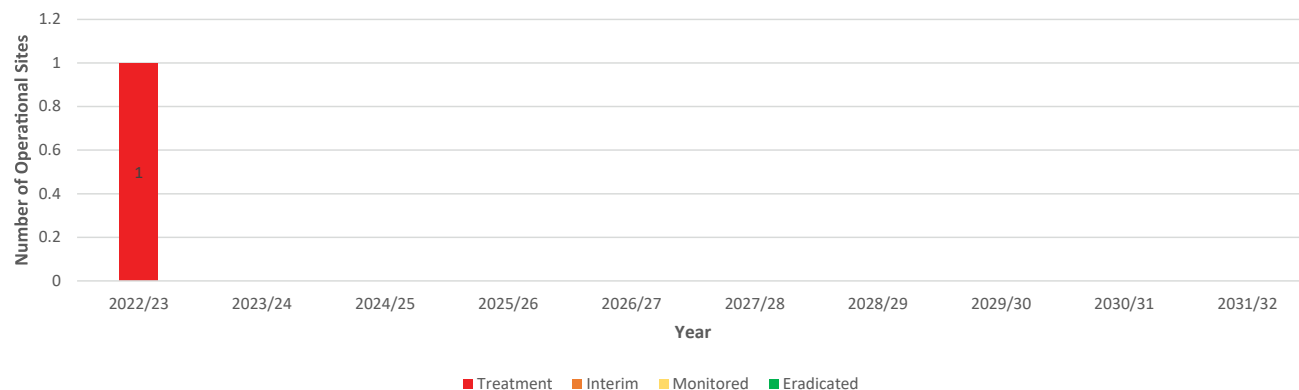


Chilean flame creeper (*Tropaeolum speciosum*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 1
Total area of operational sites	● 20.8ha
Pest plant cover	● 1,481m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Chilean flame creeper



Climbing spindleberry (*Celastrus orbicularis*)

RPMP classification	Area	Programme status
Progressive Containment	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 56
Total area of operational sites	● 901.9ha
Pest plant cover	● 714m ²

Comments

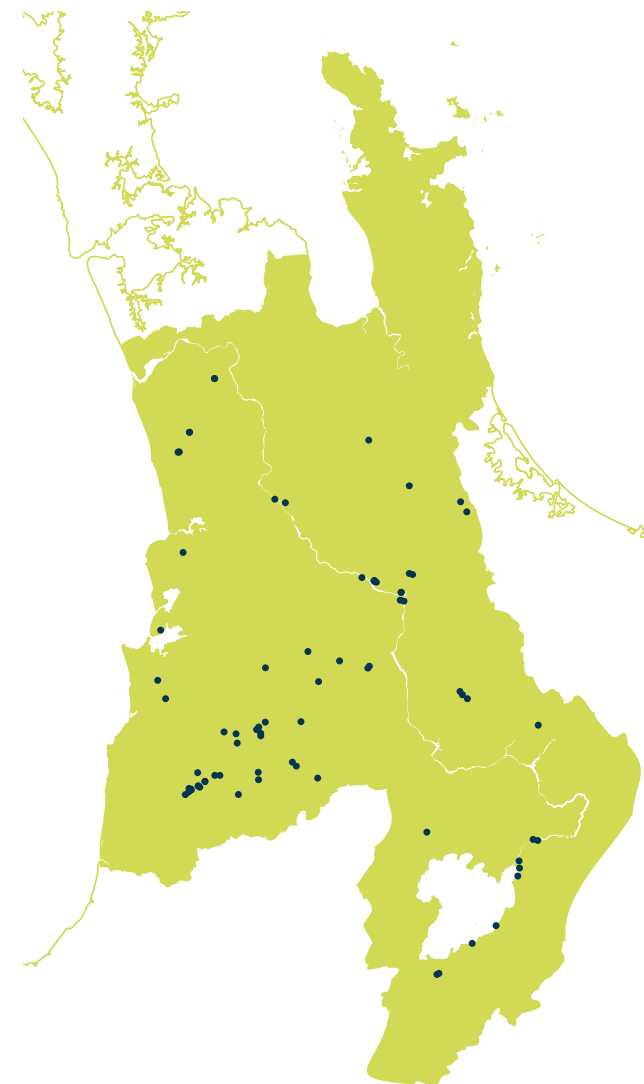
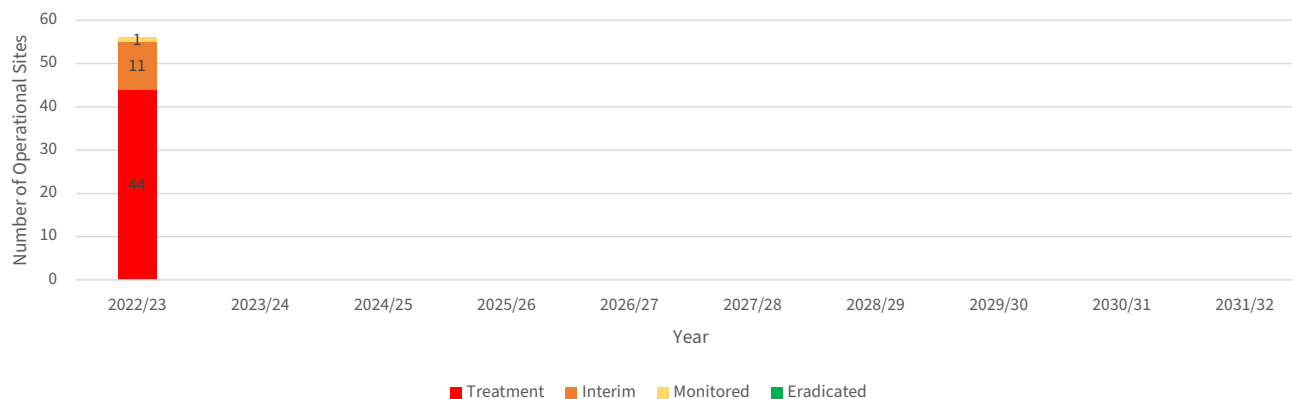
Not all Key Performance Indicators included in the *Waikato Biosecurity Operational Plan 2022-2032* have been met.

Climbing spindle berry is a significant pest plant in the Waikato region.

Not all sites were visited this year due to new contractors, new staff and weather conditions.

Council has engaged a contractor to write a climbing spindleberry management plan for the Waikato region.

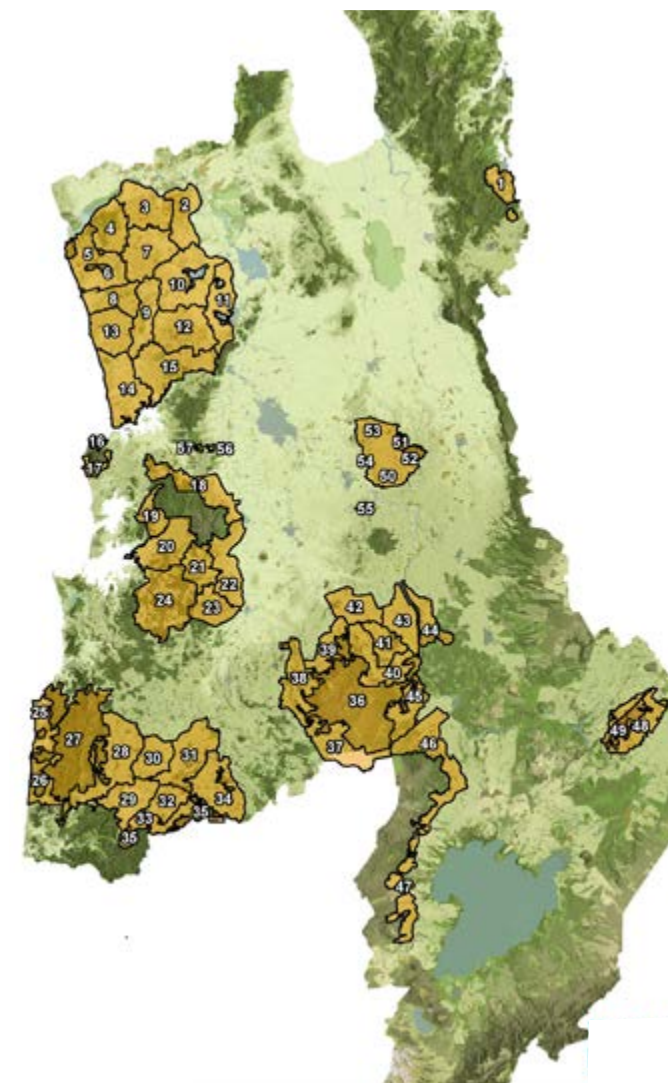
Climbing spindleberry



Common brushtail possum (*Trichosurus vulpecula*)

RPMP classification	Area	Programme status
Sustained control	Priority Possum Control Areas (PPCA) Whole of region - Good Neighbour Rule	On track

Programme summary	Results
Number of enquiries/complaints received	IRIS = 46 Direct calls & emails = 3
Number of properties requiring Good Neighbour Rule enforcement	● None required.
PPCA & HALO areas controlled	● 176,317ha ● PPCA – 19 control operations ● Hamilton HALO – 4 control operations
Number of operations that met RTC or RTI targets	100% of control operations completed met their performance targets.

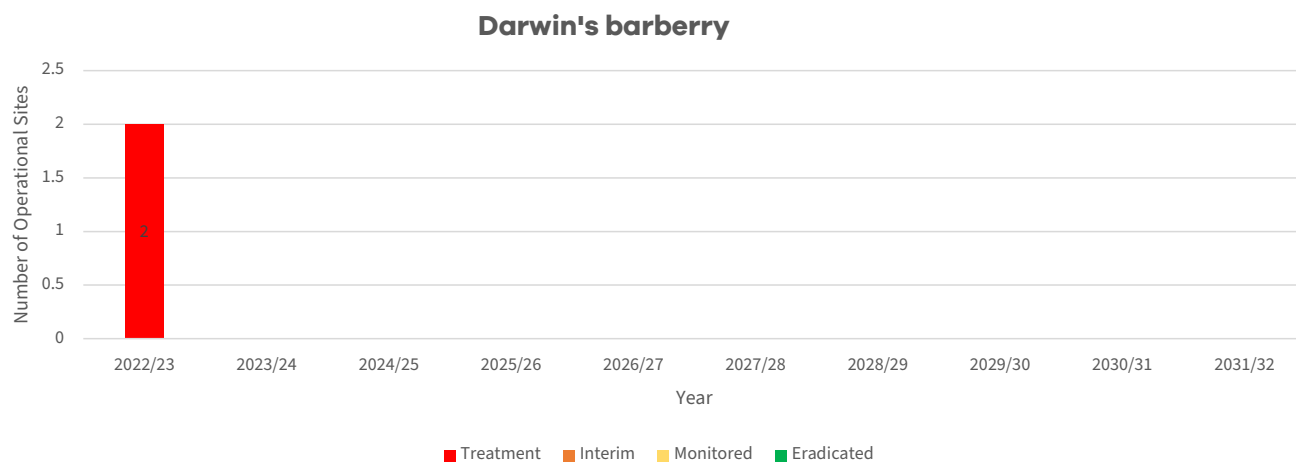


Locations of PPCA in the Waikato region

Darwin's barberry (*Berberis darwinii*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	On track

Programme summary	Results
Number of operational sites	● 4
Total area of operational sites	● 3290.2ha
Pest plant cover	● Not calculated
Comments	<p>Pest plant cover couldn't be calculated due to timing issues with the contractors work and the roll out of our new database 'Plantell'. This issue has now been remediated; however cover data is not retrievable for this year's work.</p> <p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p>



Evergreen buckthorn (*Rhamnus alaternus*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 2,617
Total area of operational sites	● 479.38773ha
Pest plant cover	● 733

Comments

Most of the evergreen buckthorn surveillance and control work was carried out in Hamilton City and on the Coromandel Peninsula, with a small proportion occurring in the Lower Waikato and Taupō areas.

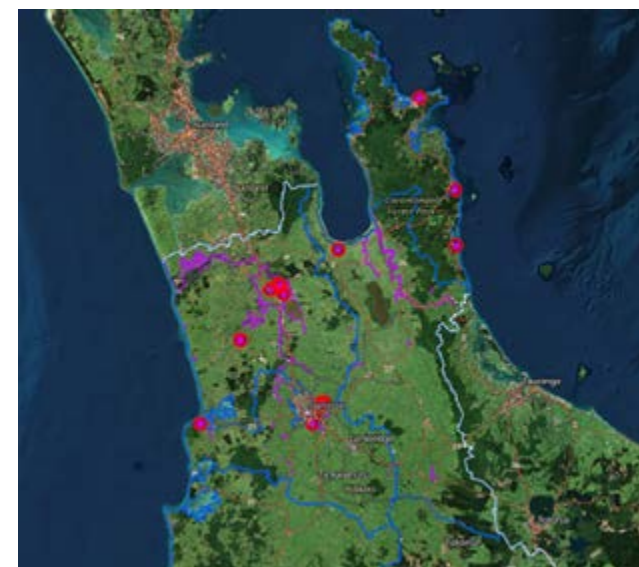
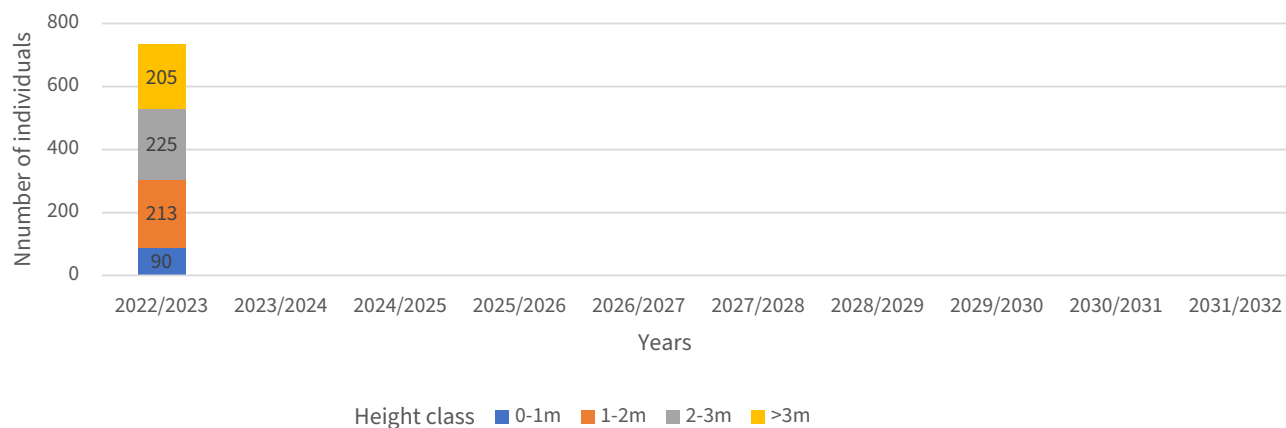
The evergreen buckthorn data is captured in size classes. This allows for targeted planning of required follow up monitoring and control.

This programme has met all Key Performance Indicators included in the *Waikato Biosecurity Operational Plan 2022-2032*.



Evergreen buckthorn.

Evergreen buckthorn

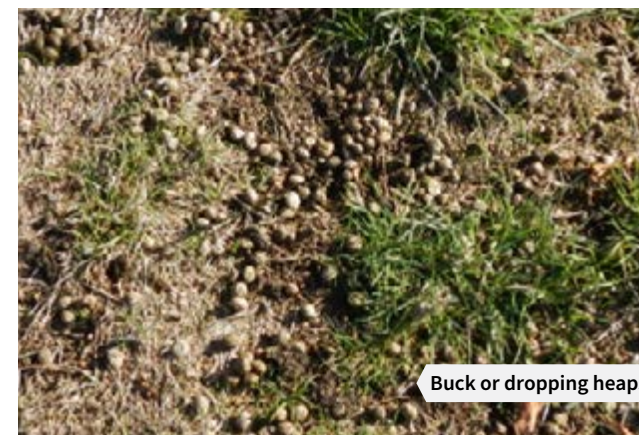
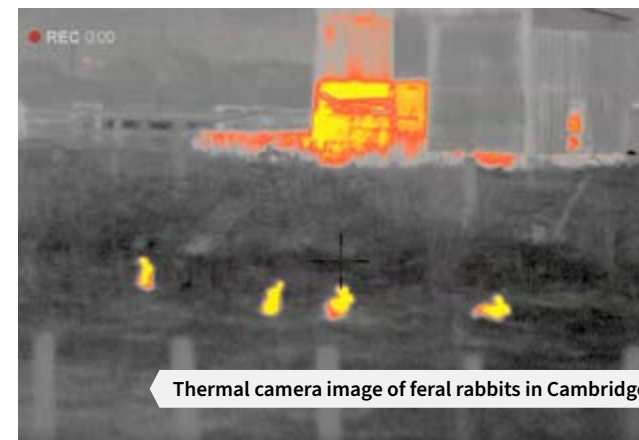


Feral rabbit (*Oryctolagus cuniculus*)

RPMP classification	Area	Programme status
Sustained control	Whole of region	On track

Programme summary	Results
Number of enquiries/complaints received	<ul style="list-style-type: none"> ● Enquiries - 26 ● Complaints - 19
Site inspections undertaken	● 17
Enforcement actions taken	● None required
Service delivery undertaken	● None undertaken
Comments	<p>The council's newly developed Rabbit Site Assessment Tool was utilised when undertaking site inspections this year.</p> <p>Awareness and education material was sent out to surrounding landowners in areas where high feral rabbit numbers were observed during the site inspections.</p> <p>Field images were captured to illustrate different levels of rabbit infestations on the Modified McLean's Rabbit Scale.</p>

The Modified McLean Scale, used by councils to help determine the extent of an infestation of feral rabbits at a site, takes into account a number of different signs of rabbit presence, including the number and size of buck or dropping heaps. In the Waikato region, land occupiers need to keep feral rabbit numbers at or below level 4 on the McLean Scale. This is the level set in the RPMP, and enforcement options are available to the council if properties exceed this level.

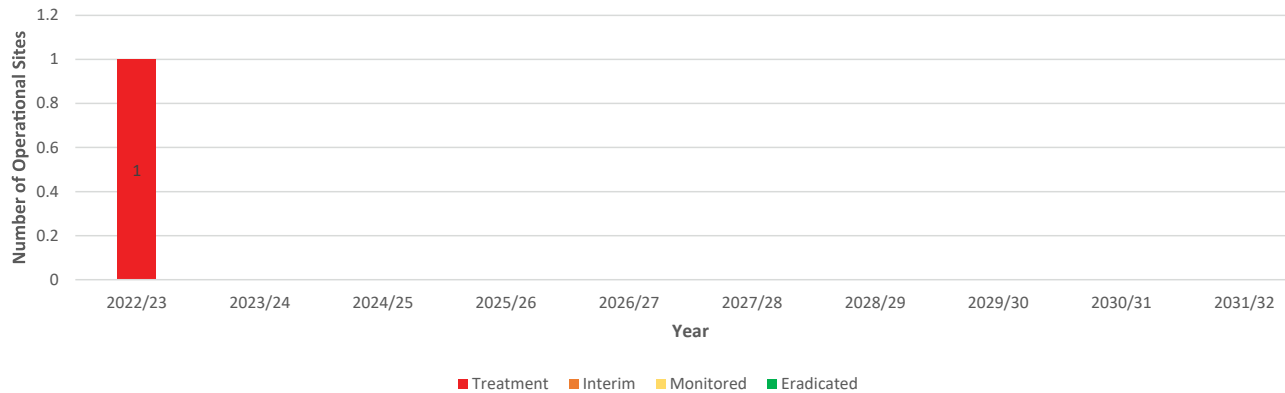


Freshwater eel grass (*Vallisneria australis*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 1
Total area of operational sites	● 0.06ha
Pest plant cover	● 250m ²
Comments	The freshwater eel grass site was not visited this year due to a shortage in contractor resources. However, it is an isolated and contained site.

Freshwater eel grass



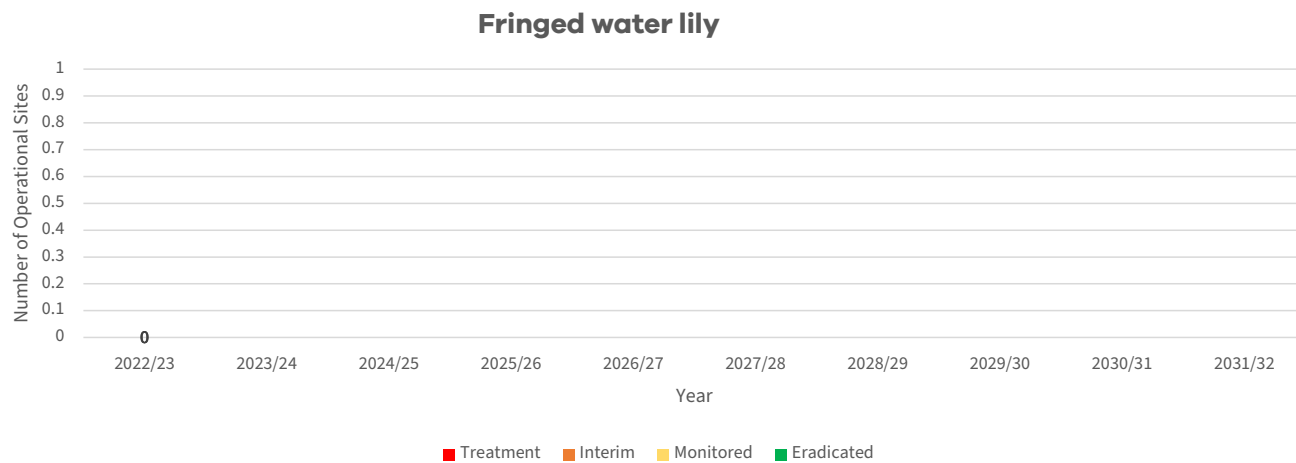
Freshwater eel grass.

Fringed water lily (*Nymphoides peltata*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	On track

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Pest plant cover	● 0

Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .
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Fringed water lily.

Giant gunnera (*Gunnera tinctoria*, *Gunnera manicata*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	More input required

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Pest plant cover	● 0
Comments	<p>These species have not been reported on for this financial year.</p> <p>Further planning is required in 2023/24 to determine what resources are needed to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> for gunnera.</p>



Giant gunnera.

Golden dodder (*Cuscuta campestris*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Pest plant cover	● 0
Comments	<p>No sites have been identified or required management this year.</p> <p>For this species council will work with DOC to ensure known sites are identified and service delivery is carried out as required to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> in the new financial year.</p>

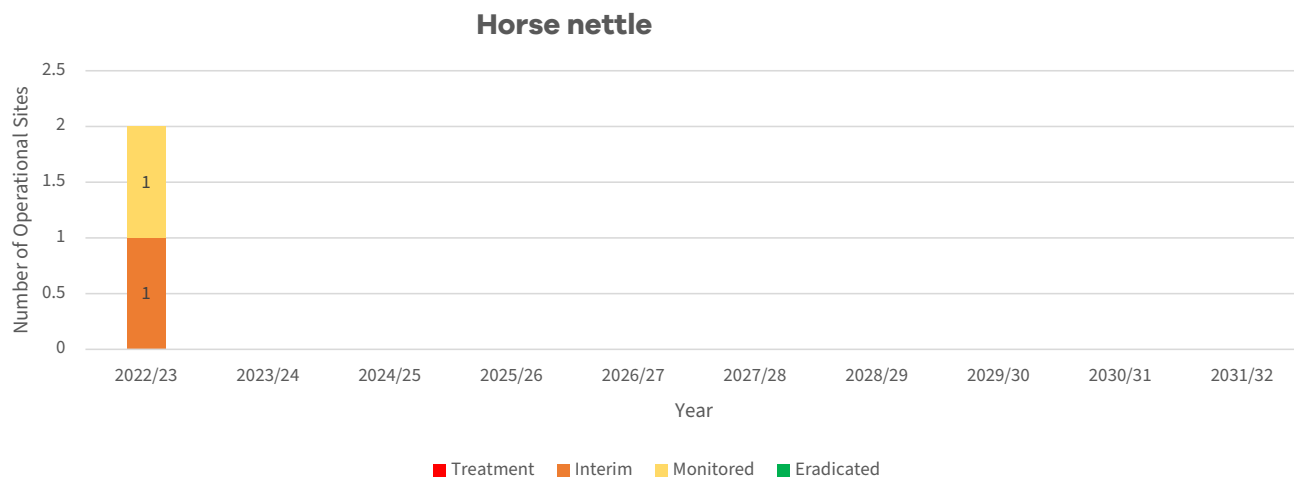


Golden dodder.

Horse nettle (*Solanum carolinense*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

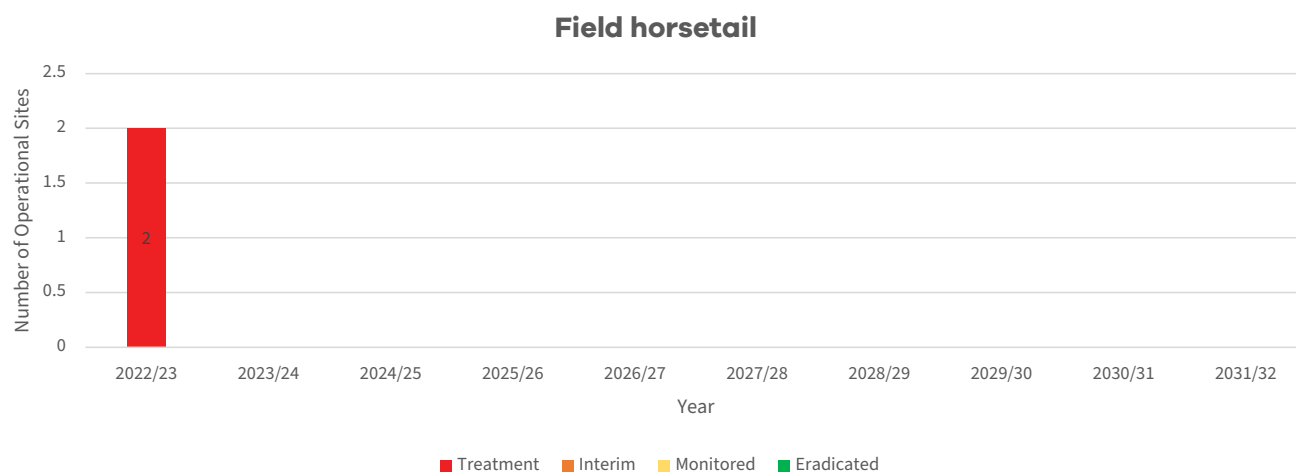
Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 39.4ha
Pest plant cover	● 0
Comments	<p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>Council maintains a monitoring programme for both known sites of horse nettle in the region, with no plants found at either of them this year.</p>



Field horsetail (*Equisetum arvense*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 0.7ha
Pest plant cover	● 3m ²
Comments	<p>Not all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> have been met.</p> <p>Control was not able to take place at one of the sites due to access issues cause by the weather disruptions.</p> <p>Council has already begun work to ensure site access isn't an issue in the 2023/24 year and will carry out required control to best practice standards.</p>

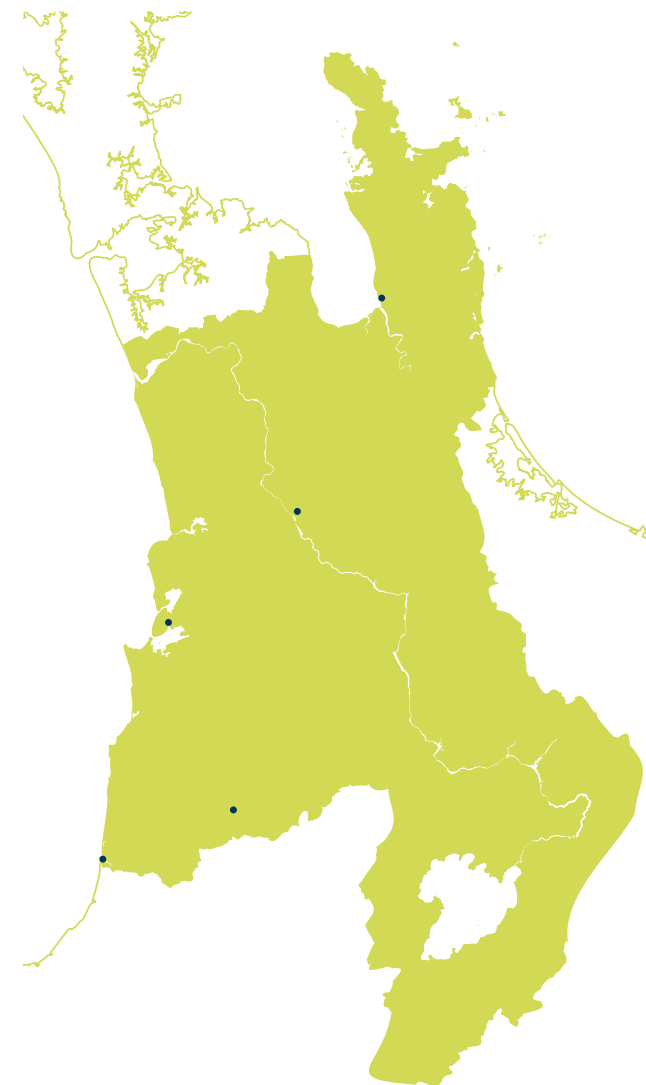
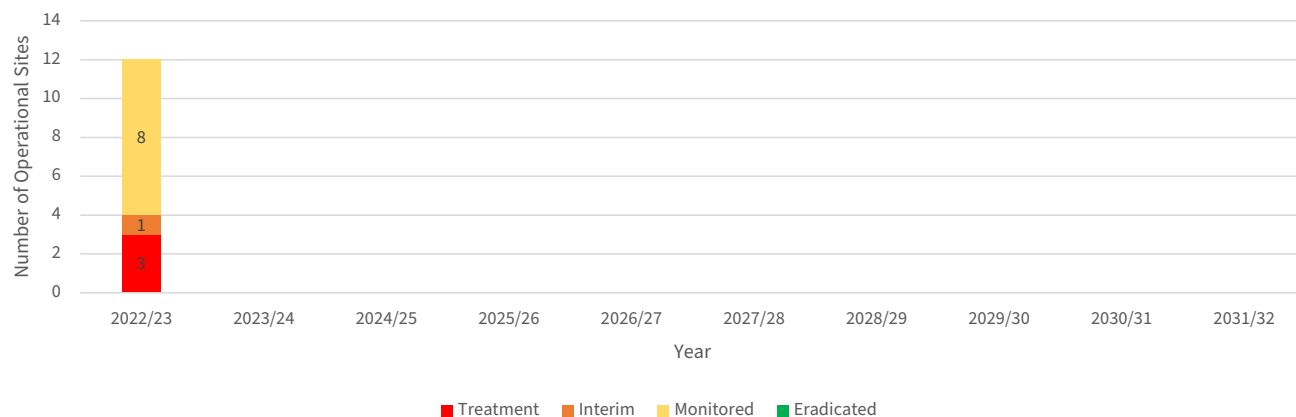


Rough horsetail (*Equisetum hyemale*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 14
Total area of operational sites	● 15.4ha
Pest plant cover	● 13.2m ²
Comments	The programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Rough horsetail

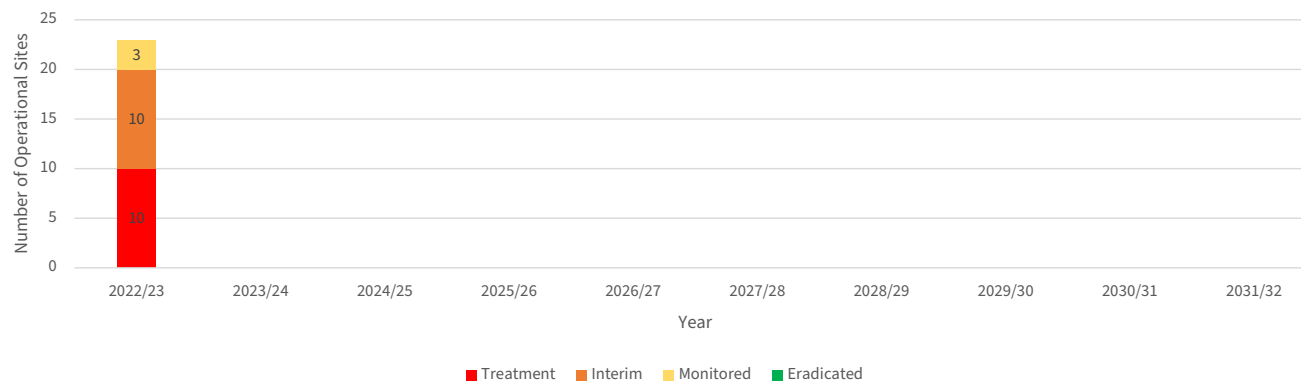


Knotweed (giant and Japanese/Asiatic knotweed) (*Fallopia sachalinensis* and *Fallopia japonica*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 23
Total area of operational sites	● 2.4ha
Pest plant cover	● 119m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Japanese and giant knotweed

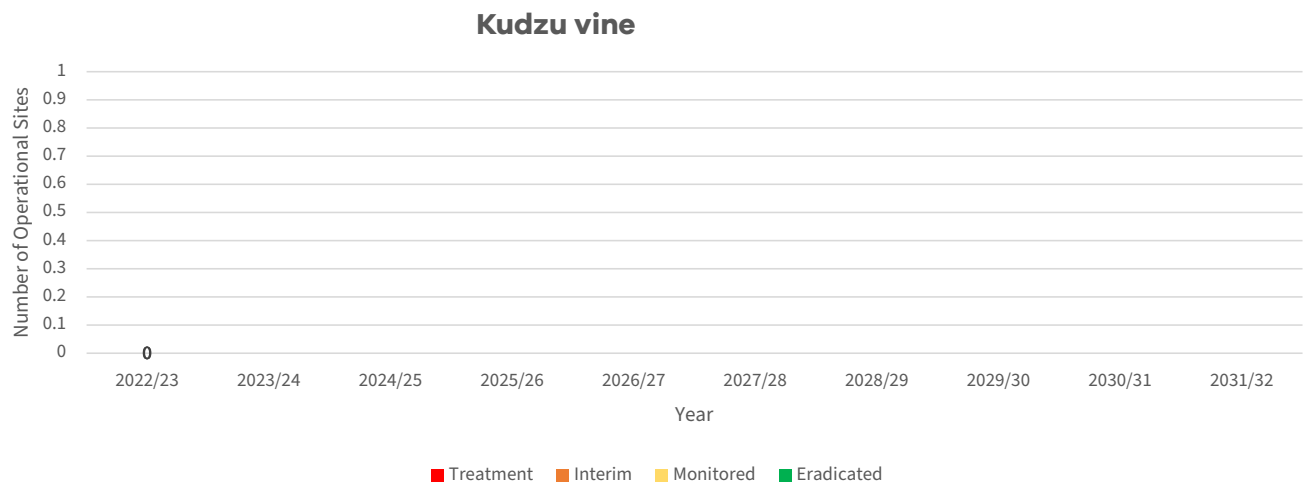


Kudzu vine (*Pueraria lobata*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	On track

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Pest plant cover	● 0

Comments: This programme has met all Key Performance Indicators included in the *Waikato Biosecurity Operational Plan 2022-2032*.



Kudzu vine.

Magpie (*Gymnorhina tibicen*)

RPMP classification	Area	Programme status
Sustained control	Whole of region (human health)	On track

Programme summary	Results
Number of enquiries/ complaints received	IRIS = 20
Site visits undertaken	0
Verbal requests for action made	1
Enforcement actions taken	0
Service delivery undertaken	0
Comments	<p>Public safety concerns for magpie relate to swooping attack's during the breeding season.</p> <p>Occupier responsibility for control. Council provides advice and may undertake direct control for landowners if there are significant infestations that are causing a threat to human health and safety.</p> <p>Some district councils have magpie trapping programmes and install warning signage during spring.</p>

Magpies are extremely territorial birds and can show aggression to anything that may pose a threat to their territory. They can be a considerable nuisance during the breeding season, swooping on and occasionally attacking humans, especially children and cyclists.

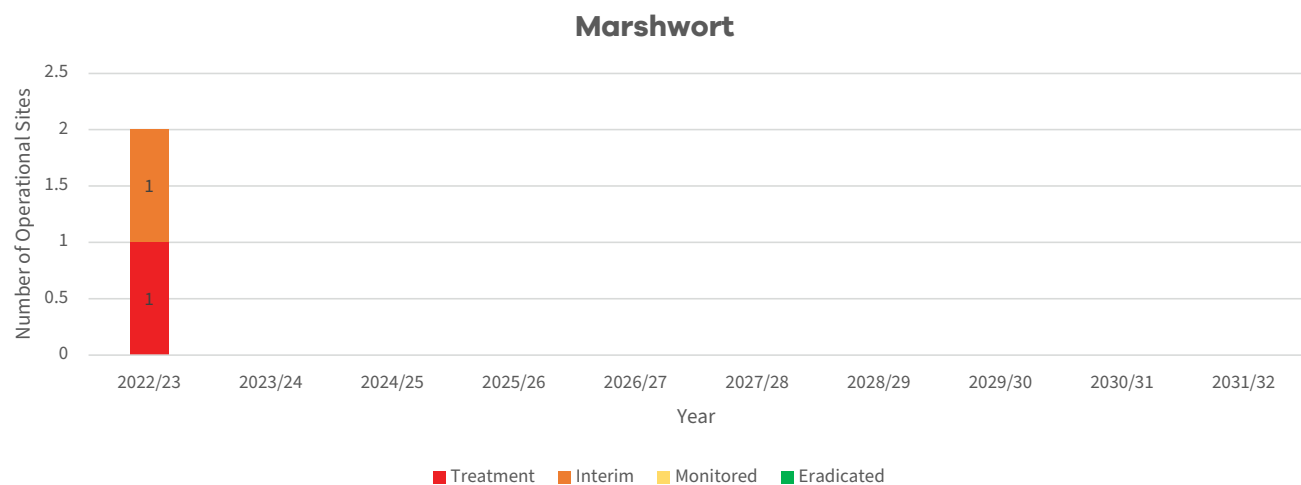


Magpie.

Marshwort (*Nymphoides geminata*)

RPMP classification	Area	Programme status
Exclusion	Whole of region	On track

Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 0.4ha
Infestation area	● 5m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .



Mexican water lily (*Nymphaea mexicana*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 50ha
Infestation area	● 300m ²
Comments	<p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>There are two actively managed sites within Hamilton city, managed by the city council on Lake Rotoroa and Lake Rotokaeo. However, more surveillance is required throughout the region to confirm the location of other sites and determine what management is required at those sites.</p>

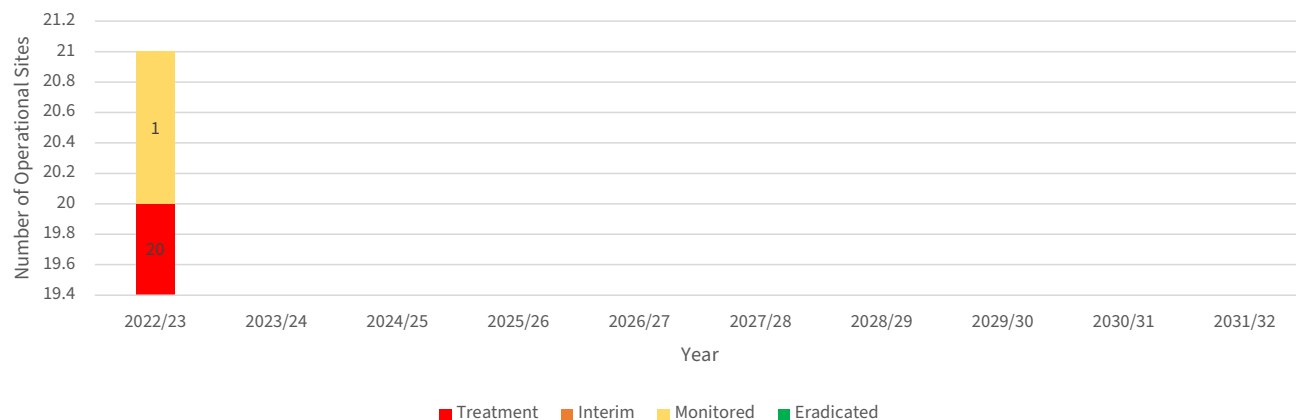


Mile-a-minute (*Dipogon lignosus*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 21
Total area of operational sites	● 8.4ha
Infestation area	● 134m ²
Comments	All Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> have been met in 2022/23.

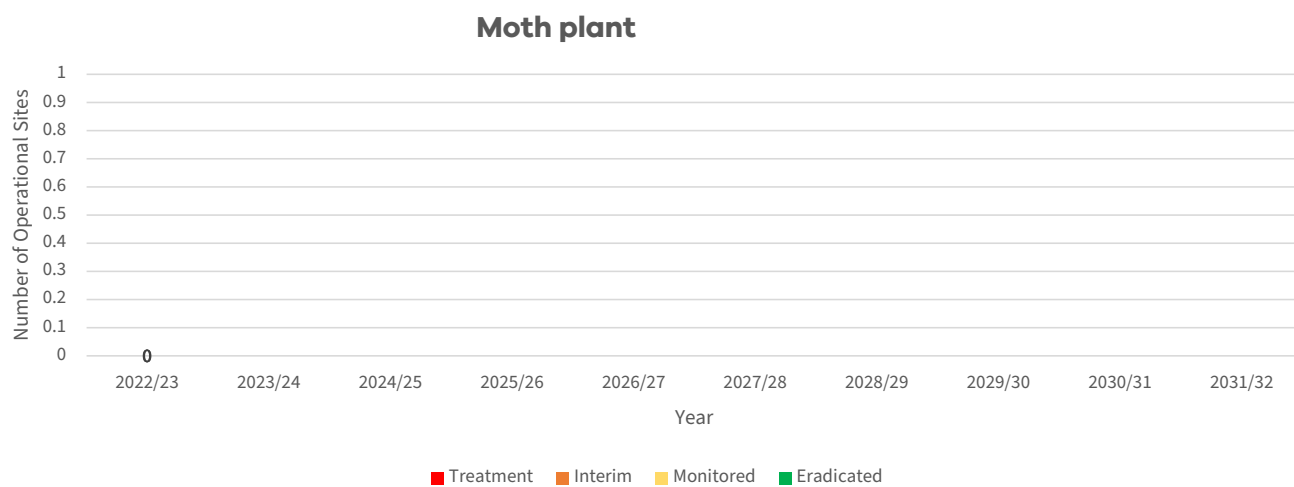
Mile-a-minute



Moth plant (*Araujia hortorum*)

RPMP classification	Area	Programme status
Progressive containment	Taupō and Rotorua districts	On track

Programme summary	Results
Number of operational sites	● 0
Total area of operational sites	● 0
Infestation area	● 0
Comments	<p>All Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> have been met.</p> <p>Moth plant is a sustained control pest for the rest of the region therefore statistics for this species outside Taupō and Rotorua districts are reported under the key statistics section.</p>



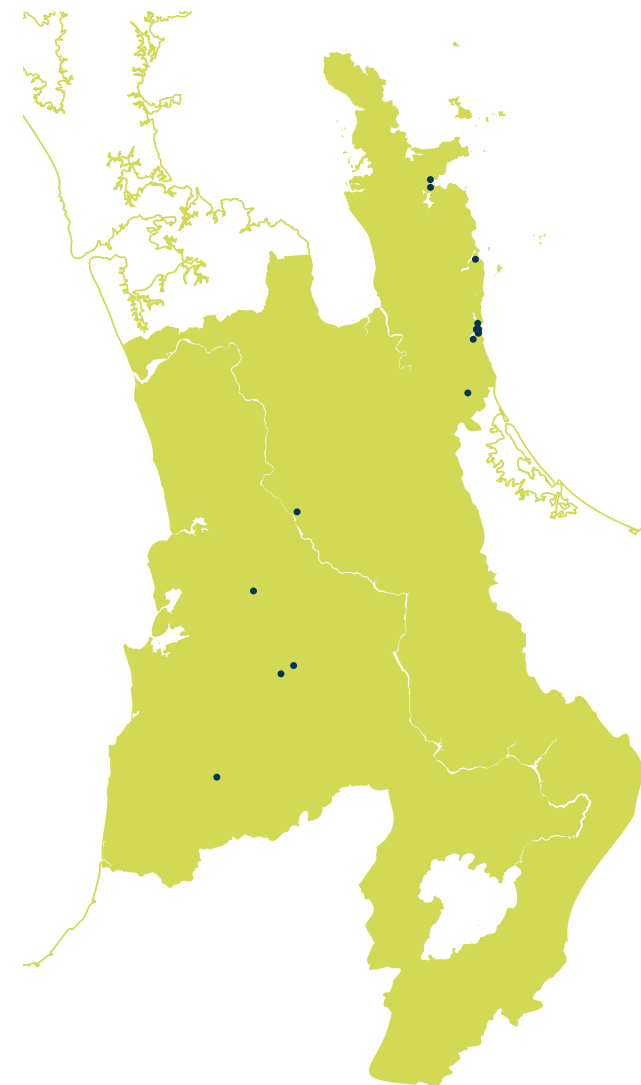
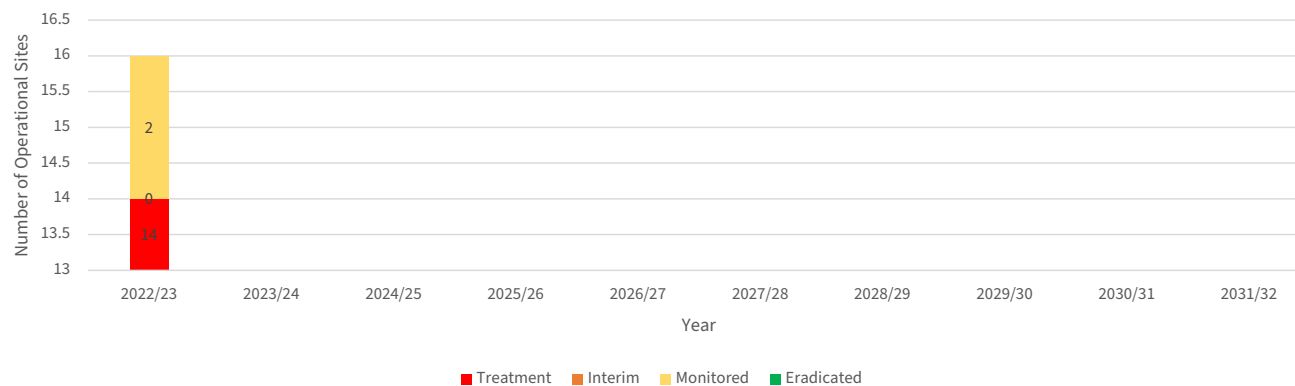
Moth plant.

Nassella/Fine stemmed needle grass/Mexican feather grass (*Nassella tenuissima*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 16
Total area of operational sites	● 1.6ha
Infestation area	● 610m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Fine stemmed needle grass

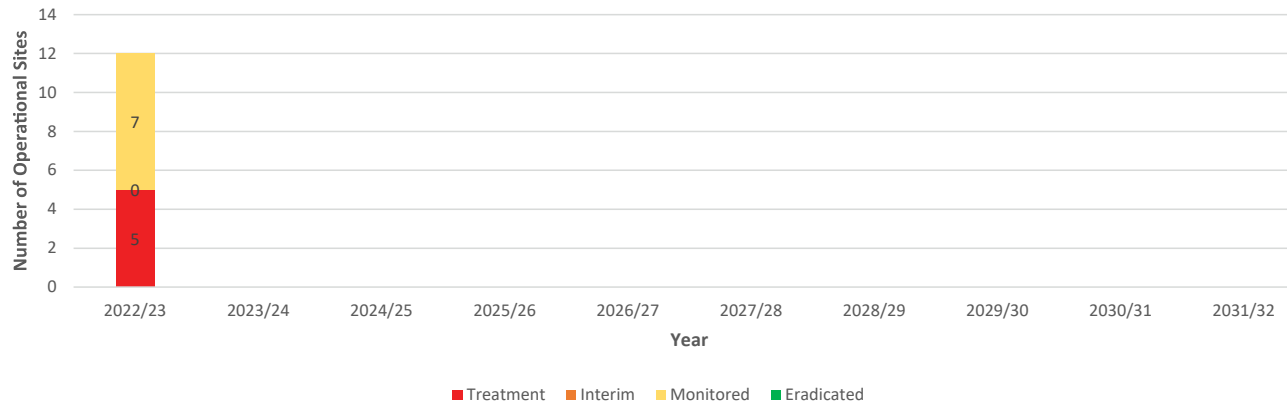


Nassella tussock (*Nassella trichotoma*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 13
Total area of operational sites	● 0.2ha
Infestation area	● 276m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Nassella tussock

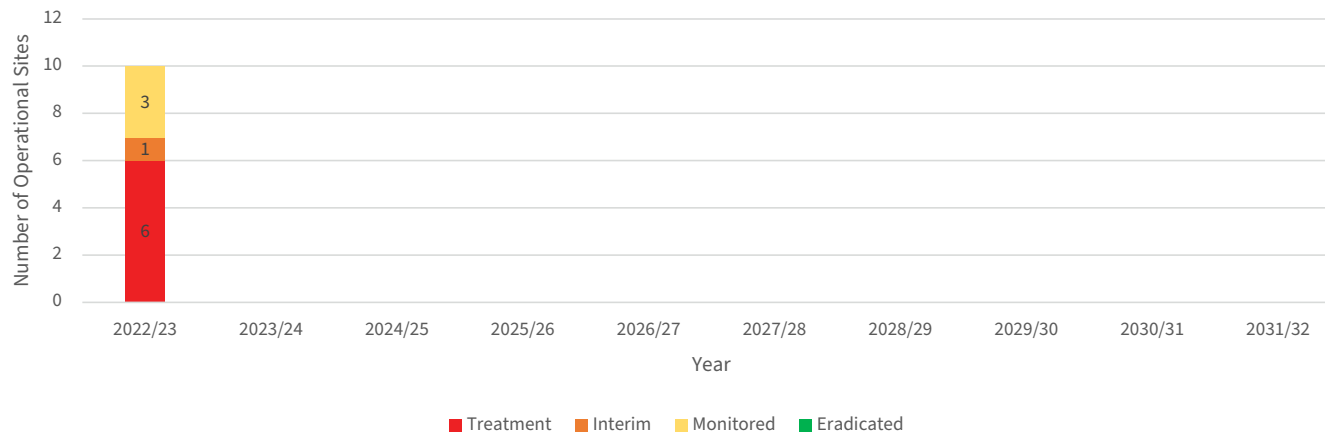


Noogoora bur (*Xanthium strumarium*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 10
Total area of operational sites	● 207.9ha
Infestation area	● 2,996m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Noogoora bur

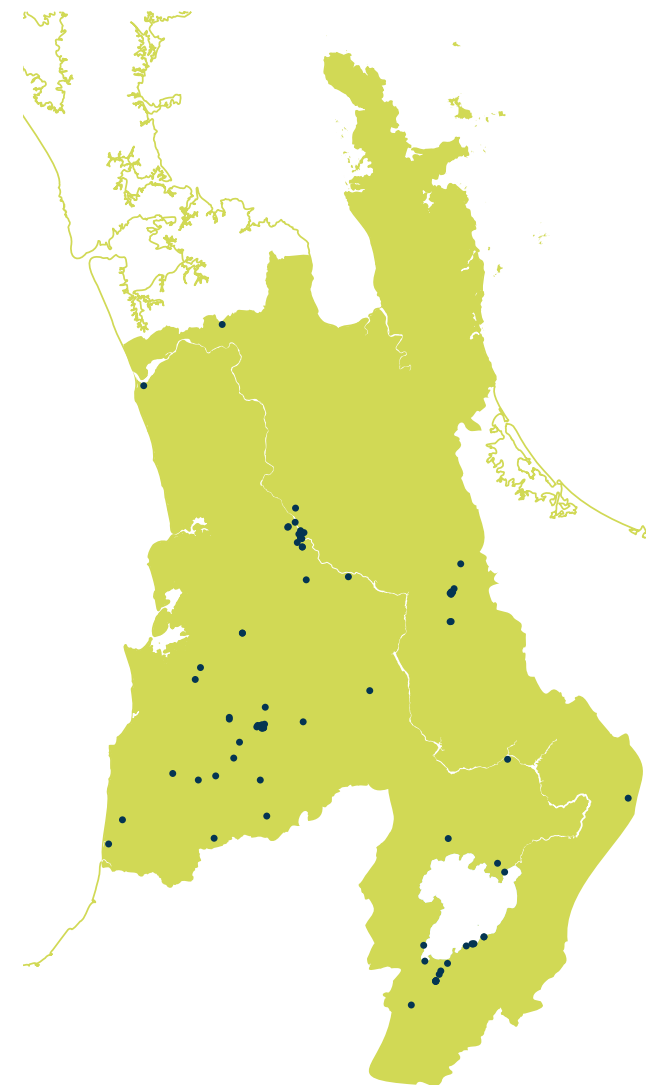
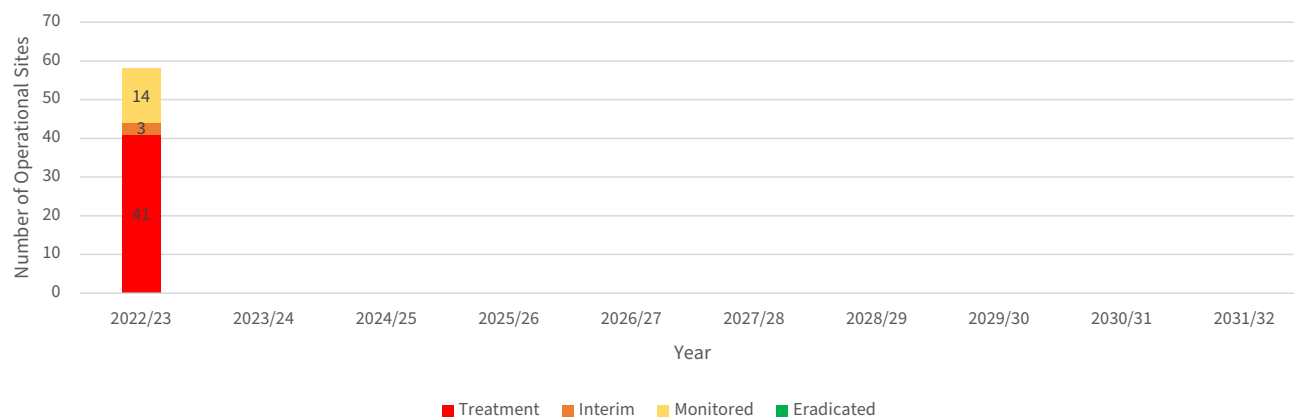


Old man's beard (*Clematis vitalba*)

RPMP classification	Area	Programme status
Progressive Containment	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 54
Total area of operational sites	● 2391.4ha
Infestation area	● 696m ²
Comments	<p>Old man's beard is one of our most significant pest plants and not all sites have received the service delivery required to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>Weather has had a major impact on the old man's beard programme in the 2022/23 financial year.</p>

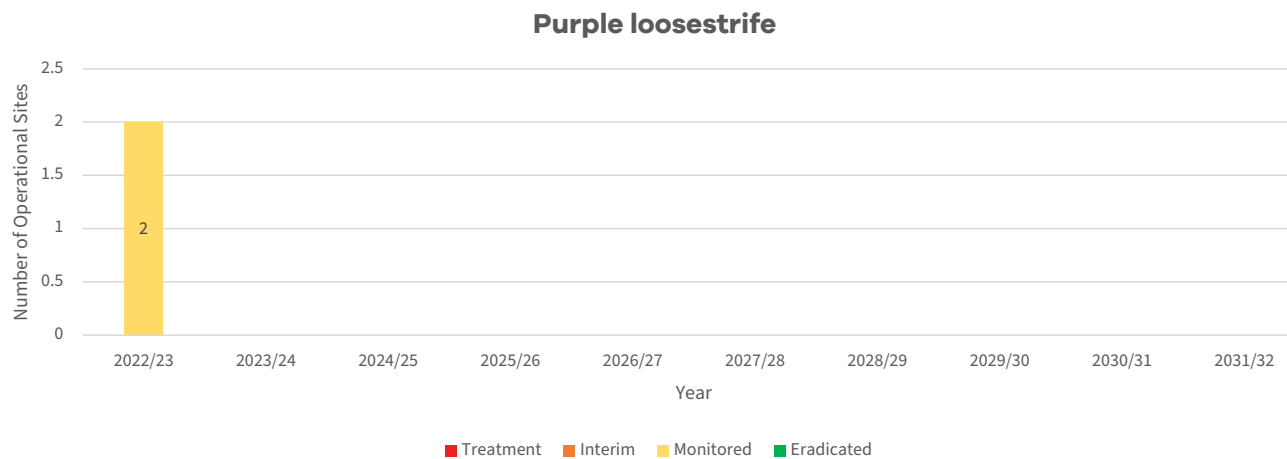
Old man's beard



Purple loosestrife (*Lythrum salicaria*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

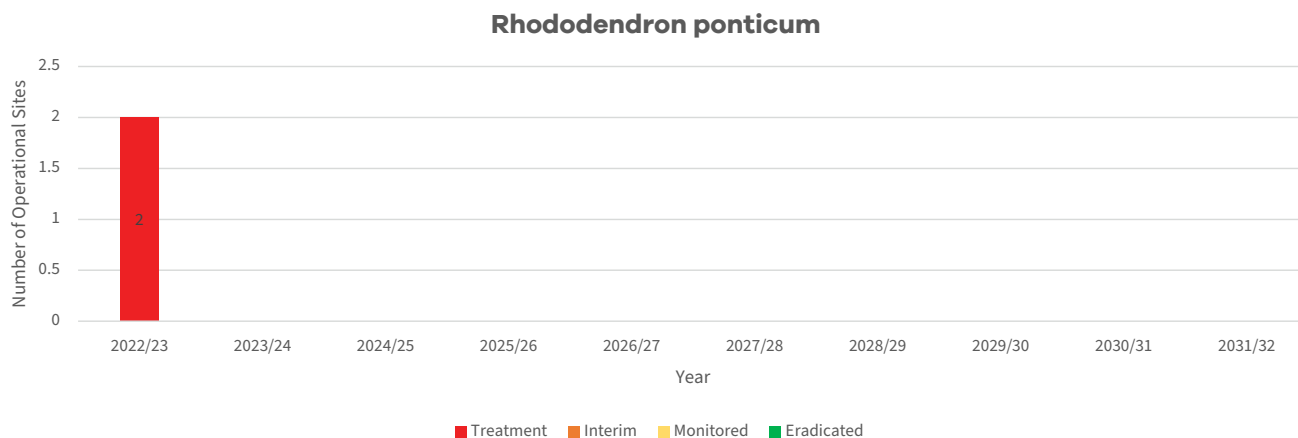
Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 0.5ha
Infestation area	● 0m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .



Rhododendron ponticum

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

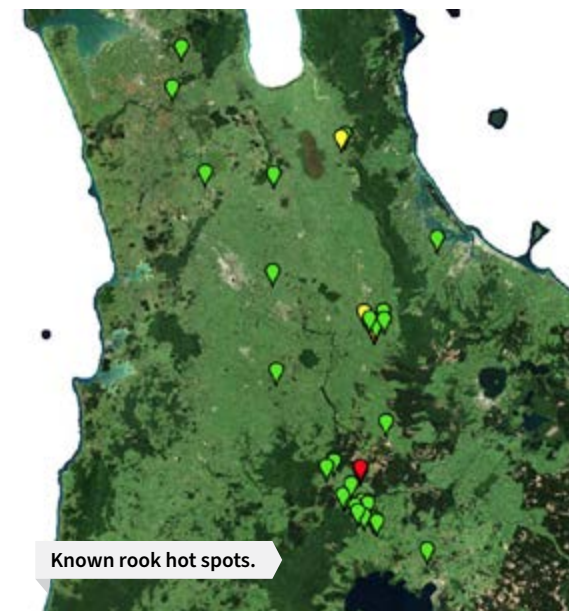
Programme summary	Results
Number of operational sites	● 2
Total area of operational sites	● 41ha
Infestation area	● 35m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .



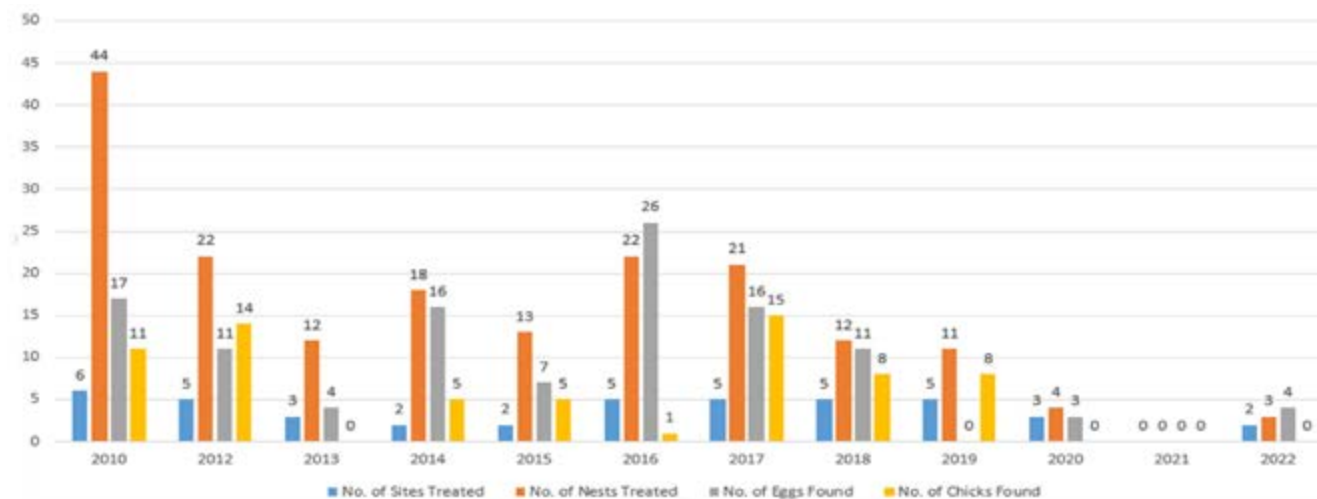
Rook (*Corvus frugilegus*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of sightings received	IRIS = 21 Direct calls & emails = 45
Surveillance undertaken	Multiple properties from Taupō to Pokeno. Emphasis on 36 sites and nine main properties.
Number of known rookery sites	Four confirmed rookeries in 2022/23
Nest sites controlled	Two rookeries, totalling three nests (4 eggs)
Comments	Control work undertaken with helicopter - DRC1339 application to two nests in Mangakino. Physical removal of one nest in Paeroa. Three sites in Tiroa, Mangakino and Whakamaru, totalling seven nests were abandoned due to weather events. Low density populations. Liaison with neighbouring regional councils' biosecurity counterparts about rook surveillance and control. New Rook GIS Online Surveillance Application. Review of the council's Rook Programme underway.



Contracted rook control 2010 to 2022



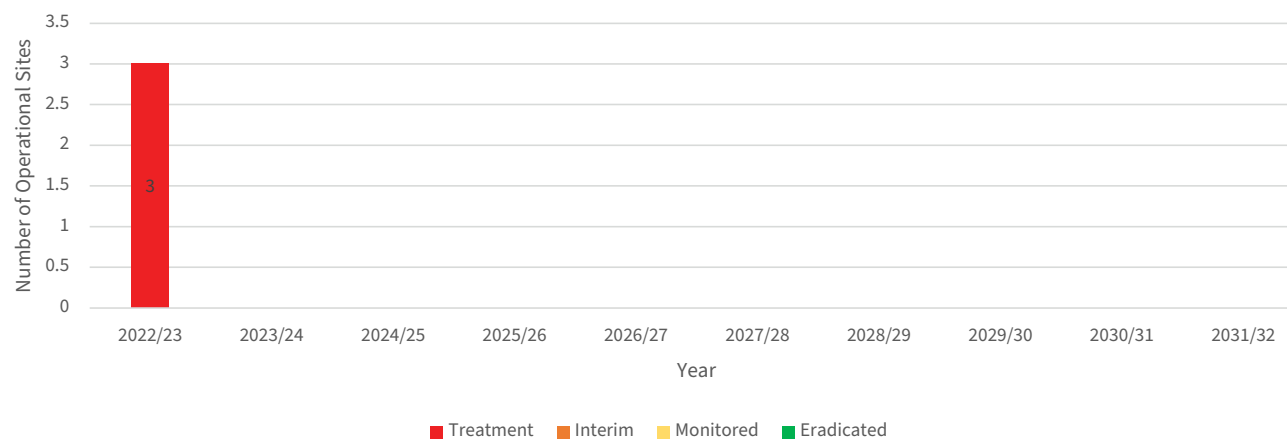
Sagittaria/arrowhead (*Sagittaria montevidensis*, *S. sagittifolia* and *S. platyphylla*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 3
Total area of operational sites	● 165.9 ha
Infestation area	● 34m ²
Comments	<p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>There are couple of species of sagittaria that are not listed in the new RPMP; there will be amendments to correct this to ensure the programme is on track.</p>



Sagittaria

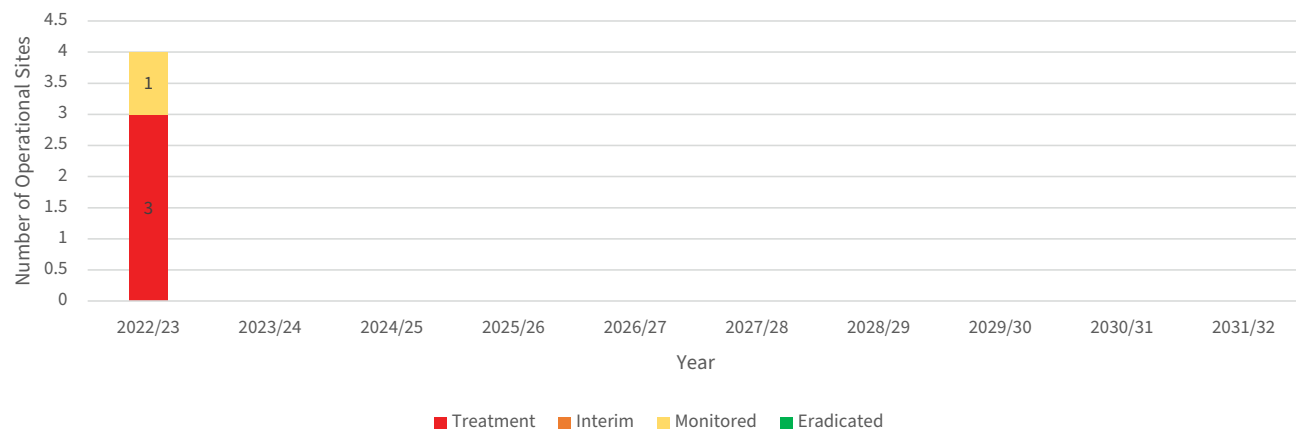


Senegal tea (*Gymnocoronis spilanthoides*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

Programme summary	Results
Number of operational sites	● 4
Total area of operational sites	● 26.8ha
Infestation area	● 626m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Senegal tea

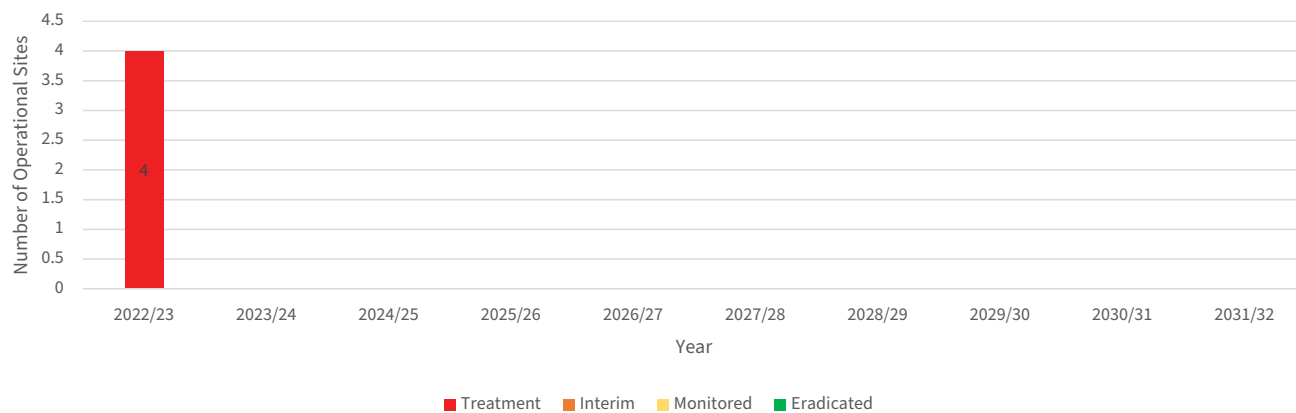


Thistle (variegated thistle) (*Silybum marianum*)

RPMP classification	Area	Programme status
Eradication	Whole of region	At risk

Programme summary	Results
Number of operational sites	● 4
Total area of operational sites	● 119ha
Infestation area	● 1500m ²
Comments	This programme hasn't been able to completed all service delivery due to weather conditions and contractor availability.

Variegated thistle

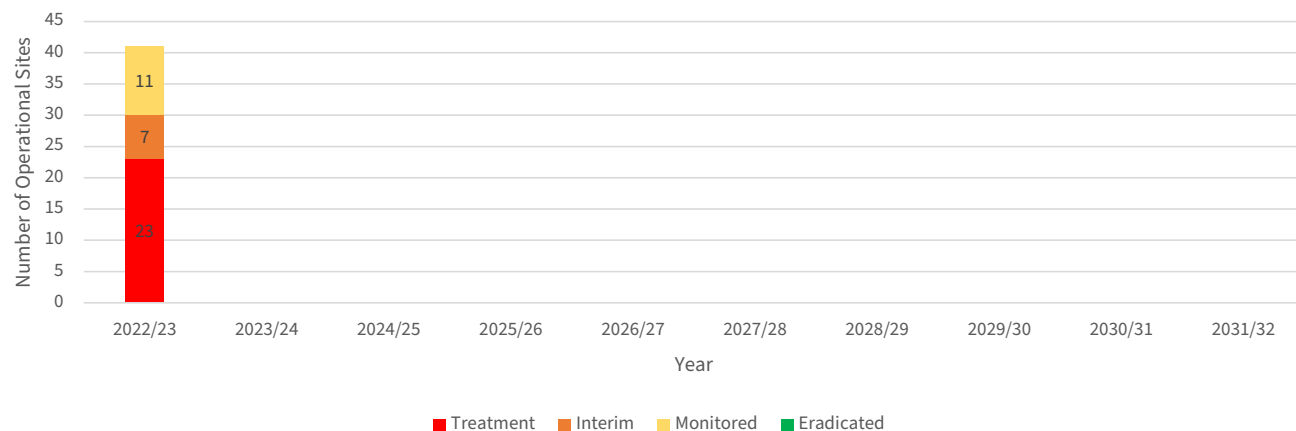


Velvetleaf (*Abutilon theophrasti*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	On track

Programme summary	Results
Number of operational sites	● 41
Total area of operational sites	● 1,937ha
Infestation area	● 165m ²
Comments	This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

Velvetleaf



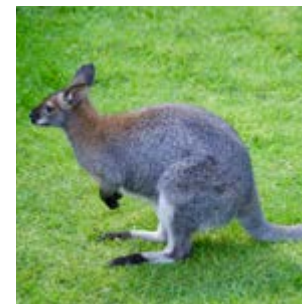
Velvetleaf.

Wallaby (Bennett's, brush-tailed rock, parma and swamp wallaby) (*Macropus rufogriseus*, *Petrogale penicillate*, *Macropus parma*, and *Wallabia bicolor*)

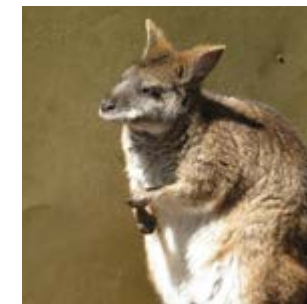
RPMP classification	Area	Programme status
Exclusion	Whole of region	On track

Programme summary	Results
Number of sightings outside of the Containment Area received	● 0
Number of responses required	● 0
Comments	No occurrences of these four wallaby species were recorded in the Waikato region this financial year. This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Biosecurity Plan 2022-2032</i> .

These four species of wallaby are largely restricted to Kawau Island in the Hauraki Gulf, having been introduced there in the late 1800s. They have had a significant impact on the biodiversity of the island, leaving the understorey of the islands' remaining native forests bare and impoverished. They are classified as exclusion pests in the Waikato region, with the aim of preventing them from ever establishing here.



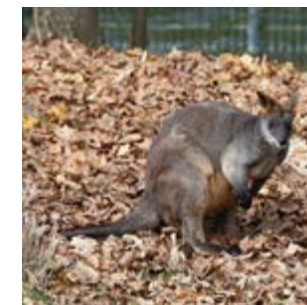
Bennett's wallaby
Photo: Nasser Halaweh
Licence: Creative Commons



Parma wallaby
Photo: Mitch Ames
Licence: Creative Commons



Brush-tailed rock wallaby
Photo: Doug Beckers
Licence: Creative Commons



Swamp wallaby
Photo: Rufus46
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Wallaby (dama) (*Macropus eugenii*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region – <i>outside of Dama Wallaby Progressive Containment Area</i>	On track

Programme summary	Results
Number of 'out of containment area' public sighting reports received	● 30
Wallaby Indicator Dog and Drone Surveillance	● Total 71,108ha covered ● 8,967km walked or flown
Direct control: Shooting Toxin	● 135 wallaby shot ● 11,500ha aerial 1080 control
Tipu Mātoro outcomes met	● Yes
Comments	<p>Priority surveillance and control work undertaken in response to sightings, and proactively outside of the containment area.</p> <p>Contributed to:</p> <ul style="list-style-type: none"> • development of a National Wallaby Sighting Protocol • monthly dama wallaby updates • provide advice to neighbouring regional councils on out of containment sightings • communication strategy to encourage reporting of public sightings. <p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p>



Wasp (common/German) (*Vespula vulgaris* and *Vespula germanica*)

RPMP classification	Area	Programme status
Sustained control	Whole of region (human health)	On track

Programme summary	Results
Number of enquiries/complaints received	IRIS = 15 Direct calls & emails = 0
Number of inspections undertaken	● None undertaken
Service delivery required	● None required
Comments	Council contributed \$20,000 to the National Wasp Biocontrol Programme in collaboration with Manaaki Whenua – Landcare Research. This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i> .

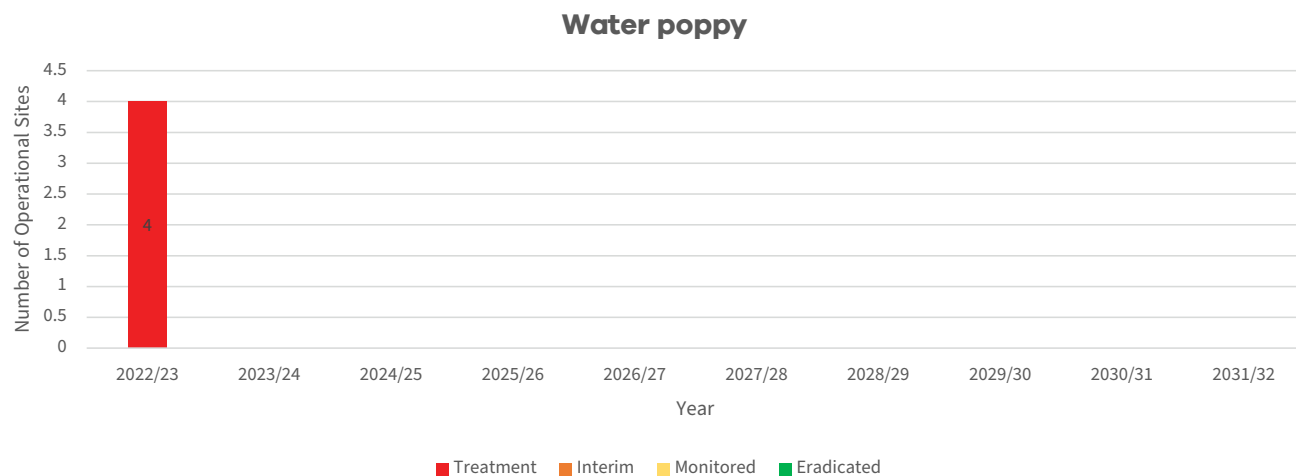
New Zealand has some of the highest densities of common and German wasps in the world; there are none of their natural enemies here, we have milder winters and here is an abundance of food for them. Council is supporting Manaaki Whenua – Landcare Research’s Wasp Biocontrol Programme in their search to find safe and effective biocontrol agents amongst these wasp species natural enemies overseas.



Water poppy (*Hydrocleys nymphoides*)

RPMP classification	Area	Programme status
Eradication	Whole of region	On track

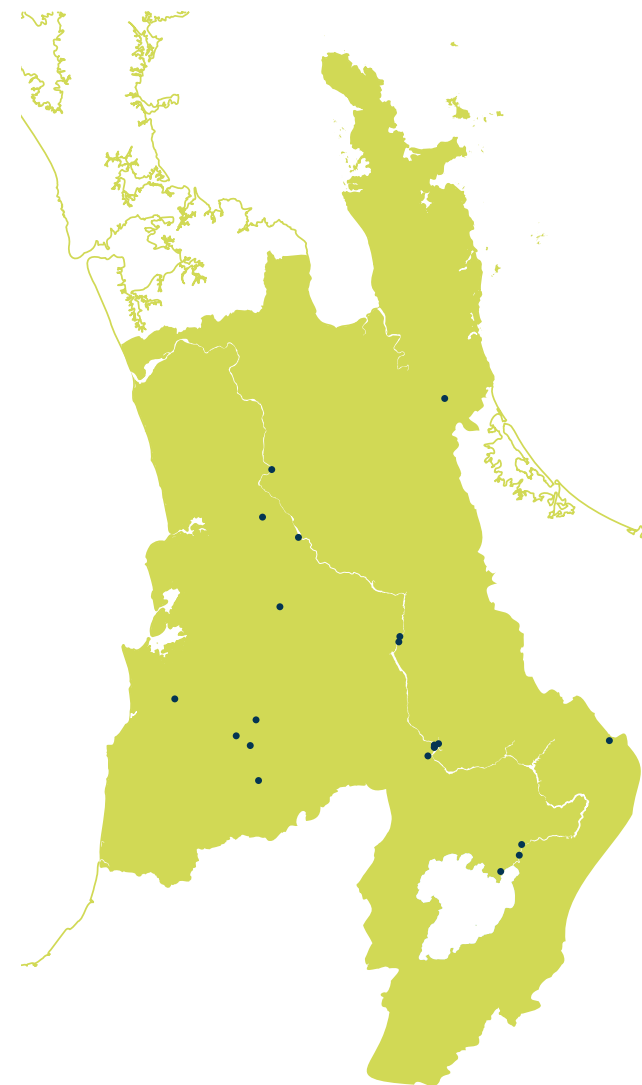
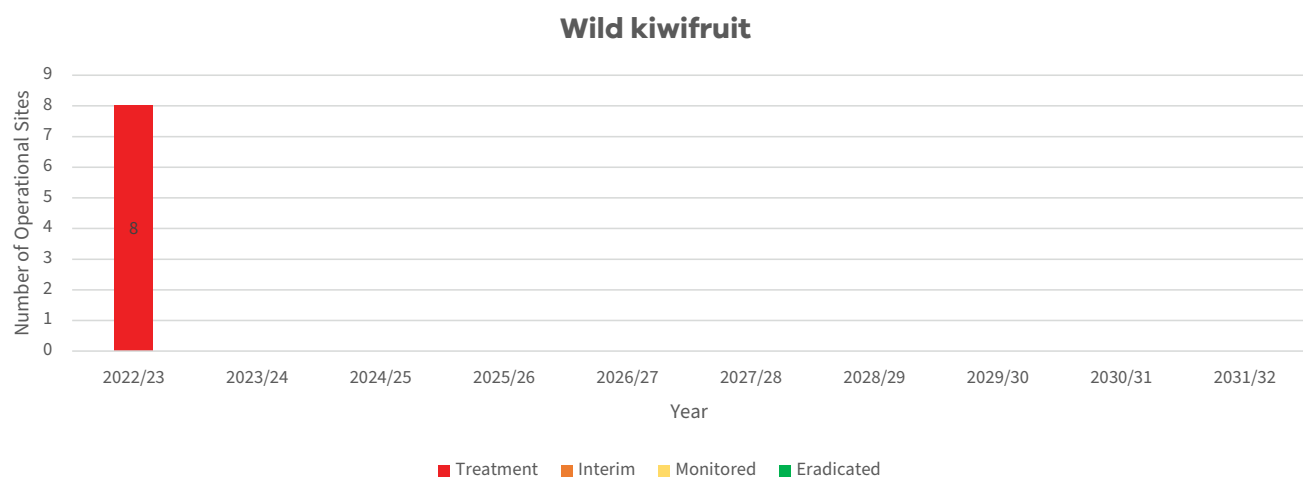
Programme summary	Results
Number of operational sites	● 4
Total area of operational sites	● 9.1ha
Pest plant cover	● 36m ²
Comments	<p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>This programme has had some challenges. Council has identified and begun control on the largest known water poppy site in the country.</p>



Wild kiwifruit (*Actinidia* spp.)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	At-risk

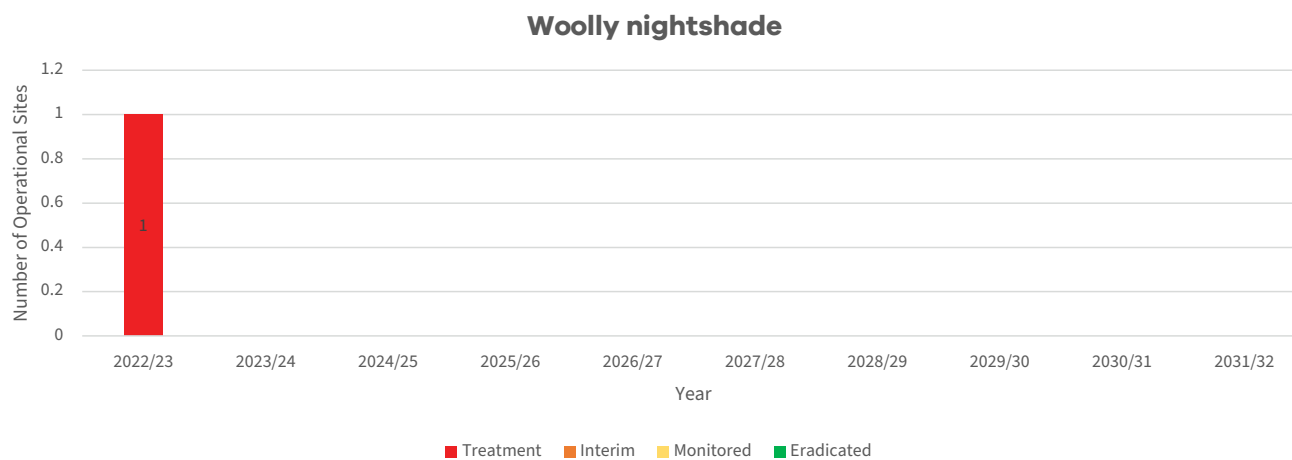
Programme summary	Results
Number of operational sites	● 8
Total area of operational sites	● 1.1ha
Infestation area	● 5m ²
Comments	There are a number of wild kiwifruit sites that are not yet defined. These will be completed once a contract has been established with Kiwifruit Vine Health (KVH). Programme at risk while a contract with KVH is being set up in 2023/24.



Woolly nightshade (*Solanum mauritianum*)

RPMP classification	Area	Programme status
Progressive containment	Taupō and Rotorua districts	On track

Programme summary	Results
Number of operational sites	● 1
Total area of operational sites	● 513ha (Taupō and Rotorua districts only)
Infestation area	● 165m ² (Taupō and Rotorua districts only)
Comments	<p>This programme has met all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>Woolly nightshade is a sustained control pest for the rest of the region therefore statistics for this species outside these areas are reported on under the key statistics section.</p>

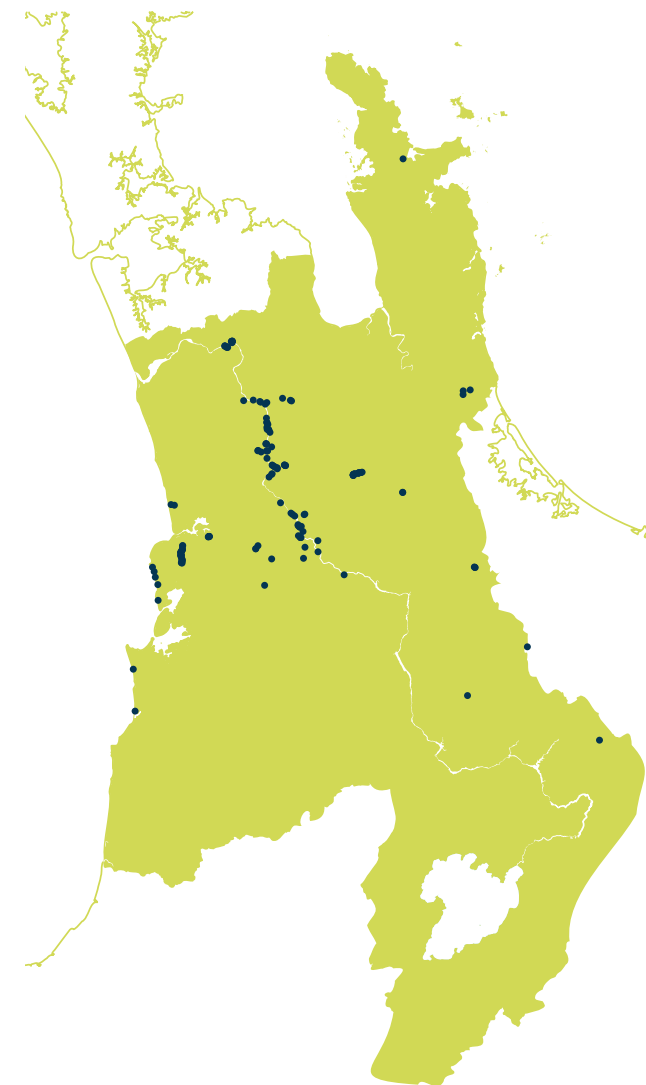
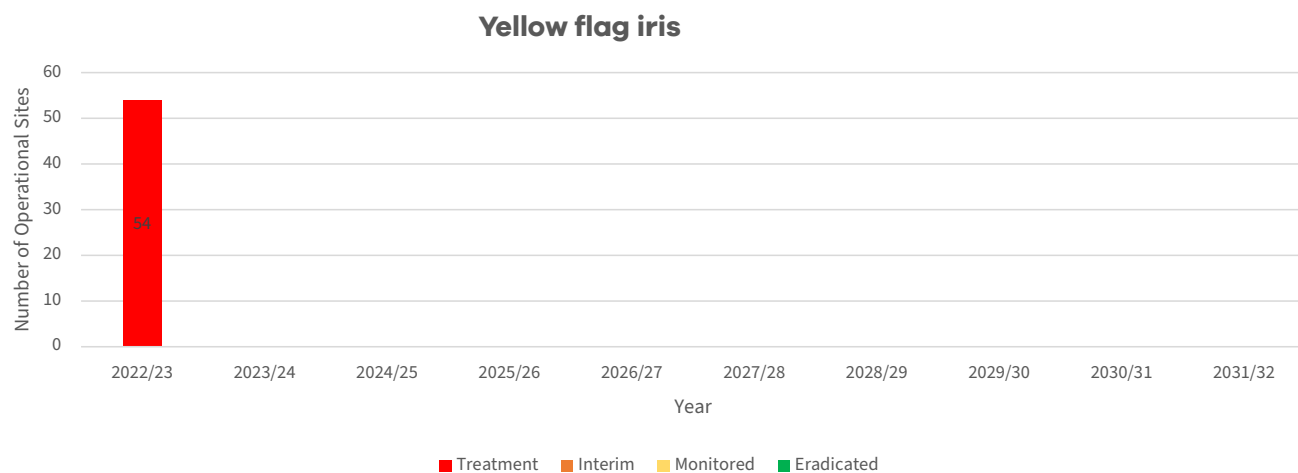


Yellow flag iris (*Iris pseudoacorus*)

RPMP classification	Area	Programme status
Progressive containment	Whole of region	At-risk

Programme summary	Results
Number of operational sites	● 54
Total area of operational sites	● 1,040.2ha
Infestation area	● 2,374m ²

Comments	
	<p>Yellow flag iris is one of our most significant pest plants and not all sites have received the service delivery required to meet all Key Performance Indicators included in the <i>Waikato Biosecurity Operational Plan 2022-2032</i>.</p> <p>Weather has had a major impact on the yellow flag iris programme in the 2022/23 financial year.</p>



Ngā kupu whakamārama

Glossary

Key performance indicators	The performance targets set out for each pest management programme within the <i>Waikato Biosecurity Operational Plan 2022-2023</i> , to help determine whether RPMP objectives are being met.
Modified McLean Scale	A scale used by councils to determine rabbit levels. The <i>Waikato Regional Pest Management Plan 2022-2032</i> (RPMP) has set the scale for sustainable rabbit control across the Waikato region at level 4 or below. Occupiers must manage their rabbit numbers to ensure they are below that level.
Monitoring	To observe, measure and record the population levels and trends of a particular pest population.
Operational site	The area that immediately surrounds an infestation of a pest plant(s), that is most at risk of spread or invasion from that pest. The size of the site is dependent on the pest's reproductive and growth form characteristics, site land use and pertinent environmental factors.
Residual trap catch	The residual trap catch (RTC) index is a method of determining relative possum density in an area. Lines of 10 leg-hold traps, spaced 20 metres apart, are set for three consecutive nights in random locations within the operational area, before and after control. The number of lines used is determined by the size of the management area. The standard performance target commonly set for a reduction in possum densities in ground control operations in the region is an RTC of < 5% (i.e. less than 5 possums caught for every 100 trap-nights) and < 3% for aerial operations (i.e. less than 3 possums caught for every 100 trap-nights).
Surveillance	To survey areas to establish the absence, presence, or extent of pests.

African Feather Grass



He taiao mauriora ▲ **Healthy environment**

He hapori hihiri ▲ **Vibrant communities**

He ōhanga pakari ▲ **Strong economy**

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