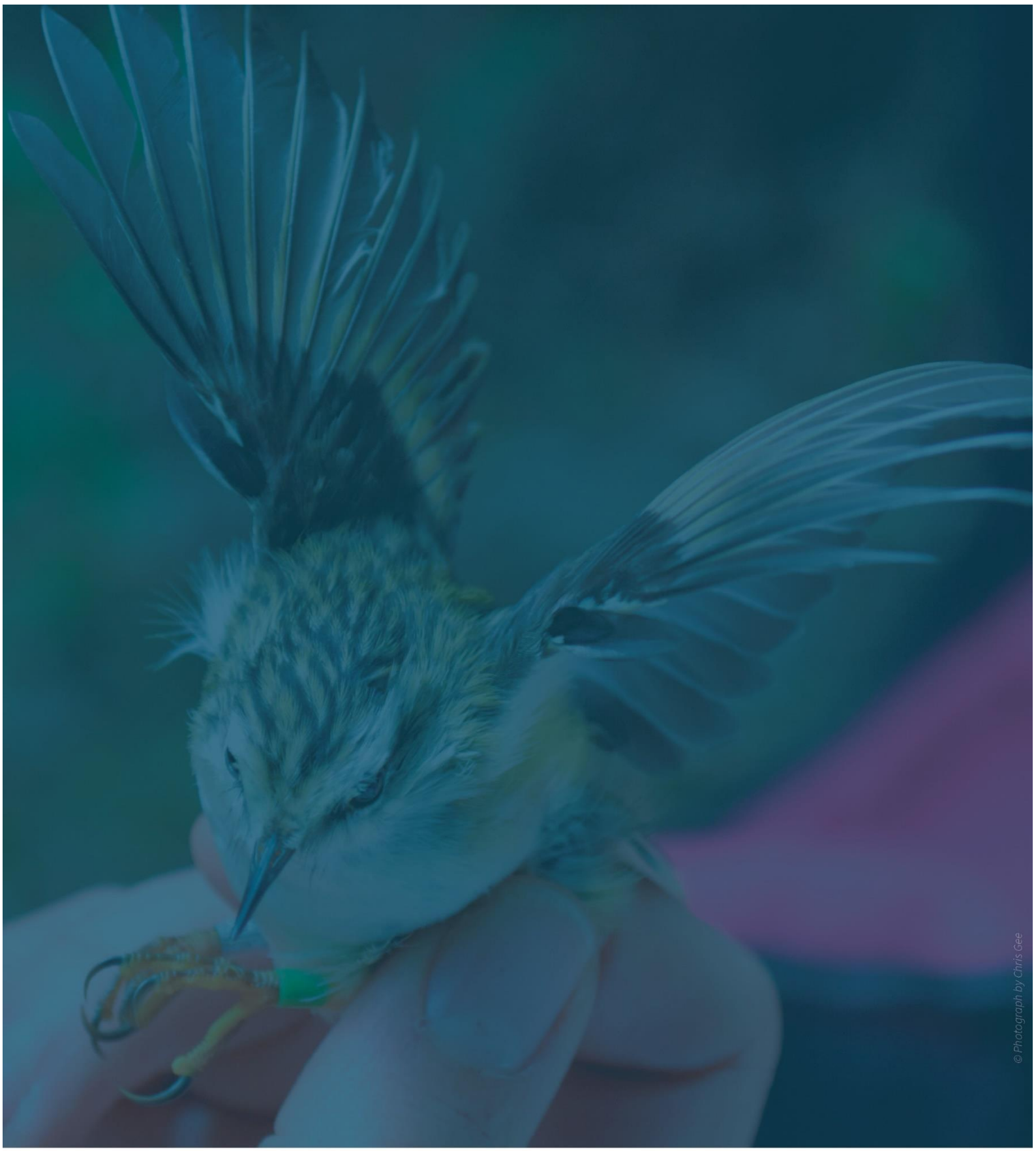


© Photograph by Chris Gee

TE MAHERE Ā-ROHE KAUPARE RIHA -
PŪRONGO O TE MAHERE MAHI 2023/24

REGIONAL PEST MANAGEMENT PLAN -
OPERATIONAL PLAN REPORT 2023/24

Greater Wellington
Te Pane Matua Taiao

1. Whakarāpopototanga Matua | Executive Summary

The Regional Pest Management Plan 2019-2039 (RPMP) was prepared in accordance with the Biosecurity Act 1993 and became operative on the 2nd of July 2019. It contains objectives specific to individual pests and outlines how Greater Wellington Regional Council (GW), as the Management Agency, will achieve those objectives.

This report summarises the achievements and outcomes of the RPMP Operational Plan 2023/24 GW work programme and the resources used to deliver these. It should be read in conjunction with the RPMP Operational Plan 2023/24.

GW delivered four categories of species-led and four site-led programmes during 2023/24. Additionally, we are involved in four programmes that are part of national agreements and/or are funded nationally.

The total internal budget of $10,569,523 was underspent by $919,639 (8.7 %). We achieved over 98 % of our performance measures.

Issues and opportunities

National pest plant modelling database

GW was committed to supporting AgResearch and other key stakeholders in progressing the development of a national pest plant modelling database. Unfortunately, despite funding commitments from GW and many other regional councils, a failure to procure government funding means that this project has been paused. This is disappointing as the project offered an exciting and valuable industry tool for predicting emerging threats and their likely abundance/distribution under various climate scenarios.

Marine Biosecurity

We have joined the Top of the South Marine Biosecurity Partnership and are working with them to include Wellington in an Incident Response Plan. We have identified our roles and responsibilities, and the steps needed to fulfil our obligations in managing marine risks and threats.

It is written into GW's Long Term Plan (2024/34) that from 2024 to 2027 we will intensify our efforts to enhance marine biosecurity by monitoring for invasive pests, developing pest incursion response plans, and educating vessel users on reducing the risk of spreading marine pests.

Key Achievements

Predator Free Wellington

Predator Free Wellington (PFW) has taken a significant step forward in the effort to eliminate rats, stoats, weasels and possums in Wellington City. The first phase of the project has been completed – Miramar Peninsula.

The positive ecological outcomes are clear, supported by both anecdotal feedback from the community and wildlife monitoring data. The PFW team continues to contribute regionally through the training and development of communities and advising on similar initiatives from other parts of the region, such as Predator Free Kāpiti. They are also taking active steps to implement the concepts of Mauri Tūhono, a framework to bring a Māori world view into their decision-making processes.

PFW has pushed into its second phase, which is in the heart of the city. The project operates under a model of continuous improvement, including trials of new technologies to make the operation faster and more economical. Two such innovations are (i) automatic rodent bait dispensers that reduce the need to visit operational sites as regularly, ensuring that target species always have access to poison, and (ii) traps that use carbon dioxide to euthanise target animals and report when they have been activated. Talks are also underway to trial a new rat-specific toxin, which has the potential to change the way other pest control operations around the region and country carry out their mahi.

Pest Plant and Pest Animal teams

There have been 47 fewer enquiries from the public when compared to last year and a significant number of species and sites have been controlled since the last report:

- The teams have addressed 973 enquiries from the public.
- Pest Plant Biosecurity Officers have inspected almost 6,000ha of land.
- Fifty RPMP plant sites have been classified as eradicated.
- Around 950 ungulates have been removed from the environment.
- We have recorded 1,788 hedgehogs, 422 mustelids, 214 pest cats, 259 possums and 1,604 rats in our traps. This equates to 4,287 invasive predators but does not represent the full extent of control across our wider device network. Thousands more are controlled using bait stations around the region, as well as in devices serviced by our volunteer and community groups.

2. Kupu Arataki | Introduction

The Regional Pest Management Plan 2019-2039 (RPMP) contains objectives specific to individual pests and outlines how Greater Wellington Regional Council (GW), as the Management Agency, will achieve those objectives. The RPMP has clearly defined rules to be met by all land occupiers. It is our responsibility to ensure land occupiers are aware of, and meet, their obligations for pest management on their properties. We can also undertake pest control operations where there is recognised regional benefit.

A cost-benefit analysis (CBA) was undertaken for all species proposed for the RPMP. Species from the previous Regional Pest Management Strategy 2002-2022 were included as well as other species of interest which had been noted by officers leading up to the review process. This process decided what control, if any, was to be undertaken and what level of management was needed for the species.

The RPMP is implemented region-wide by GW through:

- **Monitoring** for the presence of declared pests in the Wellington Region.
- **Minimising** the actual and potential adverse or unintended effects associated with the specified organisms.
- **Eradicating** certain organisms, reducing the extent of others, and containing those species that are already well established.

This report summarises the achievements and outcomes of the 2023/24 RPMP Operational Plan GW work programme and the resources used to deliver these.

The report should be read in conjunction with the RPMP Operational Plan 2023/24.

3. Kaupapa - tirohanga whānui/ Programme overview

3.1 Species led programmes

There are four species led programmes that are outlined in the RPMP: The invasion curve (Table 1 and Figure 1) designates the different management programmes.

Exclusion programme: To prevent the establishment of a species that is present in New Zealand but not yet established in an area.

Eradication programme: To reduce the infestation level of a species to zero levels in an area in the short to medium term.

Progressive Containment programme: To contain or reduce the geographic distribution of a species.

Sustained Control programme: To provide ongoing control of a species to reduce its impacts on values and spread to other properties.

Additionally, we are involved in four programmes that are part of national agreements and/or are funded nationally:

National Pest Plant Accord: To prevent the sale, distribution and propagation of a set list of pest plants (approximately 135 named species) within New Zealand.

National Interest Pest Response programme: To eradicate certain species (currently just Manchurian wild rice) from the Wellington Region.

Check, Clean, Dry: To keep our waterways clean and free of invasive freshwater pests.

Biocontrol programme: To fund biocontrol programmes for prioritised pest species.

Table 1: The Invasion Curve

Management programmes	Infestation phase	Phase characteristics
Exclusion	**Absent**	Pest not yet established in the Wellington Region, or it has been eradicated from all known sites in the region.
Eradication	**Lag**	Pest numbers low, rate of population increase low, distribution limited.
Progressive Containment	**Explosion**	Rapid growth in pest population size and range.
Sustained Control	**Established**	Pest is abundant and/or widespread.

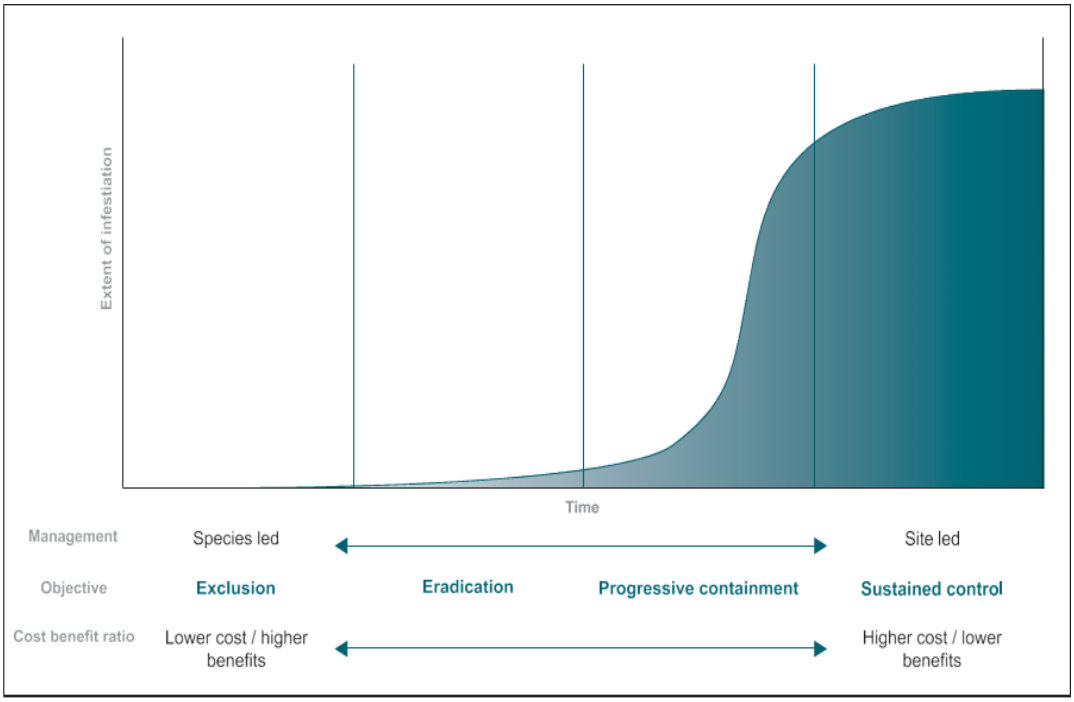


Figure 1: Pest infestation phases through time in relation to its appropriate management. Adapted from our Regional Pest Management Plan 2019-39

3.2 Site led programmes

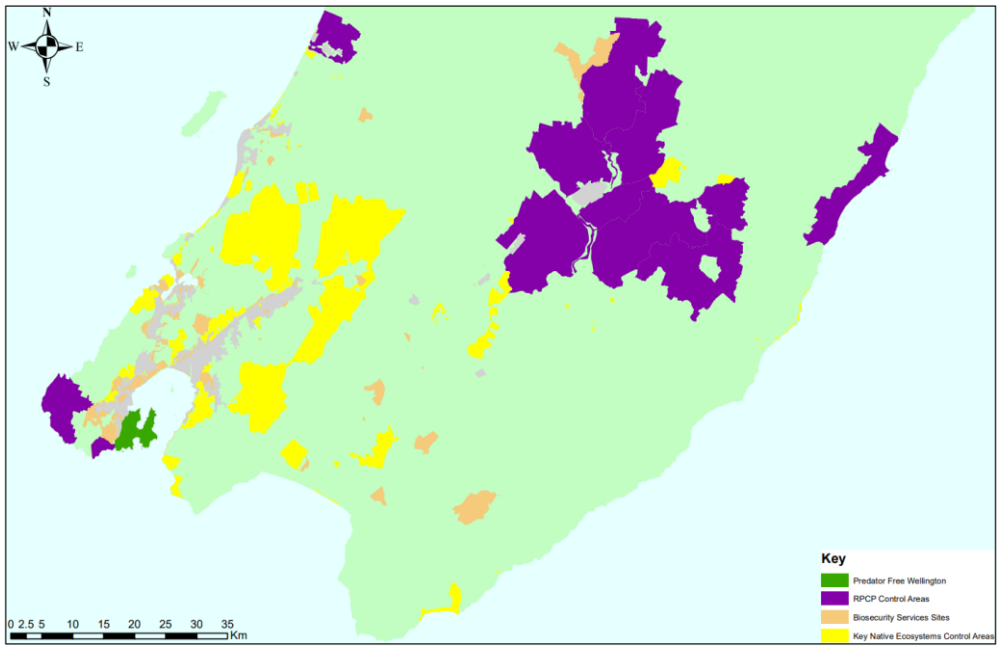
There are four site led programmes that are delivered through the RPMP (see Map 1).

Predator Free Wellington programme (PFW): To eradicate mustelids, possums and rats from Wellington City. Predator Free Wellington is a programme funded by the Wellington City Council, GW, Predator Free 2050 and the NEXT Foundation and other smaller funders and donators.

Regional Predator Control Programme (RPCP): To control possums and other predators that are a serious threat to our native biodiversity and economy. The areas we work in are chosen based on protecting the best biodiversity ecosystems outside of the Key Native Ecosystem programme. 2023/24 was a transition from the former programme that was driven largely by declarations of bovine TB freedom to a new programme focused on maintaining or enhancing indigenous biodiversity.

Biosecurity Services programme: This activity provides biosecurity delivery services across the region. This includes maintaining a buffer for predators around Pūkaha/Mt Bruce, providing cost recovery services to Territorial Authorities and landowners, and controlling Argentine ants to minimise the risk to Kāpiti Island. Activities such as these lead to biodiversity gains for the region by reducing the impact of pests and invasive species.

Key Native Ecosystem programme (KNE): To protect and restore representative examples of original indigenous ecosystem types of high value in the Wellington Region through effective biodiversity management. This involves the development of strategic operational plans, planning operational activities, working with management partners and delivery of management activities including pest control.



Map 1: Site led programme coverage of the region

3.3 Pest control methods

We use a range of methods and tools to control pest plants and pest animals within the region. All control operations are undertaken by trained staff, contractors or volunteers using industry accepted best practice techniques. Our methodology considers innovation, environmental and humane factors alongside cost-effectiveness and practicality. Where chemical-based pest control methods are utilised, the most effective and least harmful option is

always preferred, with all chemical application following best practice manufacturer instructions, endorsed by the New Zealand Environmental Protection Authority.

3.4 Upcoming issues

Upcoming review of the Biosecurity Act 1993

The Ministry for Primary Industries (MPI) will soon be updating and modernising the Biosecurity Act 1993,and the proposals for change that they develop may have impacts on many facets of how the Act currently affects the way we can operate – how we manage biosecurity risks within the region. We look forward to being involved in this process, in which MPI envision New Zealand's biosecurity system is strengthened, made more efficient, cost-effective and adaptable.

4. Tipu Riha | Pest Plants

4.1 Exclusion programme

Alligator weed *(Alternanthera philoxeroides),* Chilean needle grass *(Nassella neesiana),* Nassella tussock *(N. trichotoma*).

Aim: Prevent the establishment of exclusion plant species in the Wellington Region.

Performance Measure	Result and Details
Identify new sites New incursion sites of exclusion plant species are identified.	Achieved. No incursions in 2023/24.

Alligator weed sites: we are currently managing two active sites (indicated in purple on the site map below), with 100 mature plants controlled within an infested area of 205m^2. The sites are located in Taitā and Naenae (both suburbs of Lower Hutt).

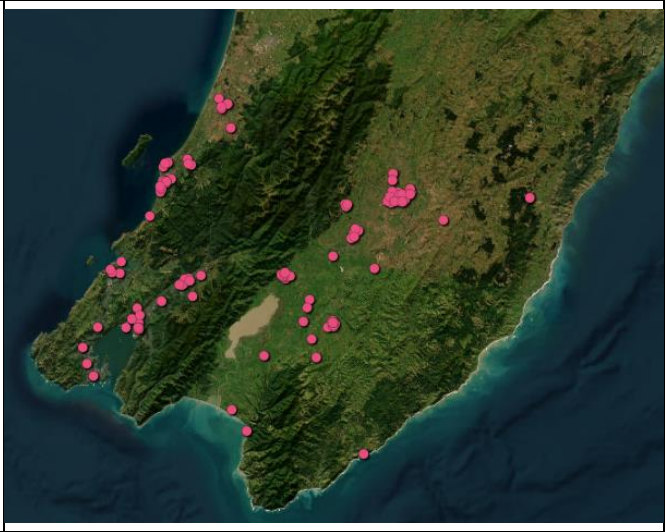
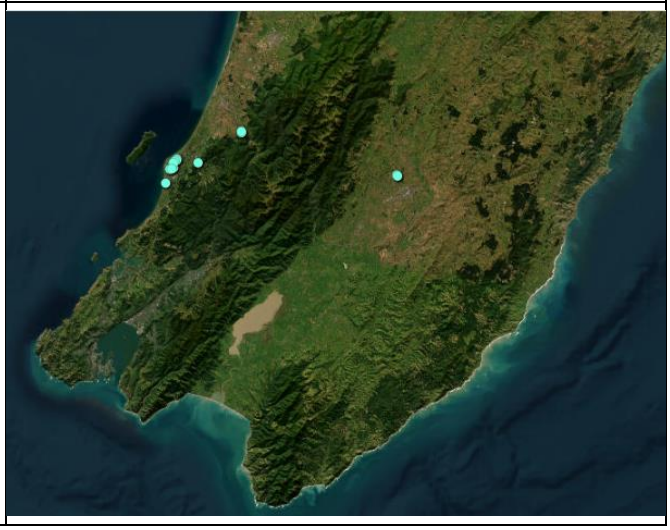
Performance Measure	Result and Details
Incident investigation and response Initial investigations for all reports undertaken within five working days. Response plans developed and implemented within 20 working days.	No investigations required.
Biodiversity Outcomes	
Potential effects from alligator weed infestations include choking waterways and reducing waterflow which can lead to flooding, displacing native plants and depleting oxygen. We are working to prevent the establishment of alligator weed. This plant is difficult to get rid of, so eradicating all incursions is by far the most economical action and is our priority, and we continue the work begun in the previous year.	

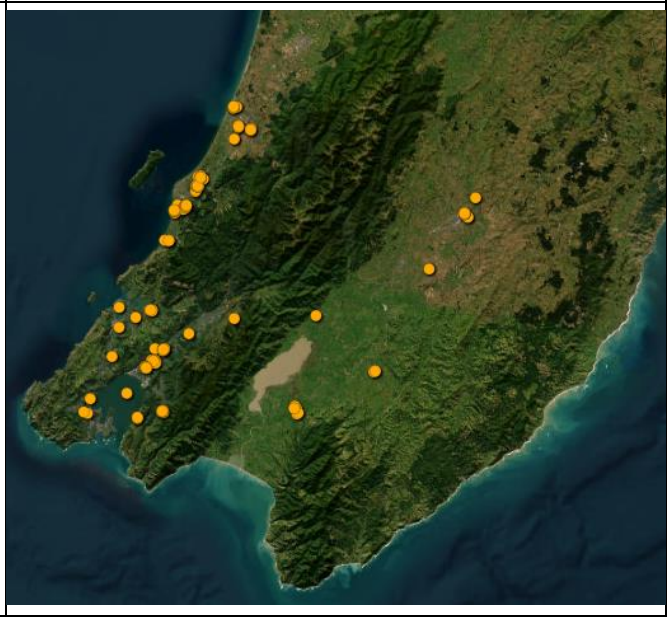
4.2 Eradication programme

Moth plant (*Araujia hortorum*), Senegal tea (*Gymnocoronis spilanthoides*), spartina (*Sporobolus anglicus, S. alterniflorus*), velvetleaf (*Abutilon theophrasti*), woolly nightshade (*Solanum mauritianum*).

Aim: Destroy all known infestations of eradication plant species in the Wellington Region.

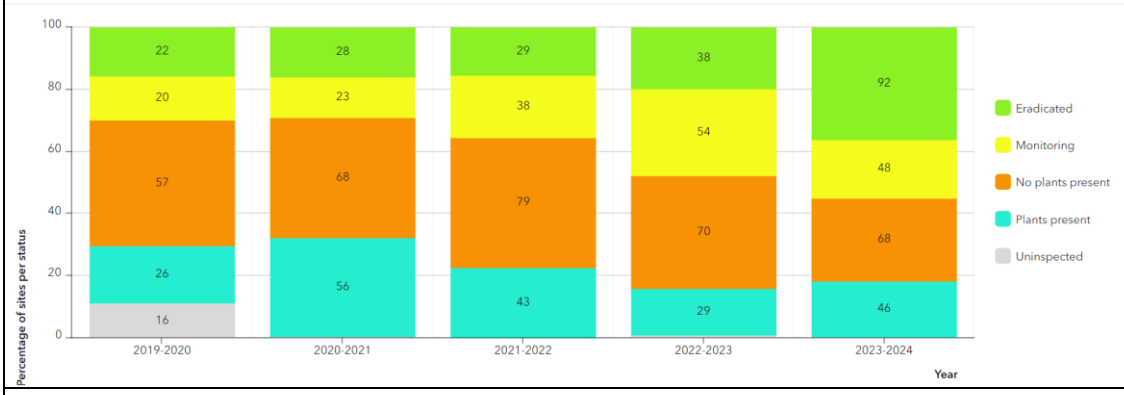
Performance Measure	Result and Details
Identify new sites New sites of Eradication plant species are identified.	Achieved. Fourteen new moth plant sites and 39 woolly nightshade sites identified.
Species	**Location of new management sites**
Moth plant	Wairarapa: Masterton (6), Featherston (2), Martinborough (2). Western zone: Lower Hutt (2), Raumati Beach (2).
Woolly nightshade	Wairarapa: Martinborough (1). Western zone: Aro Valley (1), Glenside (1), Wainuiomata Coast (1), Eastbourne (1), Taita (1), Hutt Central/Woburn (5), Paekākāriki (1), Raumati South (5), Paraparaumu (5), Waikanae (3), Otaihanga (14).

Performance Measure	Result and Details
Incident investigation and response Response to reports from the public on eradication plants will initially be responded to within five working days and actions completed within 20 working days.	Achieved. Eight reports received and responded to within the timeframe.
Performance Measure	**Result and Details**
Best practice management All management sites visited on scheduled best practise rotation.	Achieved. Refer to species details next page.
Eradication species management site visits 2023/24	
Species	**Active sites**
Moth plant: 173 active sites.	
Senegal tea: 20 active sites.	

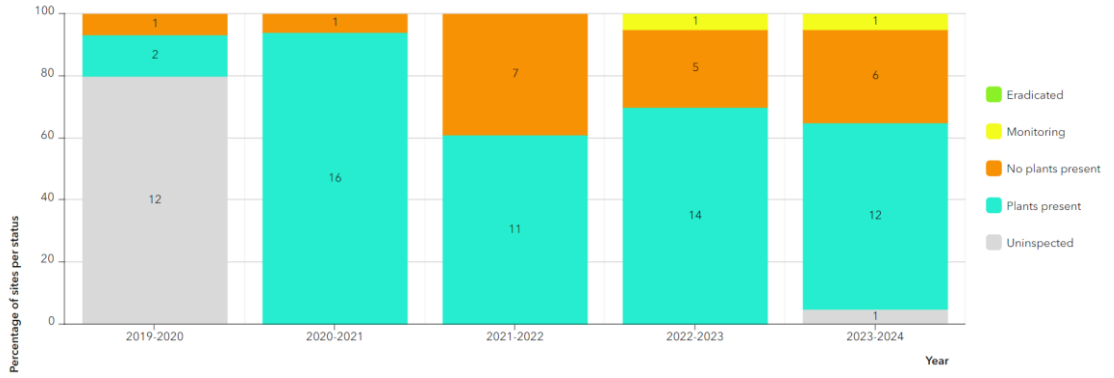
Spartina: seven active sites.	
Velvetleaf: four active sites.	
Woolly nightshade: 230 active sites.	

Progress towards eradication

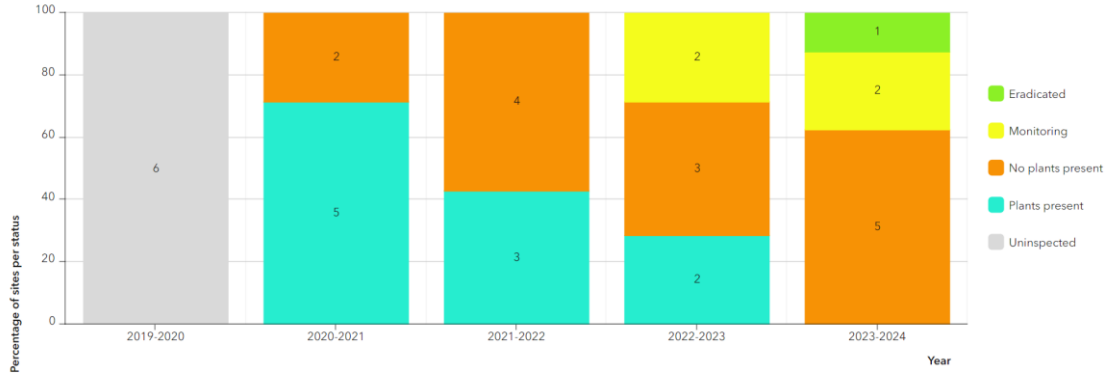
Moth plant site status change over time:



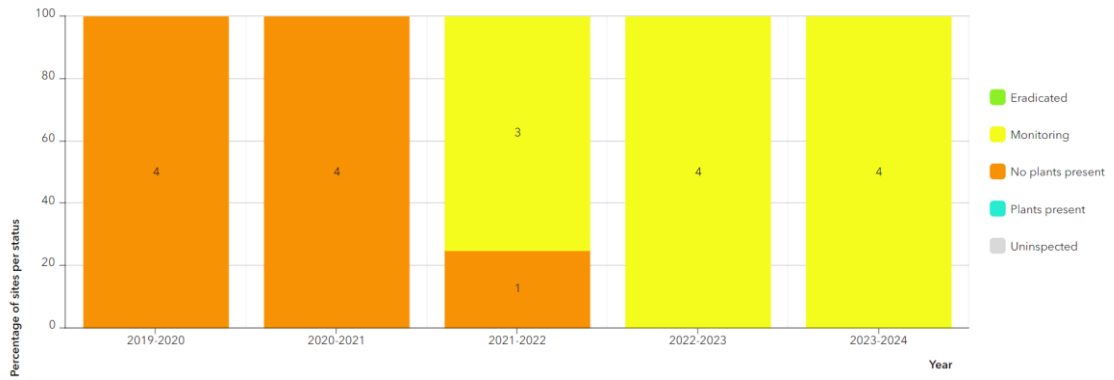
Senegal tea site status change over time:



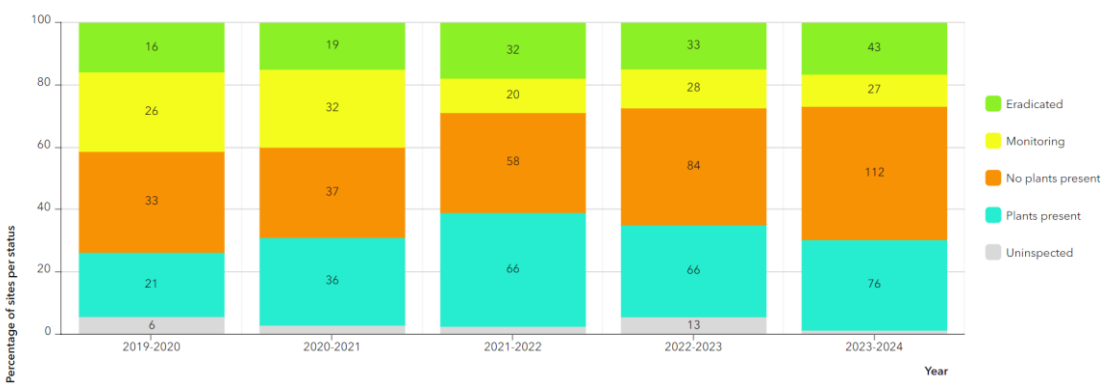
Spartina site status change over time:



Velvetleaf site status change over time:



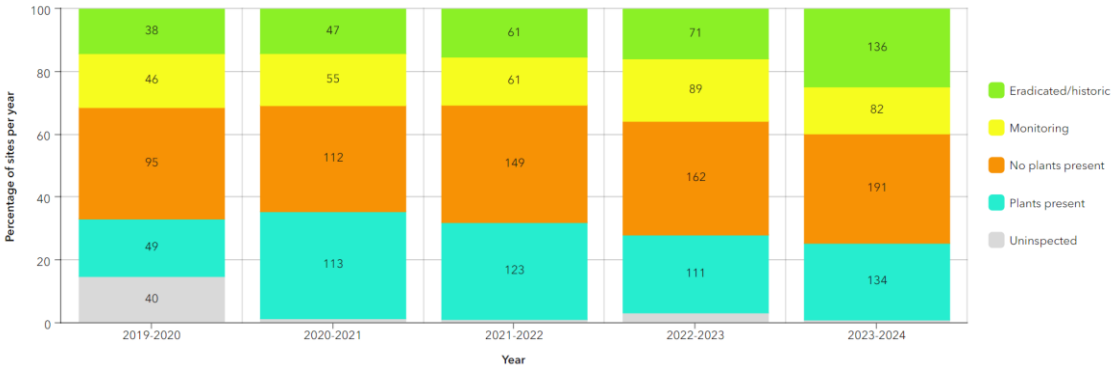
Woolly nightshade site status change over time:



Summary table for Eradication species in 2023/24

Species	Number of sites eradicated	Number of adult plants	Number of juvenile plants	Infestation Area	Sites with plants present
Moth plant	7	87	1,700	2.08 ha	25%
Senegal tea	0	207	1,654	8.66 ha	60%
Spartina	0	0	0	1.76 ha	0%
Velvetleaf	0	0	0	16m^2	0%
Woolly nightshade	10	91	1,703	17.45 ha	33%

Overall progress for Eradication species:



Note that this graph shows additional historic data, increasing the 'eradicated (historic)' numbers for 2024.

Biodiversity Outcomes

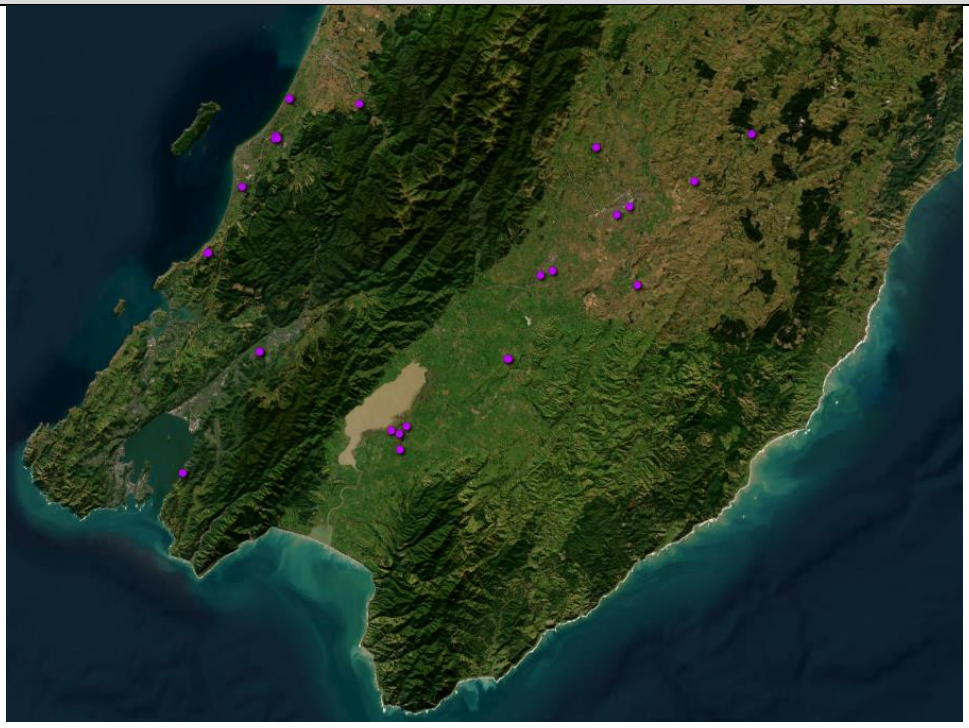
We aim to see an annual decrease in number of adult plants observed or in the infestation area of existing sites.

Working to eradicate these pest plants within the timeframe of the Regional Pest Management Plan means we maintain and/or allow the improvement of biodiversity, prevent these species from establishing in our Key Native Ecosystems and other valuable habitat, resulting in improved integrity of native ecosystems and robustness in the face of a changing climate.

4.3 Progressive Containment programme

Purple loosestrife (*Lythrum salicaria*), wilding conifers: European larch (*Larix decidua*), Douglas fir (*Pseudotsuga menziesii*) and pine species (*Pinus spp*.).

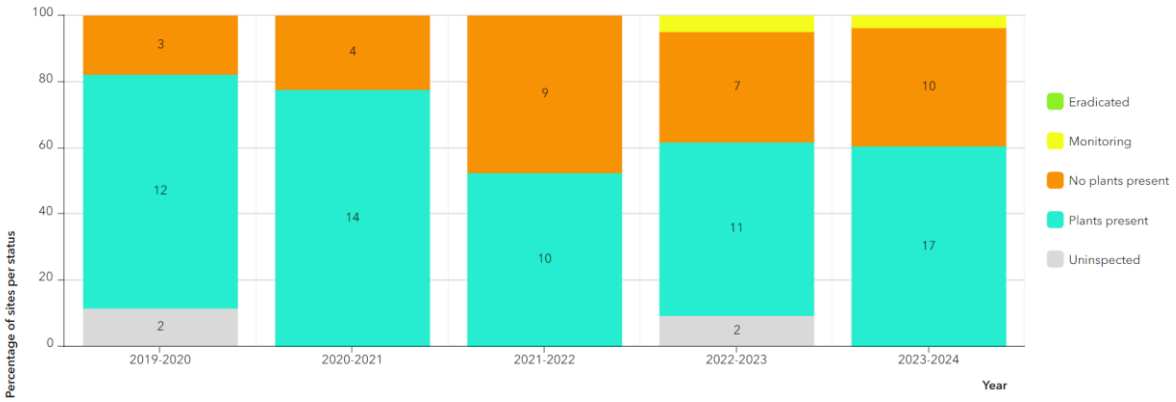
Aim: Progressively contain and reduce the geographic distribution of progressive containment plant species in the Wellington Region.

Performance Measure	**Result and Details**
Incident investigation and response Initial investigations for all reported sightings or discoveries of purple loosestrife or wilding conifers undertaken within five working days and decisions documented within 20 working days.	Achieved. Four reports received, investigations undertaken, and decisions documented within the timeframe. A report of a new purple loosestrife site in Waikanae was followed up by our team who controlled the plants at that site.
Performance Measure	**Result and Details**
Best practice management All management sites visited on scheduled best practise rotation.	Work program completed. Refer to species details below.
Progressive containment species management site visits 2023/24	
Species	**Active sites**
Purple loosestrife: 28 active sites.	

Wilding conifers: three active sites.

Progress towards progressive containment

Purple loosestrife site status change over time:



Wilding conifer site status change over time:

We aim for an annual decrease in number of adult plants observed or in the infestation area of existing sites.

Progress at our three management sites – Marchant Ridge, Ladle Bend and the upper reaches of Back Track is visible in changes to vegetation coverage in aerial photography (our aerial photography is updated every three to four years).

Aerial imagery taken in 2017 and 2021 showed few differences at these times, but on close inspection the rust colour of dead conifers can be seen.

Work at Marchant Ridge is ongoing with results visible when on site. Trees are chain sawed or drilled.

At Ladle Bend we are progressively drilling all larger pines. Under mature *Pinus radiata* we are finding fast-growing Douglas Fir is growing up and outcompeting natives. These smaller fir trees are chain sawed so that more light reaches the understorey in the shorter term.

In the Back Track area, we are progressively pushing back the invasion of wilding conifers to the pine plantations that they came from.

Marchant Ridge 2017 and 2021:

Ladle Bend 2017 and 2021:

Upper reaches Back Track 2017 and 2021:

Summary table for Progressive Containment species				
Species	**Number of adult plants**	**Number of juvenile plants**	**Infestation Area**	**Sites with plants present**
Purple loosestrife	617	2,246	118.22 ha	61%
Wilding conifers	200+	500+	16.6 ha	100%

Biodiversity Outcomes

We only take action for these species if they are in certain areas –

Purple loosestrife in wetlands or waterbodies identified as outstanding waterbodies and wetlands in the Natural Resources Plan for the Wellington region;

Wilding conifers in the Pakuratahi Forest KNE site where the alpine and sub-alpine ecosystems are at risk.

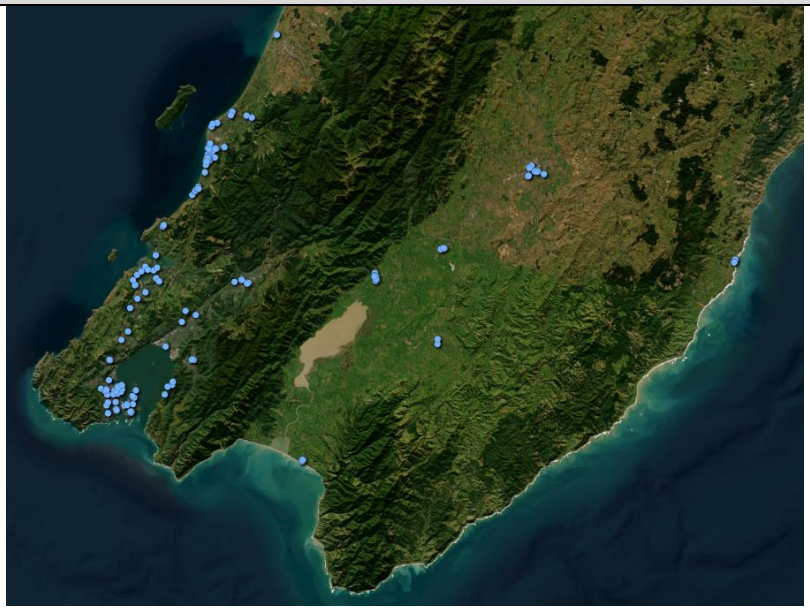
Progressively drilling larger pines (not chain sawing them, so as not to create piles of wood slash) supports the growth of the native understory. Under mature *Pinus radiata* we are finding fast-growing Douglas Fir is growing up and outcompeting natives. These smaller fir trees are chain sawed so that more light reaches the understorey in the shorter term, giving natives more of a competitive advantage.

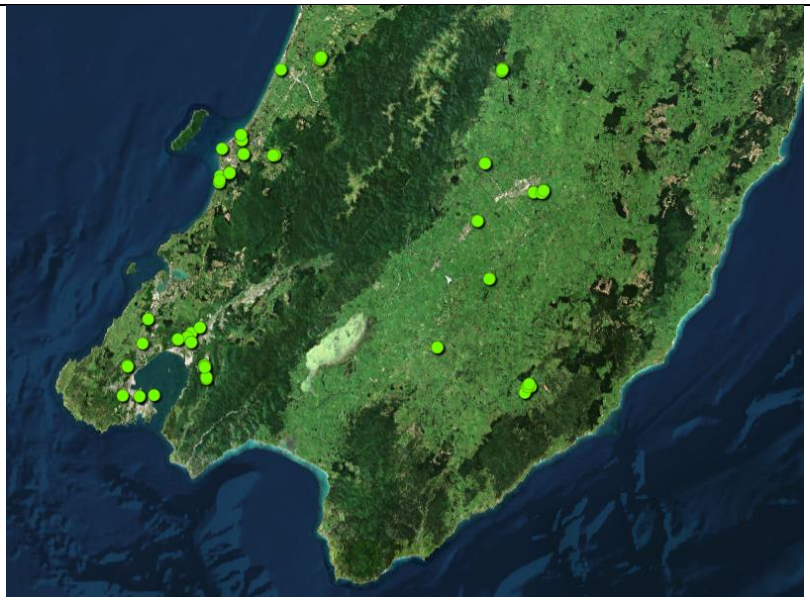
4.4 Sustained Control programme

Blue passionflower (*Passiflora caerulea*), boneseed (*Chrysanthemoides monilifera*), climbing spindleberry (*Celastrus orbiculatus*), eelgrass (*Vallisneria spiralis*, *V. gigantea*).

Aim: Control sustained control plant species to reduce their spread and minimise adverse effects.

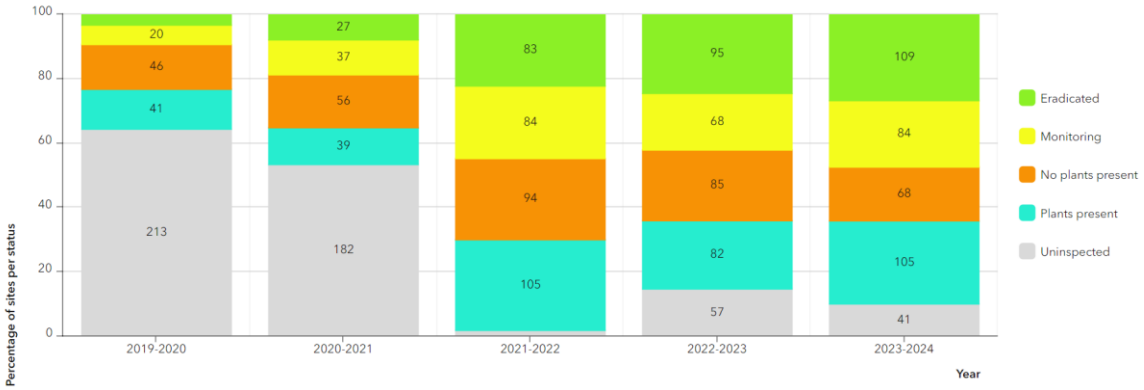
Performance Measure	**Result and Details**
Incident investigation and response Initial investigations for all reported sightings or discoveries of sustained control plants undertaken within 10 working days and decisions documented within 20 working days.	Achieved. Nine reports received and investigated within the timeframe.
Performance Measure	**Result and Details**
Best practice management All management sites visited on scheduled best practise rotation.	Eelgrass and boneseed work was completed as planned. Blue passionflower work programme 91 percent completed. Climbing spindleberry work programme 90 percent completed. Refer to species details below.
Species	**Location of new management sites**
Blue passionflower	Wairarapa – Featherston (1), Whangaimoana (1). Western zone: Strathmore Park (3), Aro Valley (3), Paekākāriki (1), Queen Elizabeth Park (1), Raumati (9), Waikanae (1).
Boneseed	Wairarapa – Tora, Cape Palliser, Ngawi. Western zone – Baring Head.
Climbing spindleberry	Wairarapa – Hinakura (3).
Eelgrass	Wairarapa - Masterton (1).

Sustained Control species management site visits 2023/24	
Species	**Active sites**
Blue passionflower	
Boneseed	

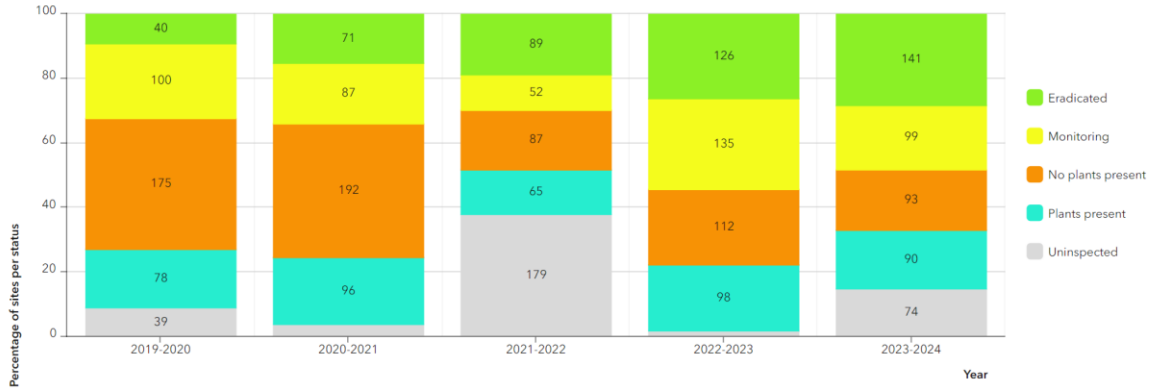
Climbing spindleberry	
Eelgrass	

Progress towards sustained control

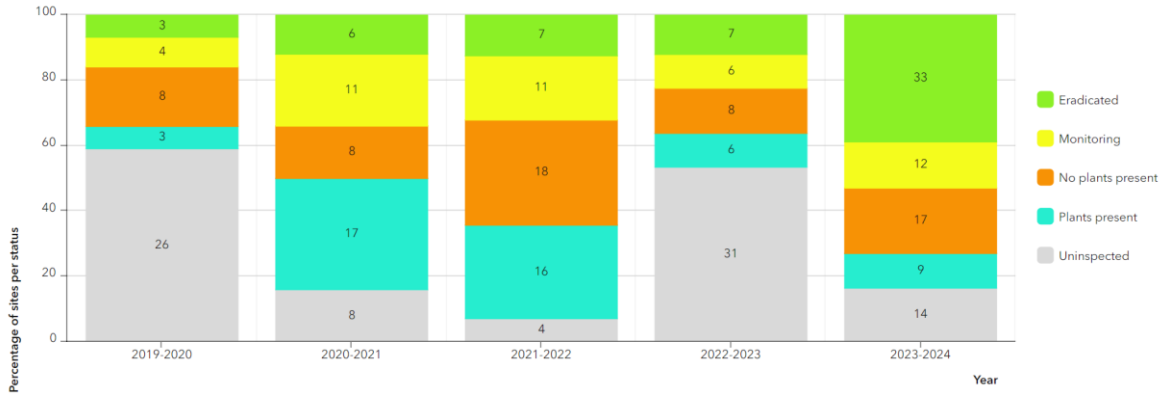
Blue passionflower management site status change over time:



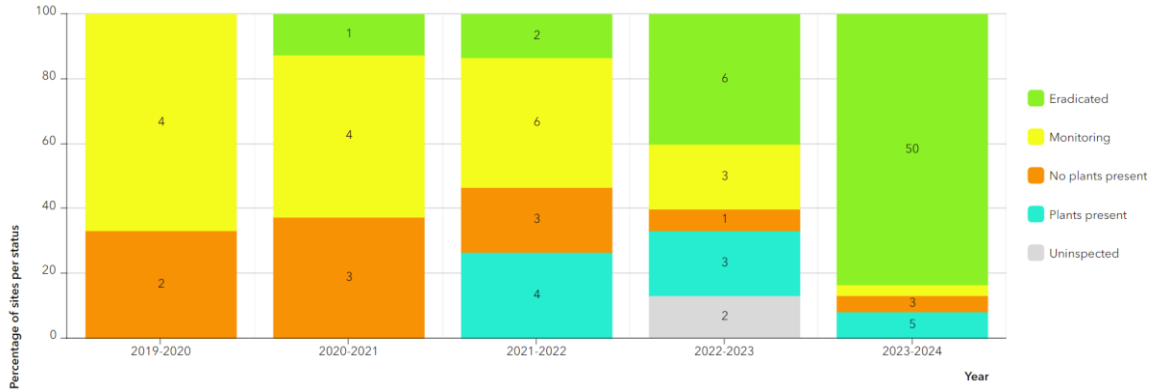
Boneseed management site status change over time:



Climbing spindleberry management site status change over time:

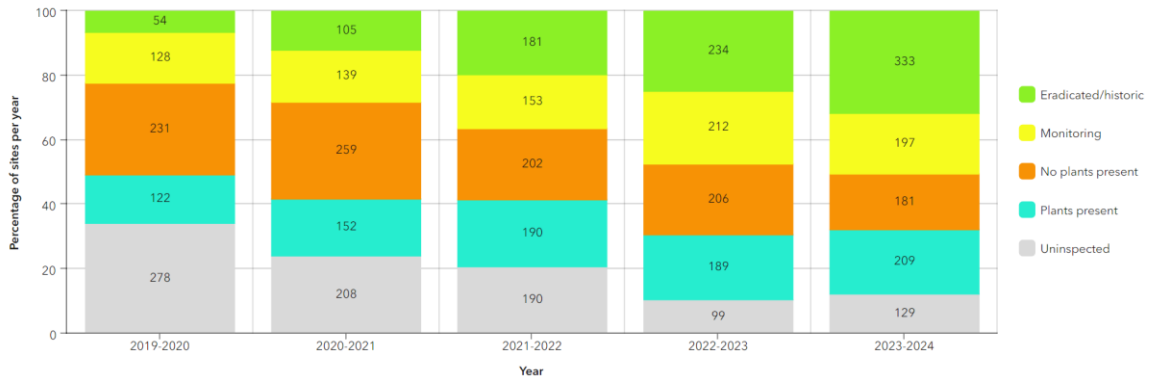


Eelgrass management site status change over time:



Summary table for Sustained Control species						
Species	**Total active sites**	**Number of sites eradicated**	**Number of adult plants**	**Number of juvenile plants**	**Infestation Area**	**Sites with plants present**
Blue passionflower	312	12	131	3,129	4.63 ha	31%
Boneseed	371	16	3,137	1,925	739.39 ha	21%
Climbing spindleberry	56	4	44	204	11.66 ha	16%
Eelgrass	11	1	112	27	1.03 ha	45%

Overall progress for Sustained Control species:



Biodiversity Outcomes

We aim to achieve an annual decrease in the number of adult plants observed or in the infestation area of treated sites and have done so this year.

Boneseed can be referred to as an ecosystem modifier. It can significantly change a habitat when left unchecked, reducing landscape heterogeneity with a monoculture of boneseed forming over time.

We have identified non-productive coastal habitats of high biodiversity value where the indigenous species and environmental values should be protected from colonisation by boneseed. One boneseed plant can produce 50,000 seeds in a year and these are dispersed by birds, so the threat imposed by this plant is substantial.

Blue passionflower and climbing spindleberry are both aggressive and invasive climbers that can smother forest canopies, may cause canopy collapse and may impact the ability of native vine species to regenerate due to the lack of light.

The work we do to reduce the density and prevent the spread of eelgrass means the natural rivers, lakes and wetlands in our region are not choked by this plant, which would lead to sedimentation, flooding and loss of habitat for native species.

4.5 Site led programme

Banana passionfruit (*Passiflora mixta*, *P. mollissima*, *P. tripartita*), cathedral bells (*Cobaea scandens*), old man's beard (*Clematis vitalba*)

Aim: Control and reduce the geographic distribution and/or extent of these species within the Hutt City Council Territorial Authority boundary (programme delivered by the Hutt City Council).

Performance Measure	Result and Details
Incident investigation and response Provide compliance enforcement assistance to the Hutt City Council (HCC) within 10 working days of receiving a request.	Achieved. Reports of 22 old man's beard, 11 banana passionfruit and one cathedral bells passed on to HCC for action within the timeframe.
Note: Hutt City Council have also added climbing asparagus and pampas to their programme and have shifted their focus to controlling these five species in their bush reserves rather than on all land within Hutt City territorial boundaries.	

4.6 Key Native Ecosystem programme

Pest plants as per (but not limited to) the RPMP Harmful Organism RPMP list. Species to target are decided individually at each site.

Aim: Protect and restore representative examples of original indigenous ecosystem types of high value in the Wellington Region (58 sites, approximately 48,000 ha). Below is the pest plant control component of this program.

Performance Measure	Result and Details
Ground based weed control Complete ground-based weed control at 55 sites.	Achieved. Control delivered at 58 sites (three additional sites). See photos on the next page for an example of what can be achieved.

Baring Head/Ōrua-pouanui in 2017, prior to lupin control on the shore.

Baring Head/Ōrua-pouanui in 2021 after successive years of lupin control.

Performance Measure	Result and Details
Aerial based weed control Complete aerial-based weed control at three sites.	Achieved. Control delivered at four sites (one extra site).

Biodiversity Outcomes

Each Key Native Ecosystem site has its own management plan for restoration and maintenance. These are long term commitments, where we collaborate with mana whenua, local councils, private landowners, other organisations, and local communities to protect the sites.

It takes many years for an ecosystem to recover from damage caused by human activities and introduced species, and the plant and animal pest control we carry out to protect native species from Invasive pests that can harm them is crucial.

Some of the key results are increases in the abundance and coverage of native species, an increase in native seedling survival and recruitment (allowing future forest regeneration), improvements in water quality, increases in habitat and resources for native species.

In addition to the more formal monitoring programmes GW has in place, our Environment Restoration team also uses a Key Values Trend Assessment 'traffic light' system to determine how sites are progressing. Ecological integrity and ecosystem pressures are gauged for each ecosystem type present at the site.

Assessments are made five-yearly when the KNE plan for a particular site needs to be reviewed. Over time we will be able to build up a picture of how a site is progressing, but for now we are still completing the initial round of assessments.

If you are interested in more detail about sites or the assessment method, please contact our Environment Restoration team via info@gw.govt.nz.

Key Values Trend Assessment looks at two factors:

Ecological integrity which is an indication of ecosystem type representation, indigenous dominance, species occupancy and ecosystem function; and

Ecosystem pressures which factors in whether a site is fenced, the range and abundance of plant and animal pests, and the intervention work that is occurring to mitigate these issues.

The arrow denotes the ecological trend, with a sideways arrow indicating no perceived change.			
KNE site	**Location**	**Assessment Year**	**Key Values Trend Assessment**
Battle Hill Bush	Porirua City	2021	
Porirua Western Forest	Porirua City	2021	
Raroa-Pukerua Coastal Escarpment	Porirua City	2021	
Wainuiomata-Orongorongo Forest	Lower Hutt City	2021	
Kaitoke Forest	Upper Hutt City	2021	
Pākuratahi Forest	Upper Hutt City	2021	
Cape Palliser Coastal Platform and Escarpment	South Wairarapa District	2021	
Te Kawakawa Coastal Platform	South Wairarapa District	2021	
Fensham Swamp forest	Carterton District	2021	
Strang's Bush	Carterton District	2021	
Omahu Wetland	Masterton District	2021	
Owahanga Dunes	Masterton District	2021	
Peka Peka Coast	Kapiti Coast District	2022	
Karehana Bay Bush	Porirua City	2022	
Belmont-Dry Creek	Lower Hutt City	2022	
Belmont-Korokoro	Lower Hutt City	2022	
Belmont-Speedys	Lower Hutt City	2022	
Wi Tako Ngātata	Upper Hutt City	2022	
Opouawe-White Rock	South Wairarapa District	2022	
Tauwharenīkau Bush	South Wairarapa District	2022	
Tora Coast Bush	South Wairarapa District	2022	
Sulphur Wells	Masterton District	2022	

Lake Waiorongomai and Stream	Kapiti Coast District	2023	
Lower Waikanae Forest Remnants	Kapiti Coast District	2023	
Ngā Manu Wetland Complex	Kapiti Coast District	2023	
Ōtaki Coast	Kapiti Coast District	2023	
Te Hāpua Wetland Complex	Kapiti Coast District	2023	
Te Harakeke Wetland Complex	Kapiti Coast District	2023	
Whitireia Coast	Porirua City	2023	
Western Wellington Forests	Wellington City	2023	
Akatarawa Forest	Upper Hutt City	2023	
Homewood Coastal Plains	Masterton District	2023	
Riversdale Coast	Masterton District	2023	
Rewanui	Masterton District	2023	
Mātaikonā Coast	Masterton District	2023	

4.7 National Pest Plant Accord

Aim: Prevent the sale, distribution and propagation of a set list of plants within the Wellington Region.

Performance Measure	Result and Details
Incident investigation and response Initial investigations for all reports of pest plants on the National Pest Plant Accord list undertaken within five working days.	Achieved. One report received.
Moth plant in a pot in a garden centre, reported to us, we passed this on to the Ministry for Primary Industries (MPI) and removed the plant. The pot contained soil contaminated with seed, which was due to conditions at the source nursery in Auckland. We inspected stalls selling plants at fairs, farmers markets, car boot sales, and other more formal events such as the Wairarapa Garden Fiesta and Martinborough Fair.	

Performance Measure	Result and Details
Events Events that sell plants monitored and retail outlets visited.	Achieved. One instance of an online sale reported.

The online sale of eelgrass - *Vallisneria* - a common name by which a number of aquarium species are known - was removed from the site once we contacted the trader. The specimen was *V. spiralis* or V. *gigantea*, species listed in our RPMP.

Image: P.B.Heenan © Landcare Research 2014.

4.8 National Interest Pest Response programme

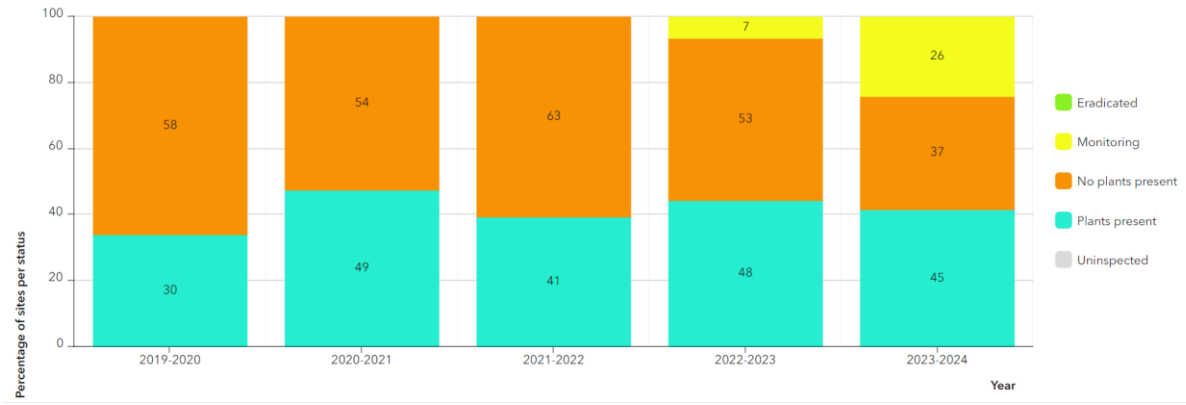
Aim: Eradicate National Interest Pest Response (NIPR) plants from the Wellington Region, as directed by the Ministry for Primary Industries.

Performance Measure	Result and Details
Identify new sites New incursion sites of National Interest Pest Response plants are identified.	No incursions identified.
NIPR species	**Identification of new management sites**
Manchurian wild rice	The number of sites is unchanged, but one treatment site has shifted to an 'interim' site classification as no plants were found there. The total infestation area remains 15.3 hectares, which includes buffer areas around the actual plants, to allow for the extensive rhizome systems.

Manchurian wild rice growing in a Northland paddock; flowerhead detail

Image: Northland Regional Council Image: NIWA

Performance Measure	Result and Details
Incident investigation and response Response to reports from the public on National Interest Pest Response plants will initially be responded to within five working days and actions completed within 20 working days.	Achieved. No reports received.

Performance Measure	Result and Details
Best practice management All Manchurian wild rice management sites visited and control undertaken on scheduled best practise rotation.	Achieved. Ground control was undertaken twice at all sites this season. Significantly more chemical was used compared to the previous year (an increase from 1.035 L to 2.392 L of haloxyfop concentrate). This is due to: • Low water levels allowing all sites to be accessed on foot – not the case in previous years • New infestations within sites • An increase in the size of existing infestations • Better spray practice and overall coverage.
Progress towards eradication	
Change in Manchurian wild rice infestation status for the Wellington region  We aim to see an annual decrease in the number of adult plants observed and in the infestation area of existing sites. This was not achieved this year, but as the reason was wetland conditions allowing us greater access than previously, we consider that progress has been made overall. We have 11 sites, of which two are monitored sites and one is now an interim site. • Treatment sites have live foliage. • Interim sites have had no live foliage found for up to two years. • Monitored sites have had no live foliage found for two to ten years. • After ten consecutive years of no live foliage found, a site is classified as Eradicated.	

4.9 Biocontrol programme

Aim: Undertake Biocontrol for prioritised target weeds in the Wellington region.

Performance Measure	Result and Details
Release and transfers of biocontrol agents Biocontrol agents are released (directly from Manaaki Whenua Landcare Research) or transferred from other translocation sites.	Achieved. $10,120 spent on Biocontrol monitoring and transfers plus our contribution to ongoing research.
Several sites were investigated across the Wellington rohe to see whether they would be suitable for receiving transfers of old man's beard gall mite. Samples from old man's beard growing at the sites were examined under microscopes. It was confirmed that every site already had the mite present, showing it has spread quickly via natural means and is now widespread, with further transfers not required. It is expected that visible results from the damage caused by the mite will be visible in approximately three years (five years after the initial release). Monitoring will continue opportunistically to observe the spread and check for visible results. Ragwort plume moths were transferred to two sites. Monitoring shows it is now established in the region, and transfers are accelerating the distribution. Public enquiries and requests for ragwort agents are reasonably common. Requests for green thistle beetles from landowners are not uncommon. An attempt to transfer green thistle beetle was unsuccessful as not enough beetles were able to be collected. However, most sites looked at already have the beetle present, so further transfers may be unnecessary. Horizons Regional Council was contacted about a transfer of field horsetail weevil. The weevil is established in the Horizons region but not in the Wellington region. However, field horsetail weevil numbers weren't high enough at the collection sites for a successful transfer to occur. If weevil numbers increase in the future a transfer will be reconsidered. At the request of Manaaki Whenua Landcare Research (MWLR) we have begun collecting leaf samples from tree-of-heaven and moth plant for genetic analyses.	
Performance Measure	**Result and Details**
Progress towards establishment Monitor agents until it is determined that a given agent has successfully established and is self-spreading or has failed to establish.	Achieved. Refer to species details below.
An adult Honshu butterfly was seen late in the season at one site in Houghton Bay, and signs of caterpillar feeding on Japanese honeysuckle were seen at nine of the 11 original release sites. This shows at least one generation has been successfully	

produced at the Houghton Bay site and possibly at the other locations. They will hopefully persist and spread from the initial release sites.

Monitoring of the previous year's releases of tradescantia yellow leaf fungus shows that at three of the four sites the fungus has established and spread. The sites are now well enough established that the fungus can be collected and transferred from these sites to others. There is a lot of interest in this biocontrol agent, so further transfers to encourage the spread will likely be undertaken in the next year.

Summary of Biocontrol agent status for 2023/24

Biocontrol Agent	Release year	Number of Releases	Monitoring Results
Boneseed leaf roller	2007	8	Suspect failure
Broom gall mite	2009	800+	Widespread
Broom leaf beetle	2009	3	Uncertain
Broom psyllid	1995	1000+	Widespread
Broom seed beetle	1994	600+	Widespread
Broom shoot moth	2008	3	Uncertain
Buddleia leaf weevil	2007	100+	Widespread
Darwin's barberry seed weevil	2016	4	Present
Gorse colonial hard shoot moth	2002	5	Failed
Gorse pod moth	1997	abundant	Widespread
Gorse soft shoot moth	2007	12	Widespread
Gorse spider mite	1989	abundant	Widespread
Gorse thrips	1990	abundant	Widespread
Hemlock moth	-	-	Widespread
Japanese Honshu white admiral butterfly	2017	11	Present
Mistflower gall fly	2001	3	Established
Mistflower fungus	2009	1	Established
Old man's beard leaf fungus	1997	3	Failed
Old man's beard leaf miner	1995	abundant	Widespread
Old man's beard sawfly	2002	2	Failed
Old man's beard gall mite	2021	4	Widespread
Privet lace bug	2015	1	Failed
Cinnabar moth	2006	abundant	Widespread
Ragwort plume moth	2012	11	Established
Ragwort flea beetle	1988	abundant	Widespread
Smilax rust	2020	19	Uncertain
Californian thistle flea beetle	1994	2	Failed

Californian thistle gall fly	2006	1	Failed
Californian thistle leaf beetle	1993	3	Failed
Californian thistle stem miner	2010	2	Uncertain
Green thistle beetle	2008	200+	Widespread
Nodding thistle receptacle weevil	1972	9	Widespread
Nodding thistle crown weevil	1990	4	Established
Nodding thistle gall fly	2005	12	Established
Scotch thistle gall fly	2005	79	Widespread
Tradescantia leaf beetle	2011	12	Established
Tradescantia stem beetle	2012	10	Suspect failure
Tradescantia tip beetle	2013	9	Suspect failure
Tradescantia yellow leaf spot fungus	2018	10	Establishing

Biodiversity Outcomes

Biocontrol agents are a safe, cost-effective and important tool to help manage weed populations when the other management options are limited due to how widespread and established the pest plant is. Once established, the biocontrol agent can reduce the health of a pest plant population, meaning weeds don't spread as quickly and they are more likely to be outcompeted by other plants. This process often takes years for a biocontrol agent to reach an abundance that has an impact on the target species.

Tradescantia yellow spot fungus is an example of a biocontrol agent that, now it is establishing, is likely to create significant benefits for our natural areas. Tradescantia is a common weed in the Wellington region, and forms thick blankets of vegetation across the ground, smothering low-growing plants. In other areas of New Zealand where this biocontrol has been present for longer, some tradescantia sites have experienced significant damage, allowing native regeneration to occur and preventing the spread of the weed.

Old man's beard is a weed that receives significant public attention and GW often receives requests for assistance to control old man's beard infestations. The old man's beard gall mite has exceeded expectations in spreading around the region with little assistance. It is expected that as mite numbers increase old man's beard around the region will start showing visible signs of infection. The feeding by the mites will cause growth abnormalities in the developing shoot tips and leaves, slowing growth and possibly causing shoots to die. The closely related broom gall mite that was introduced in 2008 had major impacts on broom populations in the Wellington region and around New Zealand, and we hope to see similar results for old man's beard.

4.10 Check, Clean, Dry programme

Aim: Keep waterways in the Wellington Region free of invasive freshwater pests.

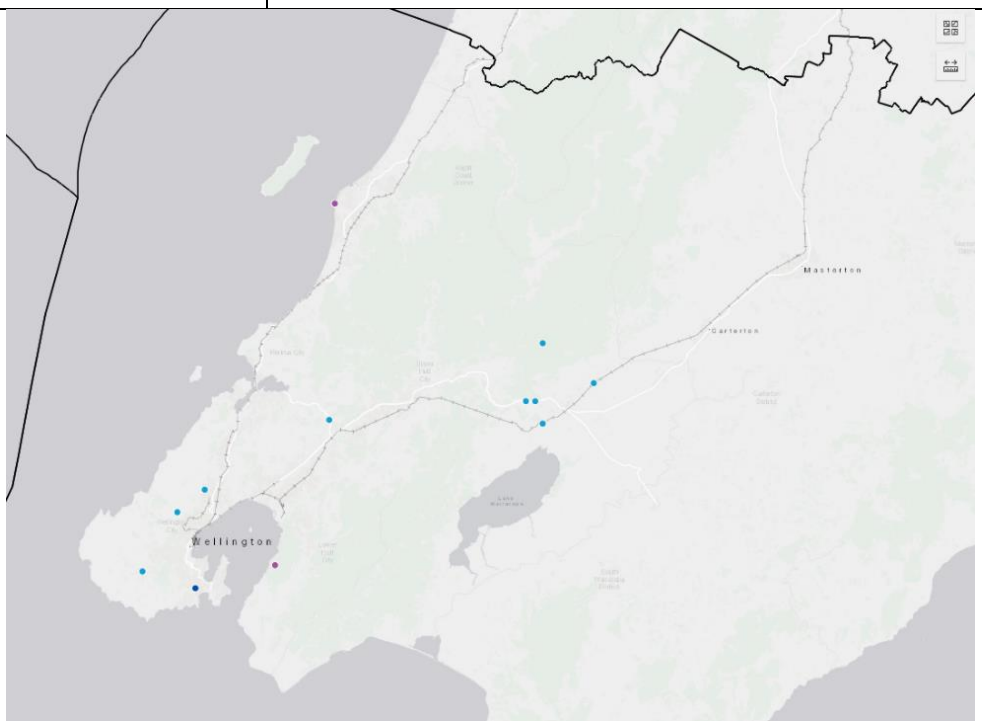
Performance Measure	Result and Details
Promote CCD message Attend outdoor/freshwater events. Produce regular social media posts during summer. Distribute CCD resources to relevant retailers etc in the region.	Achieved. Four events attended (two were not held). These were: • Big Bang Adventure • Crazyman (Lower Hutt) • Kakahi Count - Western Lake Reserve • Karapoti Classic – Akatarawa. We had ten different boosted social media posts throughout season, and four paid advertisements over the summer period.
To raise awareness in the region, our tactics included waterside advocacy, attending events, signage in strategic locations, collateral distribution, media. Conversations and communication with public showed a similar rate of awareness of the Check Clean Dry messages to the previous year (about 85 percent of people were aware). Some water-side advocacy and communication showed about 90 percent of people were adhering to the CCD procedures. Collateral was distributed to multiple stores throughout region as well as at events for engagement. Messaging was distributed via community newsletters and mailing groups. Four TLA's include CCD requirement in permits, the remaining TLAs in the region don't issue permits for freshwater activities.	
Performance Measure	**Result and Details**
Waterside CCD signs maintained Review and maintain 73 waterside signs at least once over the season.	Achieved. All signage (74 signs) visited twice and replaced with new signs for updated species and procedures.

5. Kīrearea | Pest Animals

5.1 Exclusion programme

Wallaby (*Macropus rufogriseus*, *Macropus eugenii*).

Aim: Prevent the establishment of wallabies in the Wellington Region.

Performance Measure	Result and Details
Identify new sites New incursion sites of wallabies are identified.	Achieved. No incursions. Twelve wallaby sightings were reported in the Wellington Region: One sighting was inside containment at Wellington Zoo – these animals are permitted, no investigation was required. The other 11 sightings were outside of containment, two of which were deemed unreliable sightings post questioning, and nine of which remained unconfirmed following initial investigation.
 Wallaby sighting report locations	
Incident investigation and response Initial investigations for all reports undertaken within five working days.	Achieved. Initial investigation of nine potential incursions was undertaken within five working days of each report.

Response plans developed and implemented within 20 working days. Continue to work with MPI and provide surveillance activities for the Kaitoke eradication.	The historic wallaby control site at Kaitoke was inspected with detection dogs twice, six months apart as part of the two-year post control surveillance to confirm absence. There were no further dog detections or sightings reported in the area, and the site is now declared wallaby free.
Incident investigation and response Report on sites of interest/recent investigations.	Achieved. Twenty-three trail cameras were deployed for a total of 483 days over seven sighting locations during investigations.
Biodiversity Outcomes	
Currently, wallabies in the North Island are found on Kawau Island in the Auckland region and in the Rotorua Lakes area. Containing them to these areas – preventing their spread – makes eradication possible. The damage wallabies do (damaging native forests and preventing regeneration, destroying habitat for native species, competing with livestock for feed resources, increasing erosion risks and decreasing water quality) are magnified when added to the impacts caused by other invasive herbivores already present. Keeping wallabies out of our region prevents a decrease in the resilience and quality of our native biodiversity.	

5.2 Eradication programme

Rook (*Corvus frugilegus*)

Aim: Eradicate all rooks from the Wellington Region.

Performance Measure	Result and Details
Identify new sites Historic rookeries and new reported rookeries are surveyed.	Achieved. Five breeding rookeries identified.
For the 2023/24 year there were eight rookeries in the Wairarapa where rooks were detected. Three of those sites only held empty nests and were not active (there were no birds present) at the time of baiting, therefore we can assume that we currently have five breeding rookeries in Wairarapa.	

All eight active rookeries (birds sighted in residence) were situated in the northern Wairarapa with none to be found in the southern Wairarapa.

No rooks were identified around Wellington or along the Kāpiti Coast this year, indicating that these areas remain rook free.

Biosecurity Officers needed to exercise Powers of Enforcement under the Biosecurity Act to gain access to one property for rook control work to be completed this year.

There is a confirmed population of 17-20 rooks living in the vicinity of Pirinoa, yet our aerial surveillance showed no sign of new infestations.

Looking forward, we intend to maintain a high level of surveillance, including both ground and aerial surveys, assisted by public sightings and reports.

The placement of roadside 'Look for Rooks' signs was a worthwhile expense and exercise, as were the media releases that went out to the public and rural farming communities. These requested the public to report sightings or suspected sightings of rooks. Both forms of advertising raised the level of awareness with the public in general.

Performance Measure	**Result and Details**
Best practice management Control (by aerial nest treatment or ground control) of rooks at all known sites is undertaken.	Achieved. Nine nests controlled that held eggs or chicks. Twenty-three nests controlled that were fresh but did not contain eggs or chicks.

Active nest numbers (those containing eggs or chicks) have reduced by 12 (from 21) from the previous year.

Empty nests at one rookery were removed so that next season it will be easier to determine what level of nesting activity is taking place.

At the five Wairarapa rookeries, nine active nests containing eggs/chicks were located and treated. Twenty-four empty nests were treated; rooks may have ingested the toxin during preening. One additional nest had chicks that had fully fledged prior to us undertaking control.

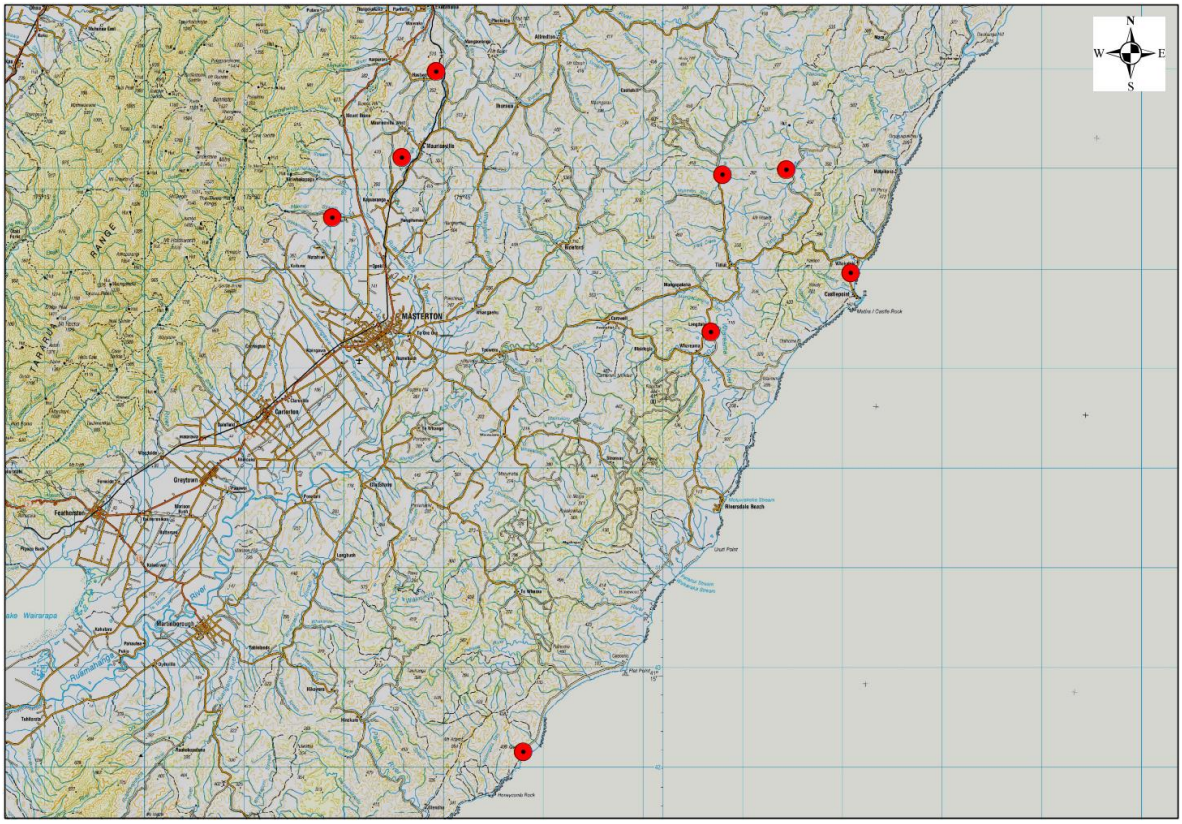
Only 2 kgs of DRC1339 gel bait was applied in total over the Wairarapa this year.

We will continue to collaborate with Horizons Regional Council to keep our northern boundary under the present level of control.

By maintaining the rook-free status of the Wellington / Kāpiti Coast we can ensure that the few rooks that visit infrequently do not settle and breed.

We will continue with the summer ground baiting programme to target small satellite groups of rooks as and when appropriate.

Wellington Region active and controlled rookery sites (all in Wairarapa), 2023:



Progress towards eradication

The aerial survey and control programme was completed later than scheduled due to adverse weather conditions. This delay meant that several chicks made it through to fledging and were missed from baiting.

Total numbers of breeding rooks are now so low that this could be a significant impediment to achieving total eradication by 2029. These fledgelings are not likely to breed until they are two years of age, meaning that they will likely avoid being destroyed next season.

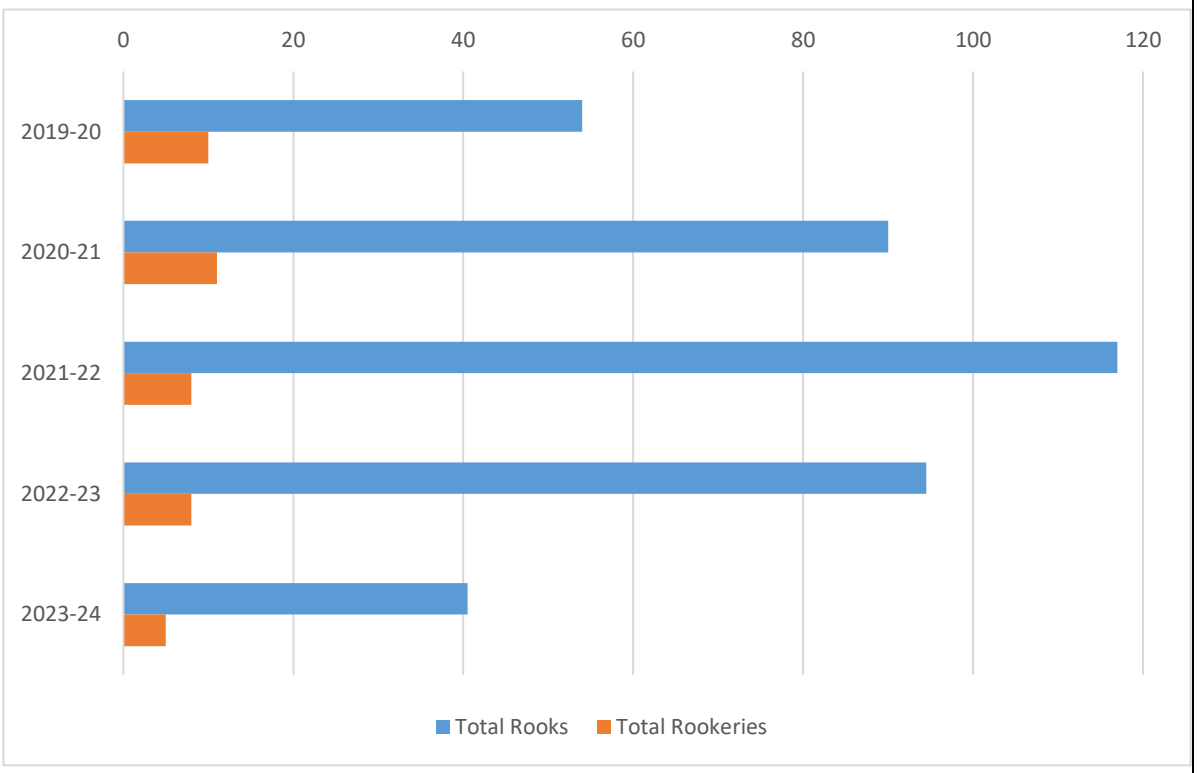
Despite this, it is our view that our region's rooks are at crisis point.

Horizons Regional Council have also had a reduction in nests treated over their region this year. This is really positive news for both regions.

We estimate that we have 54 birds less than the previous year. The accepted industry method for estimating population size (see www.bionet.nz publication A6), suggests the Wellington region has around 41 birds present, most of which would be male and will eventually die out without breeding. However, the rook population over the Wellington region is significantly larger than the industry estimate calculates.

We aim to see an annual decrease in the number of rookeries in the region. This was achieved with three less breeding rookeries than the previous year (See the trends in the following two graphs).

Wellington Region rook trends for the duration of the 2019-39 Regional Pest Management Plan:

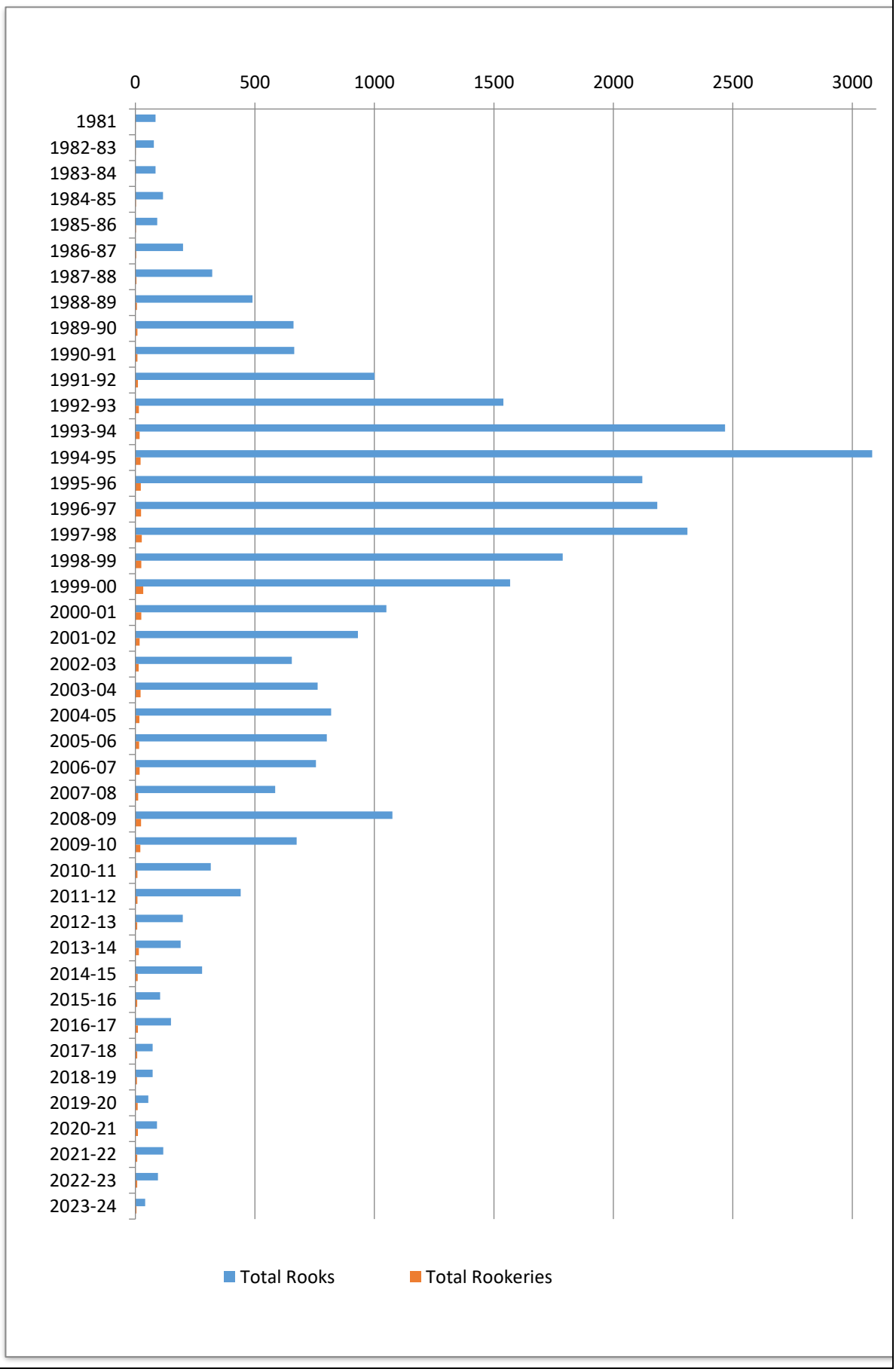


Biodiversity Outcomes

Rooks are primarily an agricultural pest and tend to return to selected fields every day until the food resource (such as sprouting seeds) runs out, which is devastating for the crops in question. Without control, rook populations can increase and spread across the landscape quickly, causing significant financial costs to farmers.

Arable farmers across the region have enjoyed a largely rook-free season with no crop damage reports received. This is a significant achievement and provides robust evidence that the current rook control methodology is fit for purpose.

Historic rook trends since control began in the Wellington Region:



5.3 Sustained Control programme

Feral rabbit (*Oryctolagus cuniculus*), wasps (common wasp – *Vespula vulgaris*, German wasp – *V. germanica*, Australian paper wasp – *Polistes humilis*, Asian paper wasp – *P. chinensis*).

Aim: Sustained control of rabbits to minimise adverse effects to the environment and maintain populations below Level 5 McLeans Scale (See Appendix 2).

Performance Measure	Result and Details
Public enquiries Response to public enquiries about feral rabbits undertaken within 10 working days.	Achieved. 154 enquiries received, with another 49 enquiries regarding sale of control measures.
Performance Measure	**Result and Details**
Cost-recovery management Appropriate control undertaken at sites for: • Hutt City Council (HCC) • Kāpiti Coast District Council (KCDC) • South Wairarapa District Council (SWDC) • Upper Hutt City Council (UHCC) • Wellington City Council (WCC) • Te Awa Kairangi – Hutt River • Ōtaki River • Waikanae River • GW's Recloaking Papatūānuku programme • Private land owners	Achieved. Feral rabbit management undertaken across 47 distinct sites using night shooting, across 51 sites with pindone carrot or pindone pellets and on one site using magtoxin.
Pindone and magtoxin control	
GW manufacture and apply pindone carrot bait for private landowners, at their cost. We used 37.7 L of pindone concentrate, which corresponds to 7,540 kg of pindone carrot bait applied within the region. Key areas of control were the Wellington City Council's Skyline walkway, Kāpiti Coast District Council Pharazyn Reserve and NZTA parcels along the Waka Kotahi Kāpiti Coast expressway. These are rabbit prone areas and the location of many complaints from the public. In addition, we applied 250 kg of pindone pellets (note the pellets are used to control both possums and rabbits) during the year, highlighting the fact that rabbits are a continual issue. Magtoxin is a useful tool during breeding season for controlling young rabbits that won't be eating bait or in locations where pindone or shooting is not a suitable control method. Staff	

undertook control at one location for Kāpiti Coast District Council at Waikanae Park. GW no longer sells magtoxin to the public.

Night shooting

We carry out night shooting throughout the year for rabbit control around the region, often on a monthly schedule for particular areas or sites. This is both to reduce rabbit numbers, and in some cases to specifically protect planting sites.

Our work in HCC and WCC sites, which has been ongoing for a number of years, has resulted in sites consistently showing little to no sign of rabbits. Consequently, we have been able to shift our focus to other parks and reserves in HCC and WCC areas where, after initial thermal surveys, we identify new target populations for control.

Other key areas we work at include night shooting for plant protection at Lake Domain, Ōnoke Spit and Kahutara Lagoon, around Wairarapa Moana, and in our regional parks to assist with the Recloaking Papatūānuku work programme.

We also carried out nine nights of rabbit control on private properties, shooting 378 rabbits.

View from Belmont while night shooting for rabbits and hares at replanting sites.

Image: S. Thompson.

Performance Measure	Result and Details
Monitoring Regional trends are assessed using Modified McLean Scale, Kilometre night counts and fly testing for Rabbit Haemorrhagic Disease presence.	Achieved. Average rabbits per kilometre:

Zone	2022/23	2023/24
Western	13.67	15.6
Eastern	1.82	1.98

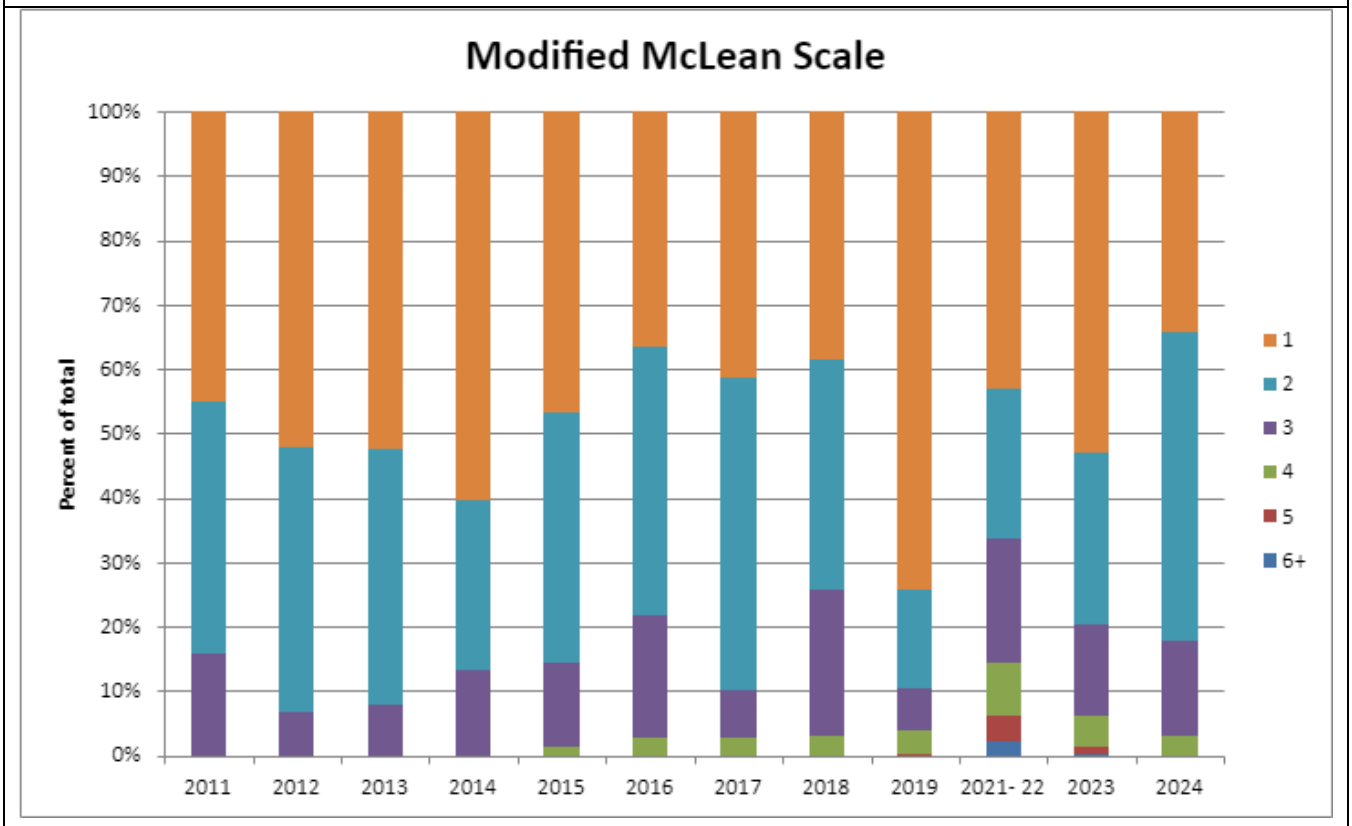
We first used the rabbit night count methodology in 2021/22, along the Te Awa Kairangi/Hutt River and the Waikanae River.

The last two years have included rabbit night count routes along the WCC's Skyline Walkway ('Western zone'), and on six Wairarapa properties ('Eastern zone'), with night counts conducted in May 2023/24.

The line at WCC Skyline had the highest count with 324 rabbits recorded over 10 kms. This was prior to the pindone poison operation. A repeat post-pindone operation count was 96, indicating a 70 percent reduction.

In addition to night counts we put 40 fly traps out at 13 sites around the region (seven in the east, six in the west) for rabbit virus sampling. MWLR analyse the samples.

Only three traps in Waikanae showed a positive RHVD result. However, this was the V2 strain and not the more virulent V1 or K2 strain.



Modified McLean Scale monitoring (MMS) is a survey method we carry out annually, at the same sites. This gives us a constant sample of how the region is tracking with rabbit population density. The last two years have shown a continued decline in moderate to high density populations (4-6 on the MMS) from the heights of 2021/22. Rabbit populations in the sites assessed are primarily low-moderate (1-3 on the MMS). Many of these sites do receive rabbit control to some degree. But not all, so this is a useful way to measure overall regional population variance.

Biodiversity Outcomes

We can't account for the number of rabbits removed due to pindone or magtoxin control, but the outcomes are measured as a reduction in the levels seen in monitoring methods such as the Modified McLean Scale of rabbit infestation (see Appendix 2).

Combined with targeted removal of ungulates, hares and possums, this takes a significant amount of browsing pressure off new plantings in the region. Most of the hares we control are targeted in regional parks around Recloaking Papatūānuku restoration sites.

Aim: Sustained control of wasps to minimise adverse effects to the environment and protect human health.

<table>
<tr><th>Performance Measure</th><th>Result and Details</th></tr>
<tr><td>Public enquiries

Response to public enquiries about wasps undertaken within 10 working days.</td><td>Achieved. Total of 11 wasp complaints in the region
<table><tr><th>Area (TLA)</th><th>Number of nests reported</th></tr><tr><td>CDC</td><td>0</td></tr><tr><td>HCC</td><td>4</td></tr><tr><td>KCDC</td><td>2</td></tr><tr><td>MDC</td><td>0</td></tr><tr><td>PCC</td><td>1</td></tr><tr><td>SWDC</td><td>1</td></tr><tr><td>UHCC</td><td>2</td></tr><tr><td>WCC</td><td>1</td></tr></table></td></tr>
<tr><th>Performance Measure</th><th>Result and Details</th></tr>
<tr><td>Cost-recovery management

Appropriate control undertaken at sites.</td><td>Achieved.
We refer landowners to contractors, and only undertake control ourselves on public land and where a nest is a threat to public health.</td></tr>
<tr><th colspan="2">Biodiversity Outcomes</th></tr>
<tr><td colspan="2">Wasps are controlled for the threat they present to the general public, and in industries such as apiculture, viticulture, forestry and agriculture. The occurrence of wasps, whether Vespula (common and German wasps) or Polistes (paper wasps) species at high densities in native ecosystems are a threat to native invertebrates from predation and competition for food resources.</td></tr>
</table>

6. Kaupapa - whakahaere ā-pae | Site led programmes

6.1 Predator Free Wellington

Mustelids (ferrets – *Mustela furo*, stoats – *M. erminea*, weasels – *M. nivalis*), possum (*Trichosurus vulpecula*), rats (*Rattus norvegicus*, *R. rattus*).

Aim: Eradicate mustelids, possums and rats from land contained within the boundaries of the Predator Free Wellington initiative (Phase one - Miramar Peninsula; Phase two - Owhiro Bay to CBD).

Performance Measure	Result and Details
Community engagement Permission gained from landowner /occupiers to work on private land. Community enabled and trained to commence predator control work in Phase two and biosecurity work in Phase one. Support for project from community maintained.	Achieved. See detail below.
All land access needed to date has been secured by community outreach initiatives. As the operation requires more permissions, those needs are met by the Community Outreach and Field teams. Volunteer involvement is continuing to grow. The community are now taking on substantial parts of eradication efforts in the public spaces in Wellington. Wellingtonians are now being contacted by text and email as an improved process to inform them of our visits to their properties. Public support remains high with staff being welcomed onto properties, largely due to the work invested in creating and maintaining relationships with our stakeholders. A great deal of effort is invested in community outreach. We consider it our obligation to share what we have learned and do in this space, with any other community that wants to use this knowledge Regular community presentations occurred during the year, to schools, kindergartens, Wellington College and Victoria University, community groups such as residents associations, rotary clubs, Lions Clubs, other Predator Free groups, and to events such as community fairs, the Kotahi Music Festival.	

Performance Measure	Result and Details
Progress towards eradication	
Eradication of target species (*Rattus rattus*) on the Miramar Peninsula.	Achieved. Phase one (Miramar Peninsula) has been eradicated/eliminated of ship rats, Norway rats, stoats and weasels. No possums were present. As per any elimination project there are incursions into the cleared area. These are detected and responded to accordingly.
Establish Phase one biosecurity network and maintain predator freedom.	Achieved. A biosecurity network is in place in Miramar and in cleared areas of Phase two. This consists of an intensive camera network, community reporting and a regular inspection by a rodent detection dog. The community are managing large parts of this network in collaboration with the PFW team.
Commence eradication of target species in the Phase two area	Achieved. The PFW team are operational in over 500 hectares of the Phase two area, with approximately half of that operational area now just monitored for target species after being cleared of them by the team.
Species	**Result and Details**
Norway rat	Eradicated. Norway rats have been eradicated from the Phase one operational area. There were several incursions through the year, detected by camera traps. Two Norway rats were caught.
Ship rat	Ongoing. Ship rats eradicated/eliminated in the Phase one area with only incursions being controlled. Ship rats are being eradicated from the Phase two area with techniques learned from Miramar being applied to these new areas.
Ferret	Eradicated. No evidence of ferrets in Wellington City operational areas to date.

Stoat	Eradicated. The PFW team spent time hunting a stoat that arrived on the Miramar Peninsula and worked with the community to cull this animal. After a lot of hard work, particularly from a dedicated contingent of volunteers the stoat was caught. The team used different lures and took advice from an expert to adjust techniques.
Weasel	Eradicated. No evidence of weasels in the Phase one area.
Possum	Eradicated. Miramar Peninsula has been 'possum free' since 2006.

The team have had groundbreaking successes in this last year and have a proven 'recipe' for eradication. Over time the process will continue to be improved and refined.

Being a world first capital city, multi species eradication/elimination initiative, the PFW Project has developed a replicable template for predator free projects working in urban environments across the region, and all of New Zealand.

Our strategies have continually evolved, allowing substantial reductions in the cost per hectare. The focus for the team, amongst other things, is to continually become more efficient, faster and more economical while still delivering the desired outcomes.

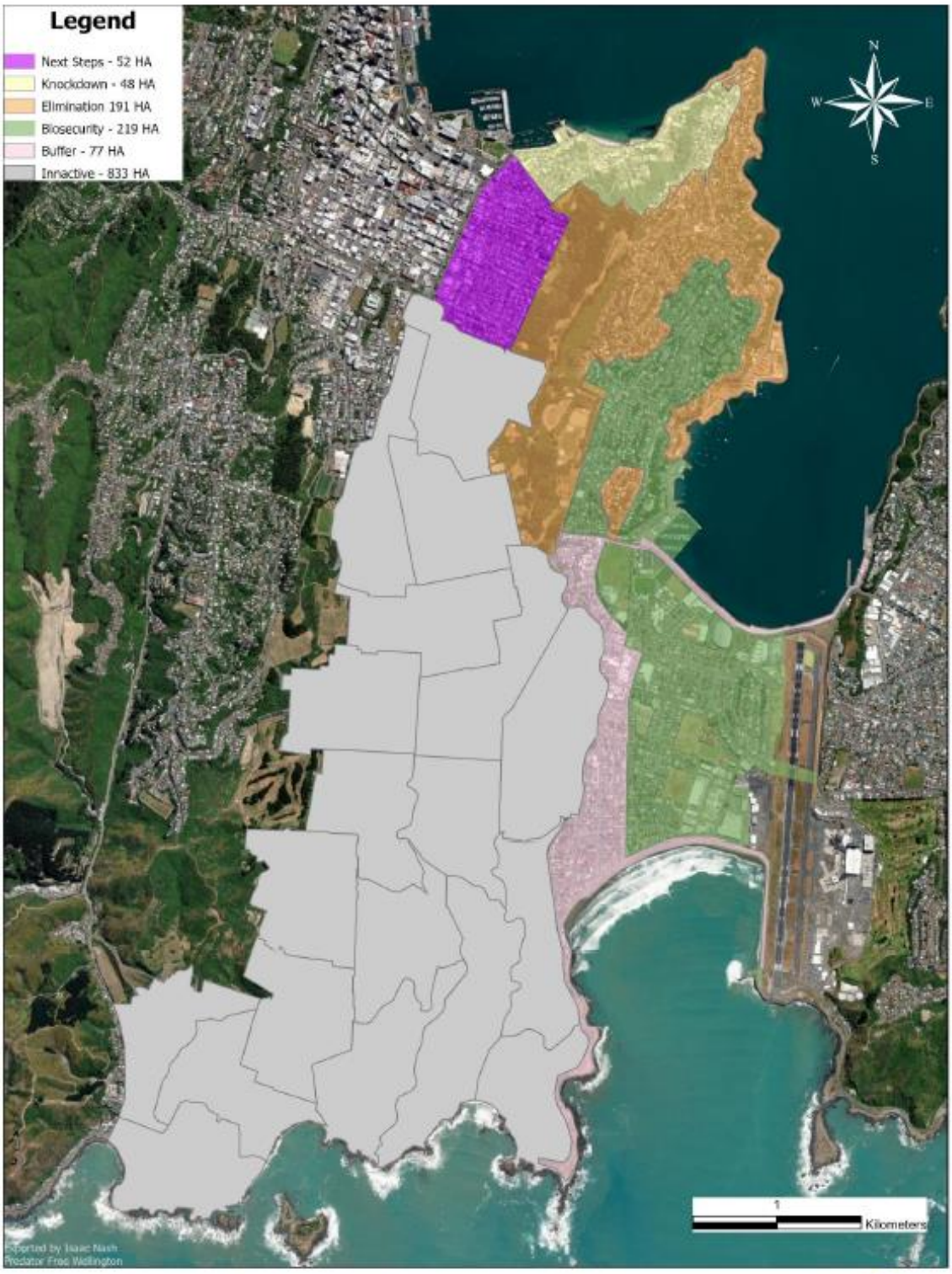
Biodiversity Outcomes

With the elimination and reduction of the target species many native species have been given the space to thrive and proliferate.

Kārearea (falcon) have been successfully breeding on Miramar for several years now and for the first time, species such as kākāriki (red crowned parakeet) and kākā have been recorded on detection cameras.

Since the project began there has been a 91 percent increase in native bird detections in the most recent bird count monitor.

There is widespread and equitable participation across the project. This means the ecological and wellbeing benefits, such as rat free homes or increased wildlife, and potential benefits of participating, such as improvements to people's psychological, physical and social wellbeing, are not limited to particular sectors of society.



Phase 2 Operational Zones

As of 20th August 2024

PREDATOR FREE WELLINGTON

Greater Wellington
Te Pane Matua Taiao

6.2 Regional Predator Control programme

Mustelids (ferrets – *Mustela furo*, stoats – *M. erminea*, weasels – *M. nivalis*), possum (*Trichosurus vulpecula*), pest cat (*Felis catus*).

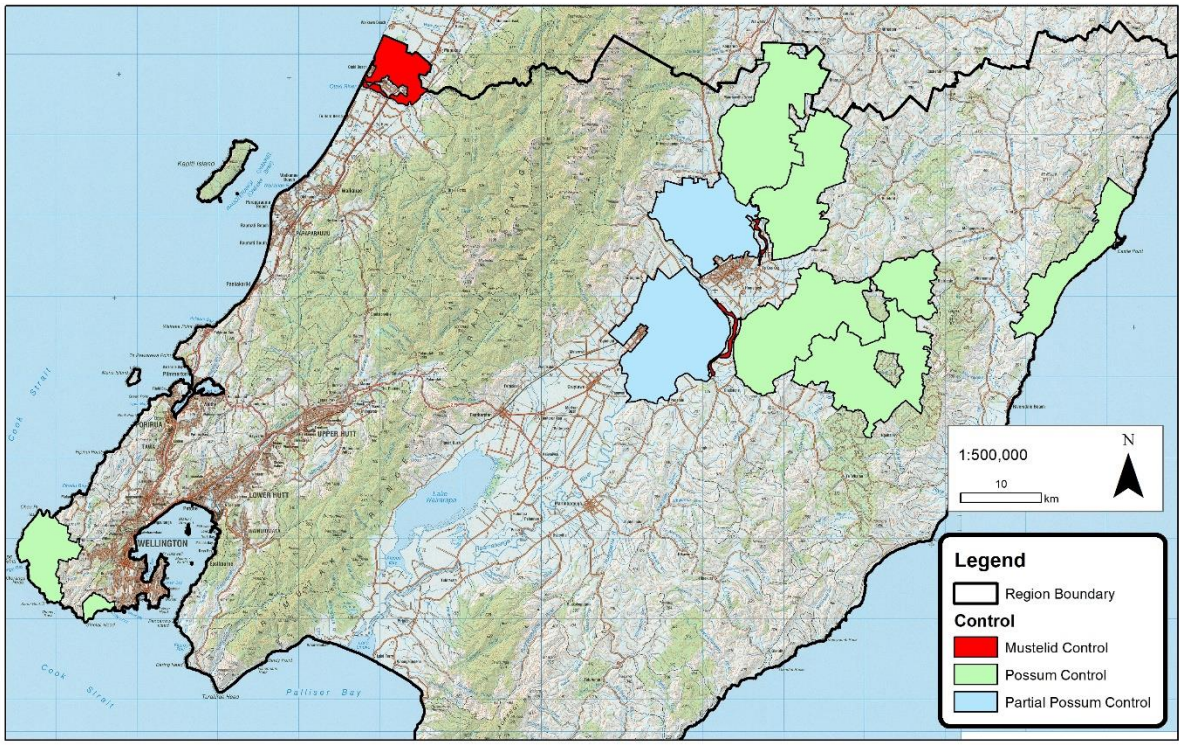
Aim: Control possums and other predators that are a serious threat to our native biodiversity and economy.

Performance Measure	**Result and Details**
Possum management Planned control at all possum management sites completed (**89,727 hectares** of the total RPCP area of 94,021 hectares).	Predominantly achieved. Note that the total area below of 89,952 hectares is slightly larger than the original planned area. Refer site details below.

Summary of 2023/24 management activities			
Site	**Whaitua (catchment)**	**Area (ha)**	**Control activities completed?**
Mauriceville	Ruamahanga	14,676	95% complete. Completed July 2024.
Whangaehu	Ruamahanga	11,576	100%
Tauweru	Ruamahanga	14,615	100%
Blairlogie	Ruamahanga	4,538	100%
Waipoua	Ruamahanga	4,268	100%, although the total operational area was not proposed for control.
Carterton Taratahi	Ruamahanga	13,773	100%, although the total operational area was not proposed for control.
Castlepoint	Eastern Wairarapa	7,220	98% complete. Completed July 2024.
Stronvar	Eastern Wairarapa	13,720	100%
Terawhiti	Te Whanganui-a-Tara	4,837	100%
Te Kopahou	Te Whanganui-a-Tara	729	100%
Total		**89,952**	

Regional Predator Control Programme 2023/24 control areas

The following map shows the 'total' areas in which we carried out all planned possum and mustelid control and areas where total possum control was not required.



2023/24 - RPCP Controlled Areas.

Performance Measure	Result and Details
Possum Monitoring Monitor possum populations monitored at selected sites.	Achieved. Two monitoring projects completed.

Possum monitoring using waxtags was planned and undertaken in the Stronvar and Castlepoint operational areas. The control work was completed late in the year, which delayed the commencement of monitoring activities.

Results

Stronvar (13,720 hectares) was monitored during June-July. A waxtag index of 6 percent was achieved, this is comparable to a residual trap-catch index of 1.0 percent.

Castlepoint (7,220 hectares) was monitored during July-August. A waxtag index of 16 percent was achieved, this is comparable to a residual trap-catch index of 3 to 4 percent.

Performance Measure	Result and Details
Predator management Planned control at all predator management sites completed (**4,294 hectares** of the total RPCP area of 94,021 hectares).	Achieved. Work at all sites was completed.

Summary of 2023/24 management activities							
Site	**Whaitua/ catchment**	**Area (ha)**	**Number of trap services planned for the year**	**Ferrets Trapped**	**Stoats Trapped**	**Weasels Trapped**	**Pest cats**
Ruamahanga	Ruamahanga	174	8	3	2	4	7
Ōtaki	Kāpiti	3,694	8	4	5	10	14
Te Whiti	Ruamahanga	426	8	2	3	10	29
Total:				9	10	24	50
The following were not targeted species but were also trapped: 241hedgehogs, 145 rats.							

Biodiversity Outcomes
Possum monitoring implications: Information on the possum population level is helpful when determining the level of control inputs applied to various operational areas. RTCI targets in conservation operations and the RPCP are typically set at < 5 percent. The results we achieved – using a different monitoring method (waxtags), but equivalent to residual trap catch indices of 1% and 3-4% - are well within the general level that is set as a standard to be met.

6.3 Biosecurity Services programme

European hedgehog (*Erinaceus europaeus occidentalis*), feral deer – fallow, red and sika (*Dama dama*, *Cervus elaphus*, *C. nippon*), feral goat (*Capra hircus*), magpie (*Gymnorhina tibicen*, *G. tibicen hypoleuca*), feral rabbit (*Oryctolagus cuniculus*), mustelids (ferrets – *Mustela furo*, stoats – *M. erminea*, weasels – *M. nivalis*), pest cat (*Felis catus*), possum (*Trichosurus vulpecula*), rats (*Rattus norvegicus*, *R. rattus*)

Aim: Provide biosecurity delivery services across the Wellington Region

<table>
<tr><th>Performance Measure</th><th>Result and Details</th></tr>
<tr><td>Small mammal management

Bait station and trapping operations completed at 46 Territorial Authority sites.</td><td>Achieved

Control delivered at 46 sites.
<table>
<tr><th>Territorial authority</th><th>Number of sites</th></tr>
<tr><td>HCC</td><td>8</td></tr>
<tr><td>KCDC</td><td>19</td></tr>
<tr><td>WCC</td><td>19</td></tr>
</table>
<table>
<tr><th>Species trapped</th><th>Number</th></tr>
<tr><td>Hedgehogs</td><td>194</td></tr>
<tr><td>Ferrets</td><td>10</td></tr>
<tr><td>Stoats</td><td>44</td></tr>
<tr><td>Weasels</td><td>36</td></tr>
<tr><td>Pest cats</td><td>22</td></tr>
<tr><td>Possums</td><td>144</td></tr>
<tr><td>Rats</td><td>327</td></tr>
<tr><td>Total</td><td>777</td></tr>
</table>
</td></tr>
</table>

<table>
<tr>
<td>Small mammal management

Predator trapping operations for predators at Pūkaha/Mount Bruce buffer area completed.</td>
<td>Achieved.

This block is a predator trapping operation involving 394 traps set up around Pūkaha. The intention is to reduce the number of predators entering the sanctuary.

12 services were carried out on the predator trap network made up of a combination of Timms and DOC250 traps.

<table>
<tr><th>Species</th><th>Number trapped</th></tr>
<tr><td>Ferrets</td><td>21</td></tr>
<tr><td>Stoats</td><td>8</td></tr>
<tr><td>Weasels</td><td>3</td></tr>
<tr><td>Pest cats</td><td>55</td></tr>
</table>
</td>
</tr>
<tr>
<td>Small mammal management

Predator trapping operations for predators at Wairarapa Moana area completed.</td>
<td>Achieved.

Eight predator trapping operations were completed around the Wairarapa Moana area. This involved completing 114 predator trap network services in total and the removal of 1,047 predators.
<table>
<tr><th>Predator control networks</th><th>Number of services completed</th></tr>
<tr><td>Lake Domain</td><td>12</td></tr>
<tr><td>Kahutara Lagoon</td><td>18</td></tr>
<tr><td>Onoke Spit extension</td><td>12</td></tr>
<tr><td>Onoke Spit</td><td>12</td></tr>
<tr><td>Pounui Lagoon</td><td>18</td></tr>
<tr><td>Te Pouaruhe</td><td>18</td></tr>
<tr><td>Tauanui Confluence</td><td>12</td></tr>
<tr><td>Barrage Gates</td><td>12</td></tr>
<tr><td>Total</td><td>114</td></tr>
</table>
</td>
</tr>
</table>

Species trapped	Number
Hedgehogs	469
Ferrets	28
Stoats	69
Weasels	99
Pest cats	74
Rats	308
Total	**1,047**

Biodiversity Outcomes

A consecutive year of bittern and spotless crake monitoring around the Wairarapa Moana Wetlands by Shane Cotter has seen a significant rise in the numbers of both species.

The male bittern is most vocal in the early mornings and late evenings producing a 'booming' call from a strategic territorial location. The monitoring undertaken at these prime times, provides a picture of the density of males living within a wetland environment.

This was particularly evident at Boggy Pond/Kahutara Lagoon where predator trapping has been ongoing for 11 years. The trapping network remains unchanged at this key wetland complex which is the stronghold for bittern and spotless crake.

There is evidence of an increasing possum population around Boggy Pond/Kahutara Lagoon. Possums have not been a target species in this area, but we are planning to implement control measures in the 2024/25 year to reduce their population density.

Numbers of predators trapped has reduced, but there are constant migrations of predators to the wetlands from surrounding farmed land.

Performance Measure	Result and Details
Feral Rabbit management Feral rabbit control completed at 50 Territorial Authority sites and seven Recloaking Papatuanuku sites.	Achieved. Control delivered as detailed in the Sustained Control (Rabbits) section.

Performance Measure	Result and Details
Ungulate management Planned control at four deer, goat and pig management sites completed.	Achieved. Control delivered in HCC land from Stokes Valley to the Wainuiomata hill road

Summary of 2023/24 ungulate control for Hutt City Council						
Species	Deer	Goats	Pigs	**Ungulate total**	**Hunter days**	**Kills per day**
Contractor	38	0	5	43	40	1.075
GW Staff	28	0	2	30	10	3
Total	66	0	7	73	50	1.46

Performance Measure	**Result and Details**
Magpie enquiries Responded to owners/occupiers wanting to undertake magpie control with 15 days of receiving a request for information and/or assistance.	Achieved. 25 enquiries received relating to magpies, responded to within the timeframe.
Magpie control Undertake control of magpies within 10 working days where there is a threat of injury to people.	Achieved. Five control operations delivered within the timeframe.
Performance Measure	**Result and Details**
Argentine ant* control Control of Argentine ants at Queen Elizabeth Park and Kāpiti Boating Club. (*this species is listed as a Harmful Organism in the RPMP 2019-39)	Achieved. Seasonal Argentine ant control was carried out in Spring and Autumn to minimise the risk of Argentine ants being carried to Kapiti Island via boats, and to minimise risks to a wetland ecosystem in QE Park. It was noted during Autumn that Argentine ants were inhabiting an area (in Kapiti) used to store components for a wharf on Matiu/Soames Island. This risk was both identified and managed by DOC.

6.4 Key Native Ecosystem programme

European hedgehog (*Erinaceus europaeus occidentalis*), feral deer – fallow, red and sika (*Dama dama*, *Cervus elaphus*, *C. nippon*), feral goat (*Capra hircus*), mustelids (ferrets – *Mustela furo*, stoats – *M. erminea*, weasels – *M. nivalis*), pest cat (*Felis catus*), possum (*Trichosurus vulpecula*), rats (*Rattus norvegicus*, *R. rattus*).

Aim: Protect and restore representative examples of original indigenous ecosystem types of high value in the Wellington Region (58 sites, approximately 48,000 ha). Below is the pest control component of this program.

<table>
<tr><th>Performance Measure</th><th>Result and Details</th></tr>
<tr><td>Small mammal management

Bait station and trapping operations completed at 38 Key Native Ecosystem (KNE) sites.</td><td>Achieved.

Control delivered at 38 sites using a variety of different toxins and trapping techniques.

<table>
<tr><th>Species trapped</th><th>Number</th></tr>
<tr><td>Hedgehogs</td><td>85</td></tr>
<tr><td>Ferrets</td><td>1</td></tr>
<tr><td>Stoats</td><td>38</td></tr>
<tr><td>Weasels</td><td>22</td></tr>
<tr><td>Pest cats</td><td>13</td></tr>
<tr><td>Possums</td><td>52</td></tr>
<tr><td>Rats</td><td>178</td></tr>
<tr><td>Total</td><td>389</td></tr>
</table>
</td></tr>
<tr><td colspan="2">The trapping results above summarise our own records as well as those of volunteers who assist us and record their data in TrapNZ.

Monitoring results can be viewed at www.gw.govt.nz under Key Native Ecosystem programme - small mammal monitoring.

Tracking tunnels are used to establish a tracking rate, expressed as the percentage of all tunnels put out for monitoring that were ‘tracked’ (footprints left behind) by the species in question. A zero tracking result stated below means the species presence was not identified in the tracking tunnels</td></tr>
</table>

Small mammal monitoring – undertake small mammal monitoring at selected sites

Hedgehogs: KNE site and tracking rate (% tunnels tracked)			
KNE site		**November 2023**	**February 2024**
Baring Head/Ōrua-pouanui		2.5%	10%
East Harbour Northern Forest	Mainland Island	0%	0%
	Non-treatment	0%	5%
Wainuiomata-Orongorongo	Mainland Island	0%	7.7%
	Non-treatment	5.1%	10.3%
Catch numbers reduce over winter as hedgehogs go into hibernation. By September they are active again, and are regular non-target kills in traps set for mustelids. Note that monitoring only occurs where there is rodent monitoring happening, not at all KNE sites. Baring Head/Ōrua-pouanui is a good case study, where intensive predator trapping of mustelids and hedgehogs is carried out in order to protect breeding banded dotterels. Tracking results were lower in 2023 than for comparative months in 2022.			
Mustelids: KNE site and tracking rate (% tunnels tracked)			
KNE site		**February 2023**	**February 2024**
Baring Head/Ōrua-pouanui		0%	0%
East Harbour Northern Forest	Mainland Island	0%	0%
	Non-treatment	0%	0%
Wainuiomata-Orongorongo	Mainland Island	0%	0%
	Non-treatment	2.6%	0%
Continuing with Baring Head/Ōrua-pouanui as a case study, mustelids at this site have always tracked low. Since November 2021 results have remained at zero, following the intensive trapping as mentioned under hedgehogs.			

Rats: KNE site and tracking rate (% tunnels tracked)					
KNE site		**August 2023**	**November 2023**	**February 2024**	**May 2024**
Baring Head/Ōrua-pouanui		0%	0%	0%	1.3%
East Harbour Northern Forest	Mainland Island	18%	12%	19.3%	14%
	Non-treatment	16%	30%	27.5%	17.5%
Queen Elizabeth Park		20%	15%	10%	10%
Wainuiomata-Orongorongo	Mainland Island	51%	22%	6%	5%
	Non-treatment	80.5%	93.1%	92%	94%
At Baring Head/Ōrua-pouanui, our case study, rat tracking results have been consistently higher than at the same times in the previous year, but overall, since a peak in May 2019 the trend has been downwards and since November 2020 results have been zero or very close to, due to the intensive trapping for mustelids and hedgehogs, which by default will trap rats too.					

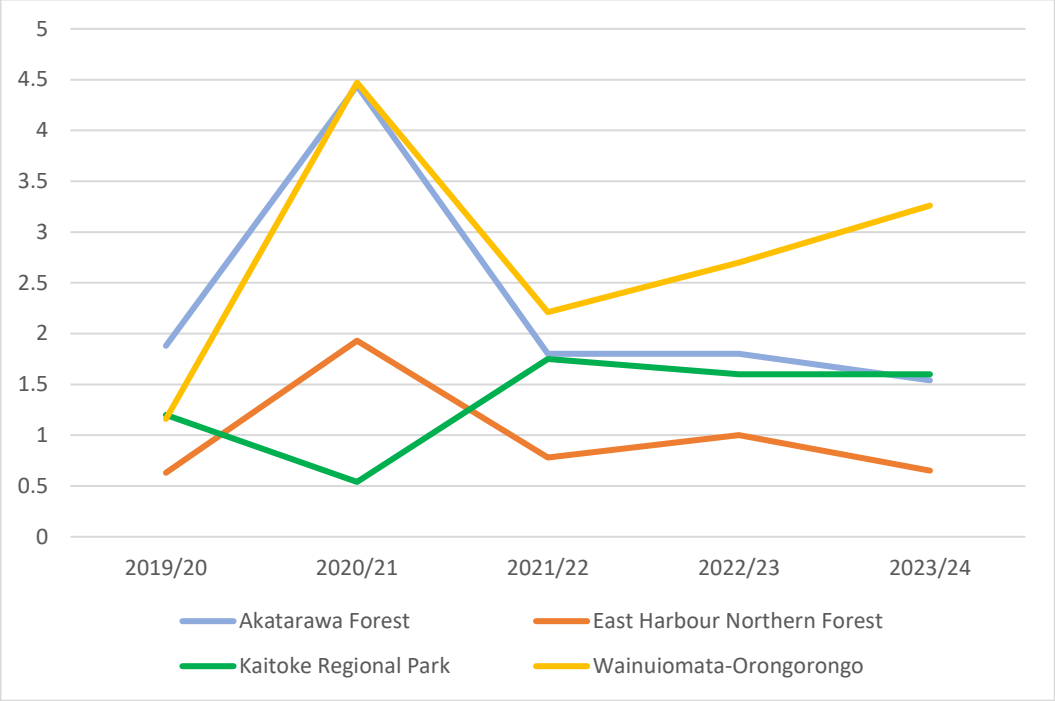
Performance Measure	Result and Details
Possum management (aerial) Complete follow up actions for the aerial sodium fluoroacetate (1080) operation in the Kaitoke - Hutt Water Collection KNE site. This involves carcass monitoring, sign removal, river searches.	Not applicable.
Approximately 3,000 hectares of the Hutt Water Collection Area remained untreated from the main control operation during the previous financial year. This work is scheduled to occur early in the 2024/25 year.	

Performance Measure	Result and Details
Ungulate management Planned control at all deer, goat and pig management sites completed (14 sites).	Achieved. Control delivered at 18 sites. 943 ungulates killed.

Summary of 2023/24 KNE ungulate control activities						
KNE Site	**Deer**	**Goats**	**Pigs**	**Ungulate total**	**Hunter days**	**Kills per day**
Akatarawa Forest						
23/24	1	73	3	77	50	**1.54**
22/23	5	79	7	91	50	**1.8**
21/22	3	79	8	90	50	**1.8**
20/21	7	209	6	222	50	**4.44**
19/20	12	72	10	94	50	**1.88**
East Harbour Northern Forest						
23/24	4	10	3	17	26	**0.65**
22/23	22	0	4	26	26	**1**
21/22	7	0	7	14	18	**0.78**
20/21	19	3	9	31	16	**1.93**
19/20	9	0	1	10	16	**0.63**

Kaitoke Regional Park						
23/24	14	17	1	32	20	**1.60**
22/23	23	5	0	28	18	**1.6**
21/22	25	10	0	35	20	**1.75**
20/21	9	2	2	13	24	**0.54**
19/20	19	6	11	36	30	**1.2**
Wainuiomata-Orongorongo						
23/24	12	63	49	124	38	**3.26**
22/23	9	68	27	104	38	**2.7**
21/22	10	51	23	84	38	**2.21**
20/21	30	100	31	161	36	**4.47**
19/20	8	5	31	44	38	**1.16**

Ungulate kills per unit hunter effort:



Biodiversity Outcomes

Over the 23/24 year our ungulate control programme has continued to evolve and expand. Overall, the effort applied to the control of these species has increased as has the output results per unit of effort. Populations of ungulates throughout the region continue to grow and immigration from surrounding areas into control sites continues.

The other driver of the increase in output results (kill tallies) per unit of effort (usually measured in hunter days) is the continued improvement of tools and techniques deployed by the pest animal team and its contractors.

Thermal imaging and the introduction of more night shooting has continued to produce good results. Trapping has also proven successful in controlling pigs where it has been utilised. Aerial control was expanded to incorporate a large area of Conservation land in the eastern Remutaka, with the Department of Conservation funding the control in their area but the combined effort producing synergies.

Adjustments to hunting schedules have produced increased results per unit effort as well.

The ungulate programme continues to maintain low numbers throughout most of the control sites but is increasingly under pressure due to the general regional ungulate trend.

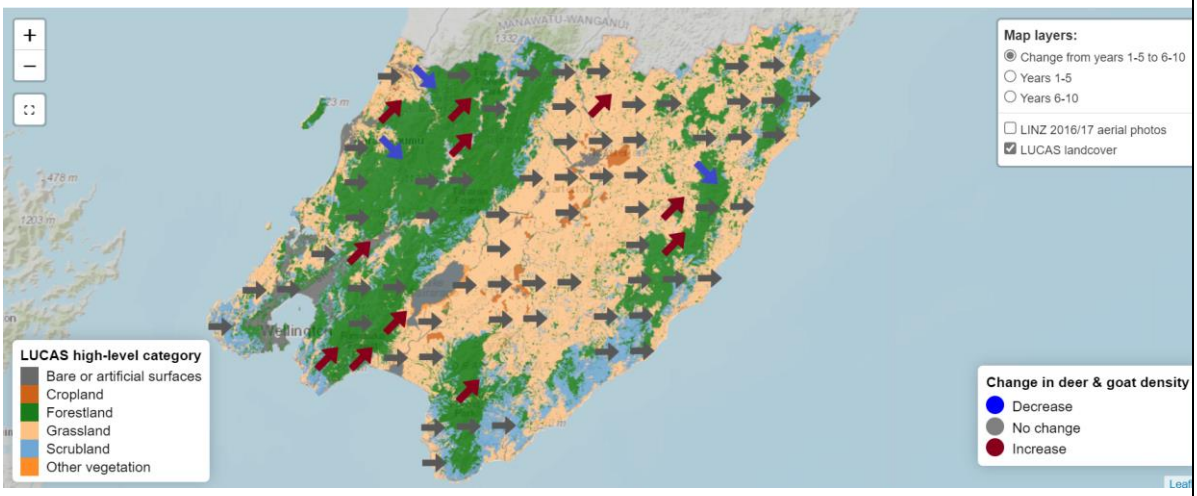
The following map provides an overview of deer and goat density change from two monitoring cycles between 2014/23. More detail can be seen here: Greater Wellington — terrestrial-ecology (gw.govt.nz).

At a regional level, results indicate that across all landcovers there has been a 2.5 percent increase in the relative abundance of ungulates between the two cycle

measurement periods. At a finer scale, more concerning increases based on specific land cover types and land ownership type are evident, with 'hotspots' that are driving the regional increases identified.

The highest densities of ungulates are to the east and west of the region. Ungulates were more frequently encountered in native forest than other landcover types monitored.

(Pistoll, B. *Change Monitored in Regional Pest Animal Abundance and Distribution 2014 - 2023 Summary of pest animal results from ten years of Terrestrial State of the Environment Tier 1 monitoring*.



More information can be found at www.gw.govt.nz under the Key Native Ecosystem Programme.

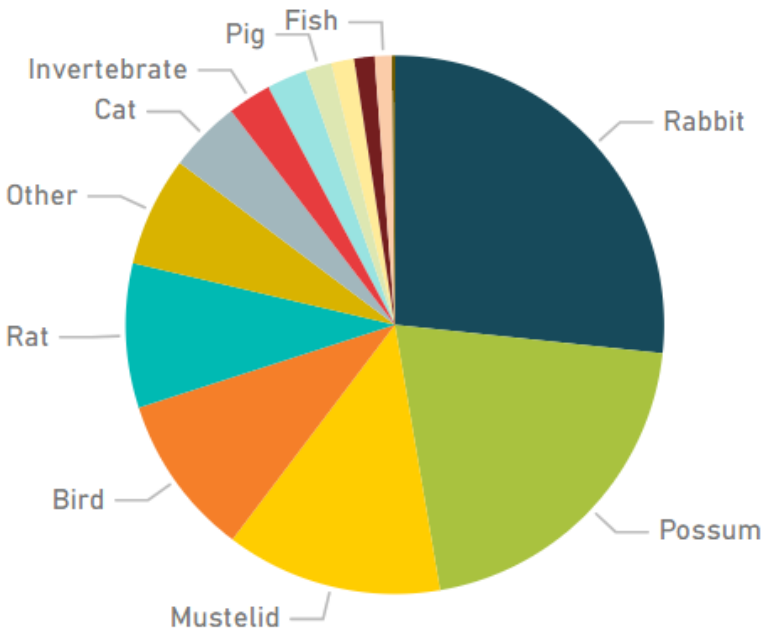
Refer to **Section 4.6** for KNE assessment trend monitoring carried out by our Environment Restoration team.

7. He Tohutohu, He Mātauranga, He Whakaaanga | Advice, Education and Engagement

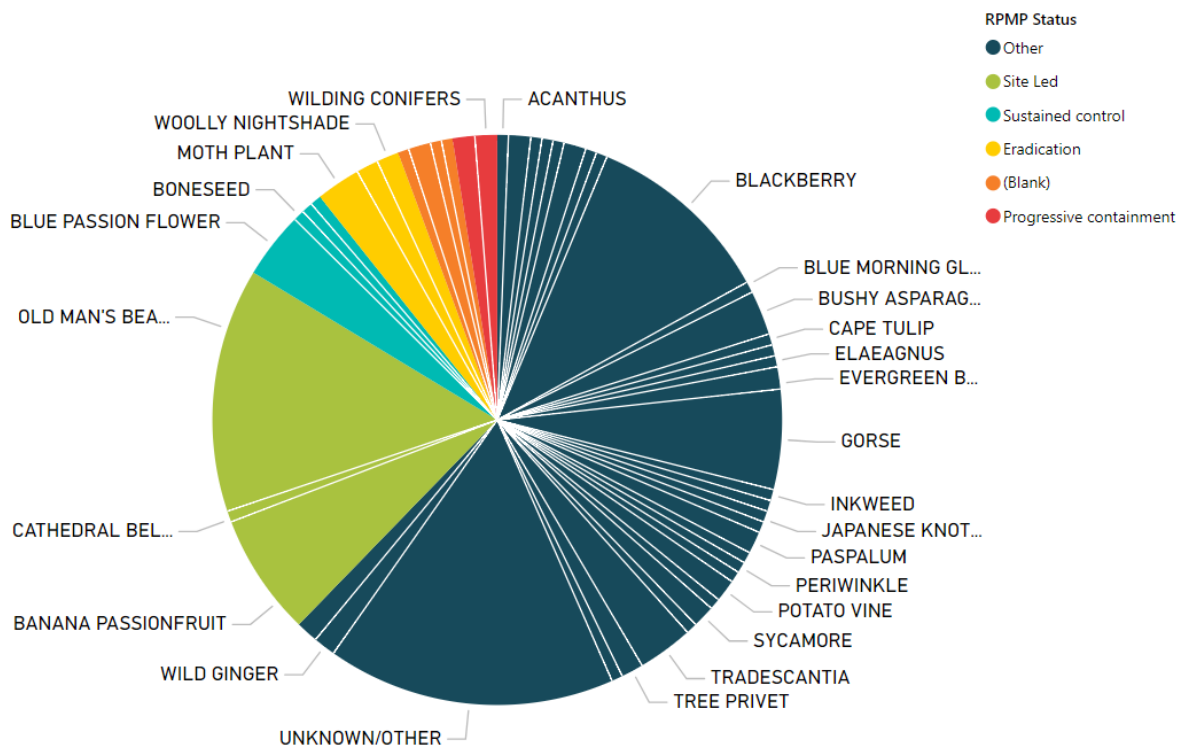
Aim: Support pest animal and plant management through education and advice on pest control and impacts.

Performance Measure	Result and Details
Response to public enquiries Provide information to landowners about their responsibilities for pest control. Provide information and advice to the public regarding pest identification, impacts and control, through website information, social media, events and site inspections. Provide advice and support to community groups undertaking pest control. Provide up to date information on all RPMP pest species on our website	Achieved. 816 pest animal enquiries (including 240 sales enquiries for traps etc) answered. 161 pest plant enquiries answered. Our **Pest and Weed Central** hub (find this at www.gw.govt.nz, via 'Environment', 'Pest management') receives regular maintenance and updates with species specific information.

2023/24 Pest Animal enquiries



2023/24 Pest Plant enquiries



Performance Measure	Result and Details
Promotions Uptake of social media promotions	Achieved. See table below

Summary of social media interactions for 10 month period of 2023/24		
Item		**Number of downloads**
RPMP 2019-39		508
RPMP Operational Plan Report 2022/23		42
RPMP Operational Plan 2023/24		79
Summary of social media posts for 2023/24		
Subject	**Reach**	**Reactions, Comments, Shares**
Weed of the month	5,882	25
Gold Clams	772	10
Gold clams	1,825	14
Life without rats	4,827	79
Anna field operator PFW	12,420	132
Anna field operator PFW Insta	507	51
Goat hunting	2,689	27
Pest Plants team – East Harbour	9,827	186

Conservation week pest animals	3,678	115
Conservation week pest animals insta	676	88
Pest Plants team QEP	10,247	103
Pest Plants team QEP Insta	800	54
Total	**54,150**	**884**
Note – in previous years a budget was in place for social media posts, this was not the case this year.		

8. Whakarāpopototanga Pūtea | Financial Summary for 2023/24

The table below outlines budget, actual expenditure and the variance for delivering the Plan.

Species or Site led	Programme	Pest Animals or Pest Plants	Budget	Actual	Variance
Species led	RPMP	Pest Animals	$1,493,899	$1,711,982	-$218,083
		Pest Plants	$1,474,143	$1,272,955	$201,188
	National	Pest Plants	$45,000*	$45,000* (MWR,CCD)	n/a
Site led	PFW	Pest Animals	$3,823,050	$3,174, 645	$648,405
	RPPCP	Pest Animals	$2,046,247	$1,765,850	$280,397
	Biosecurity services	Pest Animals	$264,042*	$502,019*	n/a
	KNE	Combined	$1,732,185	$1,724,453	$7,733
Totals – excluding external revenue			$10,569,523	$9,649,885	**$919,639**

*external revenue for this work (MPI funded Manchurian wild rice control and Check Clean Dry programme. Territorial authorities fund pest animal management in some of their regions).

Ngā Āpitihanga | Appendices

Appendix 1: Chemical Controls in use by GW to implement the Plan in 2023/24.

Herbicides:

Clopyralid

Cloralid 300

Diquat

Glyphosate 360, 490, 510 and 540 g/L concentrations

Glyphosate / saflufenacil blend

Haloxyfop-P-Methyl

Metsulfuron-methyl 600

Picloram

Picloram / triclopyr blend

Terbuthylazine / amitrole / oxyfluorfen / glyphosate blend

Triclopyr 120, 600 g/L concentrations

Triclopyr 360 Triethylamine

Vertebrate Toxic Agents and insecticides:

Brodifacoum (Pestoff pellets, Pestoff High Strength, Final blocks)

Bromadiolone (Contrac blocks)

Cyanide (Feratox bait bags and pellets)

Diphacinone (50D, Ratabate - Strikers and paste, Ditrac)

Diphacinone and Cholecalciferol (Double Tap)

DRC 1339 paste (rook nest baiting)

Fipronil (Vanquish ant bait, Vespex wasp bait)

Magtoxin (fumigant pellets)

Permethrin (Dust 2 Dust wasp powder)

Pindone (rabbit pellets, liquid concentrate)

Appendix 2: Modified McLean Scale

Scale	Rabbit Infestation
1	No sign found. No rabbits seen.
2	Very infrequent sign present. Unlikely to see rabbits.
3	Pellet heaps spaced 10m or more apart on average. Odd rabbits seen; sign and some pellet heaps showing up.
4	Pellet heaps spaced 5-10m apart on average. Pockets of rabbits; sign and fresh burrows very noticeable.
5	Pellet heaps spaced 5m or less apart on average. Infestation spreading out from heavy pockets.
6	Sign very frequent, with pellet heaps often less than 5m apart over the whole area. Rabbits may be seen over the whole area.
7	Sign very frequent, with two or three pellet heaps often less than 5m apart over the whole area. Rabbits may be seen in large numbers over the whole area.
8	Sign very frequent, with three or more pellet heaps less than 5 metres apart over the whole area. Rabbits likely to be seen in large numbers over the whole area.

For more information, please contact Greater Wellington:

Wellington office
PO Box 11646
Wellington 6142

Upper Hutt office
PO Box 40847
Upper Hutt 5018

Masterton office
PO Box 41
Masterton 5840

www.gw.govt.nz
info@gw.govt.nz
T 04 384 5708

September 2021