



Regional Pest Management Strategy – Operational Plan Report 2015/16



greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao



Regional Pest Management Strategy 2002-2022

Pest Animals and Pest Plants

Operational Plan Report 2015/16

Biosecurity Department

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1 Introduction

1.1 Biosecurity at Greater Wellington Regional Council

The Wellington region is under threat from a number of pest animal and plant species. Greater Wellington Regional Council (GWRC) is involved in the control of unwanted plants and animals because:

- many of New Zealand's native plants and animals cannot co-exist with introduced species. In areas of high biodiversity value, pest plants and pest animals need to be controlled to protect vulnerable native ecosystems.
- pest plants and animals cause considerable economic losses in many of New Zealand's primary industries. Pest management is essential to the success of our agricultural and horticultural industries.
- pest plants and animals are a nuisance to many aspects of rural and urban life, inhibiting the ability of people to enjoy their properties and inhibiting their wellbeing.

The Regional Pest Management Strategy 2002-2022 (RPMS) provides the strategic and statutory framework for effective pest management in the Wellington region. The central focus of the RPMS is on mitigating pest threats to society, to farming and agriculture in general, and supporting indigenous biodiversity the ecological and health of our ecosystems. The RPMS has two major objectives:

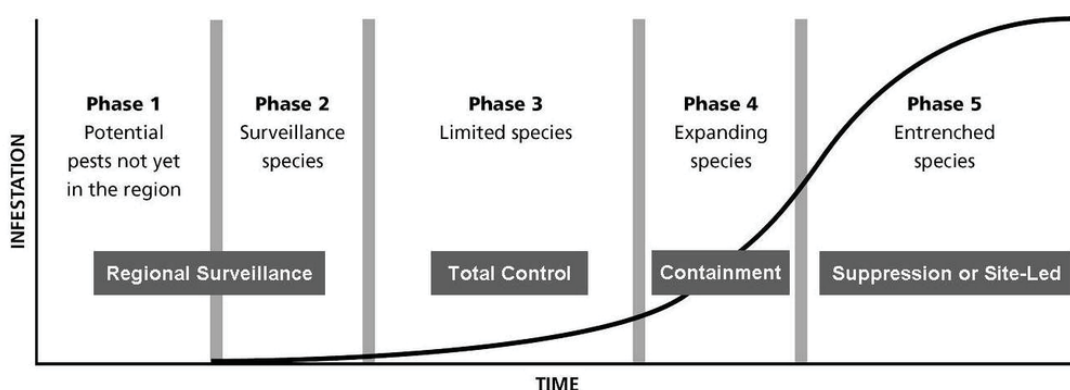
1. to minimise the actual and potential adverse and unintended effect of pests on the environment and the community; and
2. to maximise the effectiveness of individual pest management programmes through a regionally coordinated response.

Many advances in the effective management of a wide range of pest plants and animals have been made during the life of the Strategy. In response, indigenous biodiversity has been enhanced and local economic values protected over large parts of the region. This was achieved through support from landowners, care groups and local government authorities.

1.2 How the pest species are decided

A cost-benefit analysis (CBA) is undertaken for all species proposed for the strategy. This process decides what control, if any, is to be undertaken and what level of management is needed for the species. The CBA works in conjunction with the infestation curve (table 1), which designates the different management policies.

Infestation Curve for the RPMS:



Infestation phase	Phase characteristics	Management policies
Phase 1	Potential pest not currently in the region	Regional Surveillance
Phase 2	Recent arrival limited in distribution	Regional Surveillance
Phase 3	Limited in distribution and density	Total Control
Phase 4	Established but have not reached full distribution	Containment
Phase 5	Widespread or entrenched in most or all available habitat	Suppression or Site-Led

Table 1: Phases of regional pest infestation through time. Adapted from Greater Wellington's Regional Pest Management Strategy.

1.3 Purpose of the Operational Plan Report

This document reports against the achievements and outcomes of GWRC's biosecurity related activities. The work programme was set by the RPMS Operational Plan 2015/16 and is in line with the GWRC Annual Plan, which sets the overall priorities and work programmes for the organisation.

The implementation of the RPMS requires resources. Our obligation to the community is to ensure these resources are used as efficiently and effectively as possible. This report provides some detail of how and where those resources were applied in the 2015/16 year.

The report is structured into two parts:

Part One - Pest Animals

Part Two - Pest Plants

The content is organised to align with the Operational Plan 2015/16. In the Pest Animal and Pest Plant sections, the aim, means of achievement and the actual performance is reported on for each pest species or management category.

Part One - Pest Animals

Species Led Programmes

2 Surveillance Species

Aim: To prevent the establishment or minimise the impact, and prevent the further spread, of animal surveillance species in the region.

The species in this category are Argentine ants, Australian subterranean termites, Darwin's ant, rainbow skink and red-eared slider turtle.

Means of achievement

Record and report any incidences of the Surveillance species in the region.

Actual performance

There were no new reports of Argentine ants in the Wellington Region.

In December 2015, GWRC received a report of a large ant in Paraparaumu, opposite the M2PP highway works. A sample was gathered and sent to MPI for identification. The sample was identified as a de-winged queen of the established ant species *Iridomyrmex suchieri*. It is great that members of the public report sightings such as this.

A new paper wasp, European paper wasp *Polistes dominula* has been discovered in the Nelson Marlborough region. It is unknown how long it has been present in New Zealand as it is very similar to the Asian paper wasp. GWRC have been asked to notify MPI of any positive sightings.

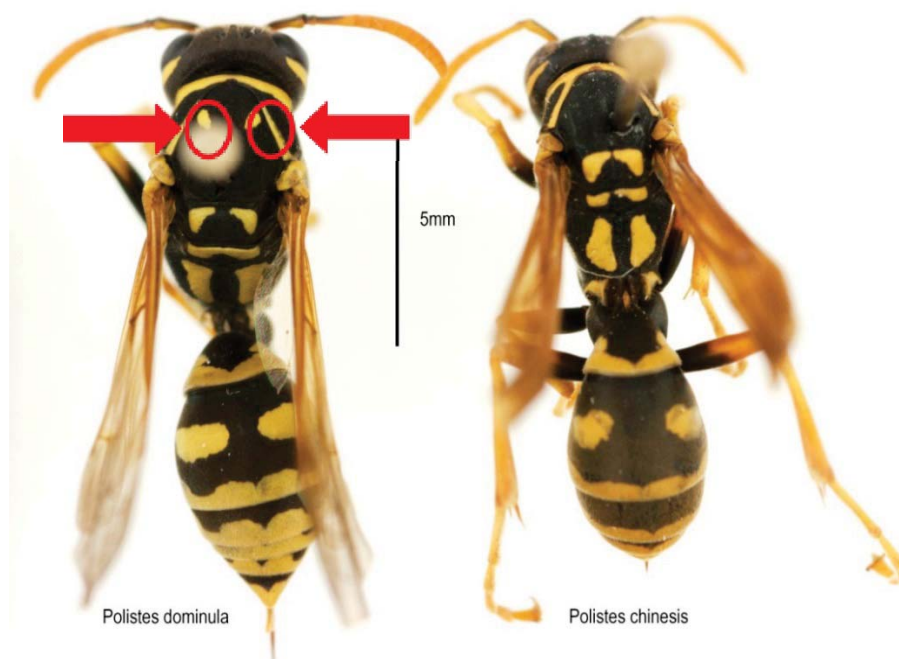


Image 1: The European paper wasp *Polistes dominula* (left), compared with the established Asian paper wasp *P. chinensis* (right).



Image 2: Asian paper wasp nest, which is similar to that of the European paper wasp.

3 Total Control – Rooks

Aim: To manage rooks as a Total Control category pest to levels that protects production systems.

Means of achievement

Undertake direct control where rooks are known to exist.

Actual performance

Eleven breeding rookeries were identified in Wairarapa during 2015/16, the same number that were recorded in 2014/15. This is partly due to another season of strong winds causing disruption and damage to rookeries, with only eight rookeries surviving. 23 nests (of an original 54 nests) that remained after the winds were baited from the air to further reduce rook numbers.

The rook control programme remains on track to achieve eradication of rooks in the Wellington region by 2025. The number of treated nests has reduced from 150 in 2009/10 to 23 in 2015/16. However, as noted above, the control efforts have been significantly supported by windy weather conditions that have hampered the rooks' breeding. These conditions cannot be relied on to reoccur.

For a number of years GWRC has not received any reports of rook damage to crops in arable farming areas. This reflects the success of the aerial baiting strategy.

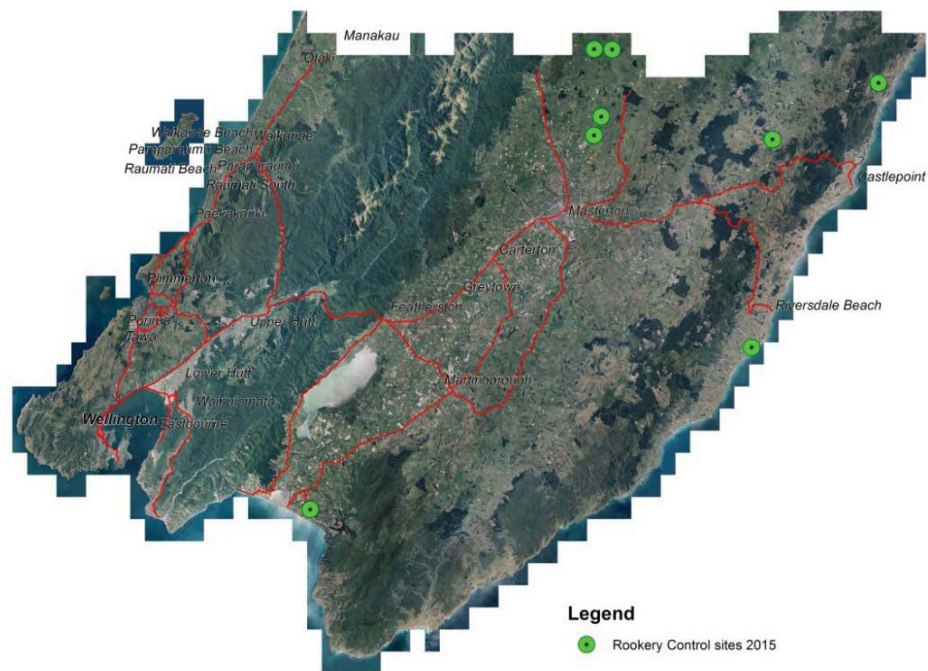
Means of achievement

Annually survey rook populations in areas where they are known to exist, and where new infestations are reported.

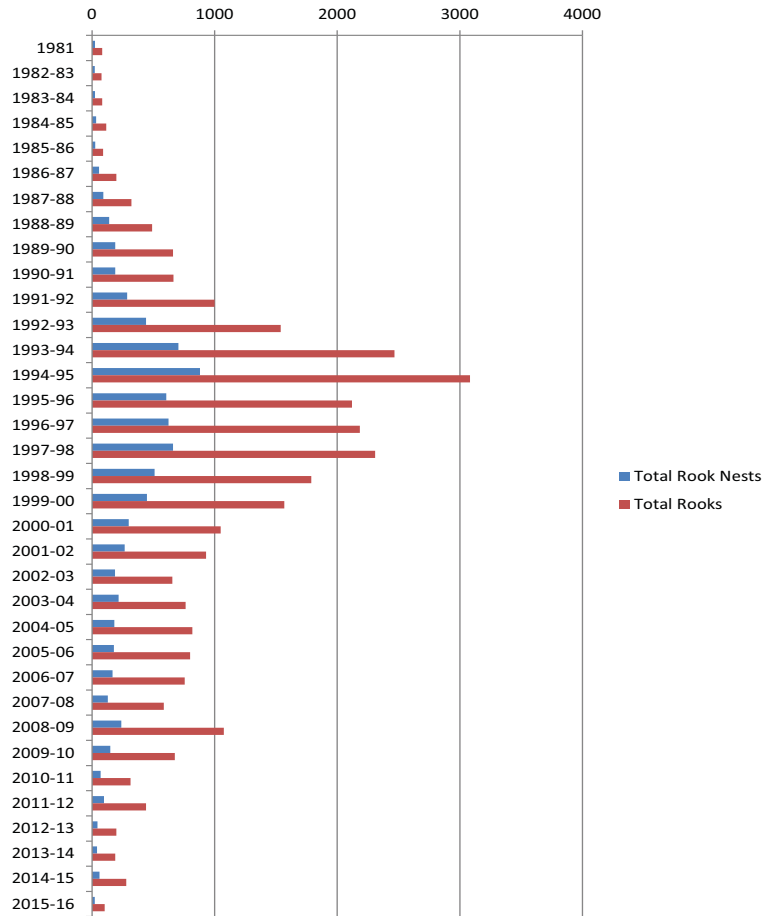
Actual performance

There are 110 known rookery sites in the region, both historical and current. All of the sites were visited 2015/16 to determine whether rooks were present. Areas of likely habitat were also surveyed from the air when travelling to known rookeries. Some ground surveys were followed by an aerial survey in spring to check for the presence of occupied nests.

The rook programme relies heavily on the public and landowners to help locate rooks. The control programme is publicised in the media annually to encourage the public to report rooks or rookeries. This year three new rookeries were reported by the public. Alongside this, three formerly abandoned rookeries were found to have re-established. All rookeries were relatively small in size.



Map 1: Rookeries treated during the 2015/16 season.



Graph 1: Total number of rookeries and number of rooks (estimated) in the Wellington region.

Means of achievement

Ensure compliance with the RPMS rules.

Actual performance

An ongoing advertising campaign aims to remind landowners of their responsibilities when managing rooks. Care must be taken as unprofessional attempts at rook control can lead to rookery fragmentation and dispersal over a wider area. Rooks may also become bait shy if poisoning is attempted using inappropriate methods and baits. Education of the public and landowners education is the key to ensure control is effective.

Means of achievement

Encourage Horizons Regional Council to actively pursue management of rooks within their region to complement GWRC’s Total Control programme.

Actual performance

Horizons Regional Council was actively involved in aerial nest baiting in the 2015/16 year. Both GWRC and Horizons have cooperated in the annual joint nest baiting programme on both sides of the regional boundary. The programme is designed to prevent the southward migration of rooks into

Wairarapa. The number of active rook nests containing chicks and/or eggs in the Horizons region has dropped significantly from 2,942 nests in 2005 to 188 in 2015.

4 Suppression Species – Rabbits

Aim: To minimise the adverse impacts of feral rabbits throughout the region.

Means of achievement

Undertake direct control to manage rabbits on riverbeds, esplanades or similar public commons to ensure that rabbits do not exceed Level 5 of the Modified McLean Scale. At Level 5, rabbits will be having negative environmental impacts and are likely to be spreading onto neighbouring properties.

Actual performance

There were no situations in the region that required regulatory intervention. Most rabbit control during the year was undertaken to protect new plantings in re-vegetation projects by care groups, territorial authorities and private land owners. Regular night shooting in parks, reserves, beaches and cemeteries was undertaken for Wellington City Council, Hutt City Council and Kapiti Coast District Council. Costs for these activities were fully recovered.

One property in Pauatahanui was at Level 5 on the Modified McLean Scale. Collaboration between landowners and neighbours allowed for an effective poisoning operation to be conducted to reduce densities to Level 1.

Means of achievement

Survey land in high to extreme rabbit prone areas to determine the extent of rabbit infestation.

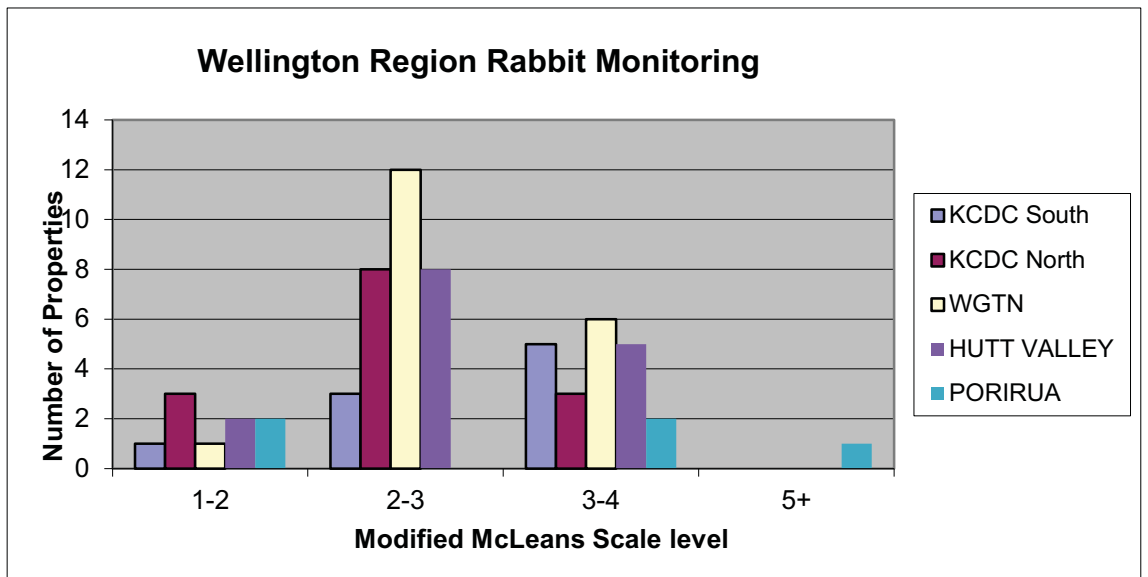
Actual performance

Surveys were undertaken in May 2016 at four Wairarapa properties with a history of high rabbit numbers. Property locations range from the Tararua Range foothills to the east coast and provide an overview of current rabbit trends for the region.

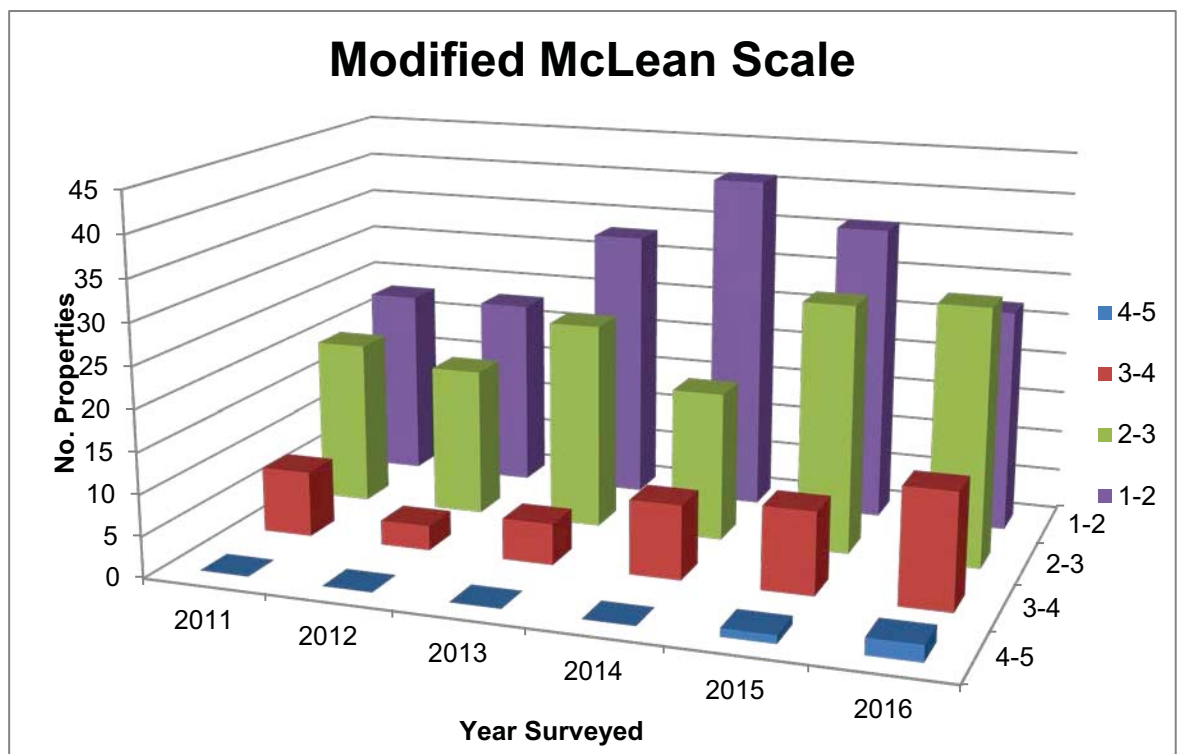
Rabbit prone areas of the Kapiti Coast, Wellington City and the Hutt Valley were monitored in late May 2016, with rabbits found to be present throughout the area in low numbers. Larger numbers exist where there is good cover, overgrazed pasture or large expanses of lawns. These areas include park, lifestyle blocks and smaller private properties.

The Peka Peka area has increased rabbit numbers due to high immunity to the Rabbit Haemorrhagic Disease (RHD) virus, and increased subdivision, preventing effective rabbit control over the wider area.

RHD continues to cycle naturally over most of the Wellington region.



Graph 2: Modified McLeans Scale Level for surveyed properties in the Wellington region.



Graph 3: Rabbit property survey results from 2011 – 2016.

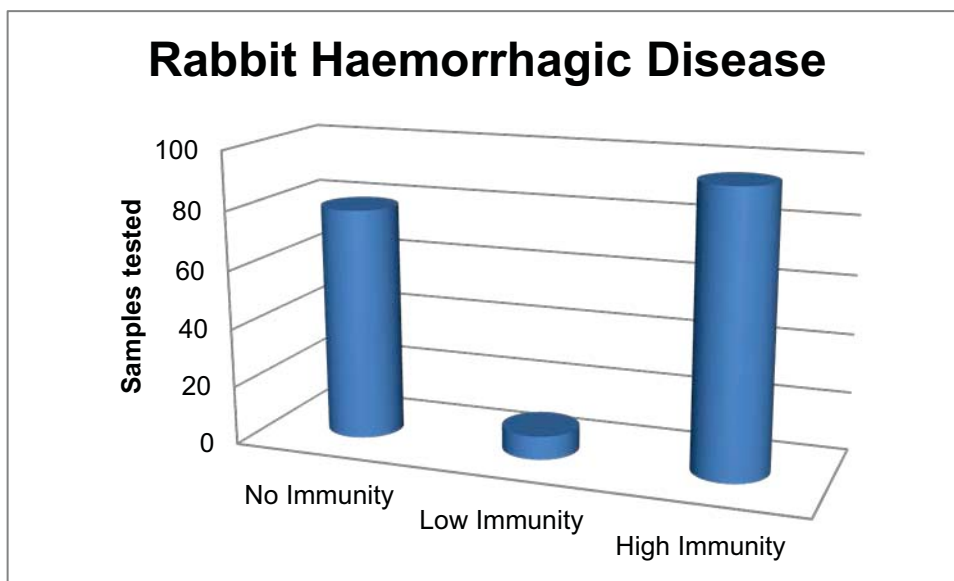
Means of achievement

Support research initiatives including biological control.

Actual performance

GWRC continues to support a national effort to retain an active permit to import RHD antibodies for release.

Annual rabbit blood sampling was conducted throughout the region on various parks, reserves and private land to assess immunity to RHD virus. High immunity was present in the northern areas of the Kapiti coast.

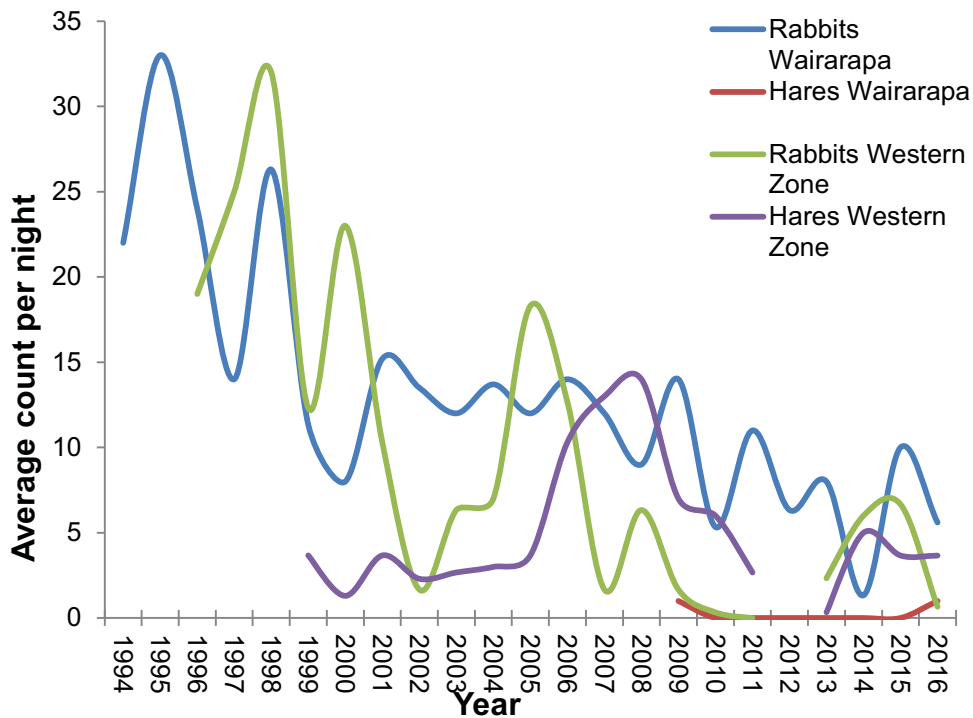


Graph 4: Rabbit Haemorrhagic Disease immunity levels for the Wellington region.

Rabbit trend monitoring

Rabbit and hare night counts are conducted between May and July each year in Queen Elizabeth Park (QEP) on the Kapiti coast, and on the Tora coast in the Wairarapa; areas traditionally prone to high rabbit and hare numbers. The aim of monitoring is to determine rabbit and hare population dynamics in the absence of formal control.

The average number of rabbits counted has declined this year. This is due to the ongoing effect of RHD. However, with increasing immunity levels, we expect to see increasing rabbit densities in parts of the region. Hare numbers have made a slight increase but still remain relatively low.



Graph 5: The average count of rabbits and hares on the Tora Coast, Wairarapa and QEP, Kapiti over three nights counting at 25 stations

5 Site-Led Species – Magpies

Aim: To manage magpies to minimise adverse environmental and human health impacts in the Wellington region.

Means of achievement

Undertake direct control of magpies where there is known to be a threat of injury to members of the public, or where complaint(s) are made to that effect, within 10 working days.

Actual performance

Two complaints were logged in the Wairarapa and three in the Western Zone regarding magpies attacking people. All complaints were responded to within 10 working days by removing or destroying the magpie(s) involved.

Means of achievement

Respond to landowners wanting to undertake magpie control within 15 working days of receiving a request for information and/or assistance.

Actual performance

Seventy one calls were received during the 2015-16 year and all calls had response times within 10 working days. Staff provided advice on best practice trapping techniques to maximise catch results, and made loan traps available to some private landowners.



Image 3: Multi-catch magpie trap loaned to private landowners.

6 Site-Led Species – Human Health – Wasps

Aim: To minimise the adverse human health and environmental impacts of wasps at selected sites.

Means of achievement

Provide advice to occupiers wanting to undertake wasp control.

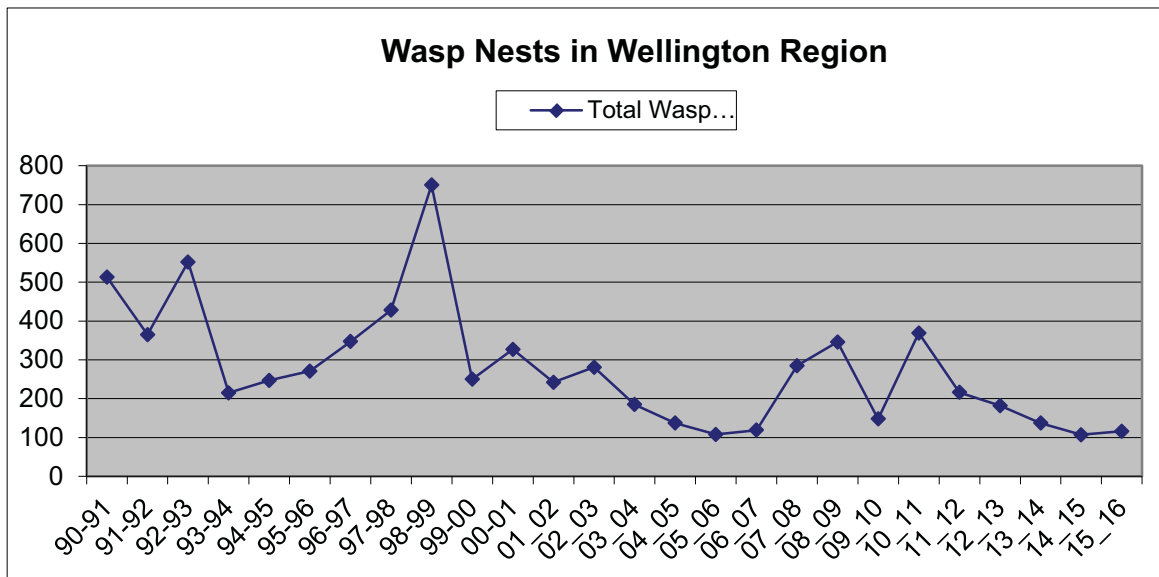
Actual performance

GWRC continues to contribute funding to investigate the potential of a mite recently found on *Vespula* wasps in New Zealand as a form of biocontrol.

A new wasp bait called Vespex came on the market in December 2015. Prior to the purchase and use of Vespex there is an online training programme to complete. The bait is protein based and contains the active ingredient fipronil. It is expected there will be a high use of Vespex by landowners this coming wasp season.

Wasp season 2015/16

Territorial Authorities, DOC and GWRC all respond to wasp nest nuisance calls from the public within the Wellington region. All calls have been recorded in the 'Wasp Nest Register' since 1990/91. A general downward trend of wasp complaints has occurred in the last 4-5 years indicating a potential reduction in wasp numbers. However, the increase in giant willow aphids across the region is likely to increase wasp populations as willow damage caused by the aphids provides an additional food source (honey dew) for wasps. (Graph 6).



Graph 6: Wasp nuisance nest calls for the Wellington Region.

GWRC is actively supporting a National Wasp Research Collaborative project. Staff assisted a Landcare Research scientist to locate and dig up live nests as a part of the potential biocontrol study on the wasp mite and a virus that has been affecting Common and German wasps.



Image 4: Landcare Research scientists preparing to dig out a wasp nest exposed on a roadside bank.

The wasp problem in the region is likely to increase in the future as a result of giant willow aphid infestations in the region. The aphids are causing the secretion of large amounts of honeydew from willow trees, creating a food source for wasps, which has led to increased wasp activity near and a prolonged lifecycle.

The giant willow aphid is a recently new biosecurity breach to New Zealand. The aphid has rapidly spread across New Zealand and is subject to a number of research initiatives focussed on identifying suitable control options (eg, biocontrol and pesticides).

7 Site-Led - Key Native Ecosystems (KNE), Reserves and Forest Health

Aim: To protect indigenous biodiversity in a comprehensive selection of Key Native Ecosystems and reserves.

Means of achievement

Establish and implement integrated pest management plans for all Key Native Ecosystems (KNE) sites and selected territorial authority reserves.

Actual performance

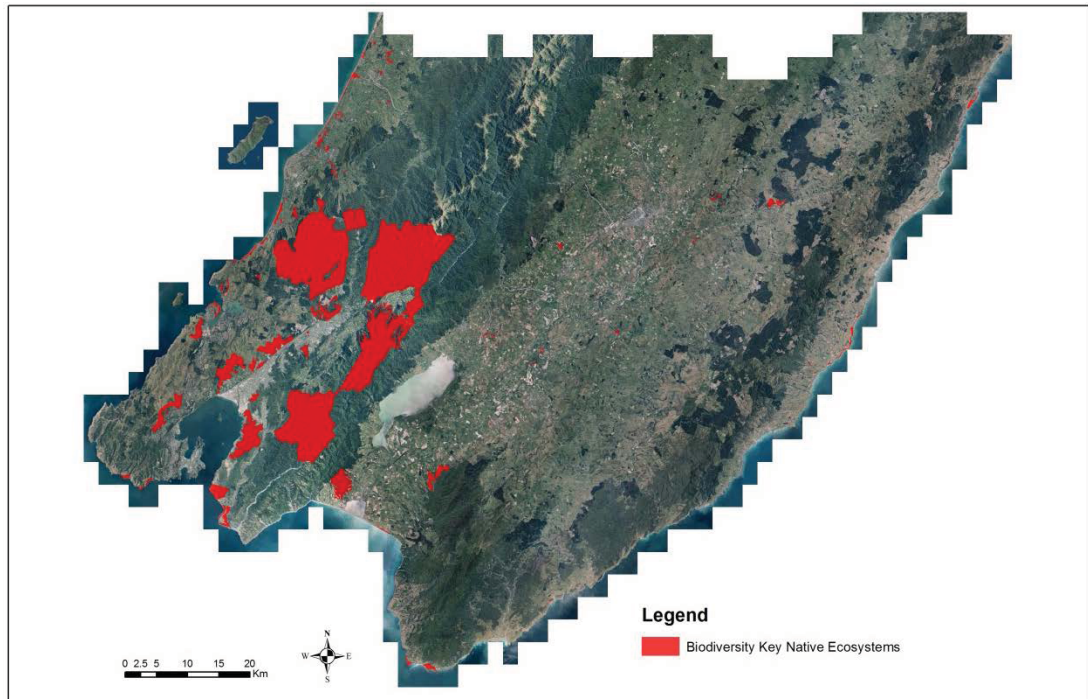
Three year KNE plans are being produced for all 58 KNE sites. These include pest control plans for each site. As of June 2016, 32 KNE plans have been published and 17 other plans are in various stages of development and will be completed in the 2016/17 year.

Means of achievement

Undertake direct control by service delivery of pests identified in the management plan for each KNE site.

Actual performance

During the 2015/16 year, control of possums, rats and/or mustelids was undertaken at 52 of the 58 KNE sites.



Map 2: Sites managed as part of GWRC's Key Native Ecosystem programme in the Wellington Region 2015/16.

Means of achievement

Maintain integrated management of pests in existing KNE sites.

Actual performance

KNE plans systematically identify all threats to indigenous biodiversity and make resources available for targeted control of pest animals and weeds.

Means of achievement

Where KNE sites are identified on territorial authority land, seek funding from the relevant authority to form financial partnerships.

Actual performance

GWRC maintains good working relationships with all of the regional territorial authorities, including a number of shared funding agreements for pest management. Memoranda of Understanding (MOU) provide a formal platform for this relationship. These MOU are prepared and agreed annually between GWRC Biodiversity and the relevant territorial authority. The parties agree to support biodiversity and optimise ecological health within the relevant territories. This is further confirmed and supported by agreeing pest control work and budgets in each KNE plan.

Formal pest management programmes with Wellington, Hutt City, Upper Hutt and Porirua City Councils, and the Kapiti Coast District Council continued during the 2015/16 year. The direct costs for work undertaken on their land are generally equally shared between GWRC and the territorial authority.

Means of achievement

Manage feral and unwanted cats as part of integrated pest management plans for KNEs and other selected sites.

Actual performance

Feral and unwanted cats are actively managed in 19 KNE sites within the Wellington region. These sites are predominantly rural. GWRC also works in conjunction with territorial authorities and private landowners to manage feral and unwanted cat populations. Feral cats are the most persistent predator species under ongoing control, with high numbers continuing to be captured in KNE management sites despite many years of control.

A cat camera monitoring line was put in place and run for four weeks in the Wellington Western Forest KNE site (which includes Otari/Wilton's Bush) to see how far cats are venturing into the forest from the urban fringe. The majority of cats were captured on the camera within 100m of houses. Most of these looked like companion cats, with one feral looking cat seen 600m away from houses. Also photographed were dogs off the leash, rats, stoats and a weasel, plus a very curious kaka that seemed to love the trail camera. The monitoring may be replicated in other areas to gain more information on the potential impacts of cats on native biodiversity.

Means of achievement

Work with communities to remove populations of stray or unwanted cats.

Actual performance

Individuals who wish to remove stray or feral cats from their own land were given advice on control options, offered materials at cost price or referred to commercial pest management operators.

GWRC supported the WCC bylaw amendment to introduce compulsory microchipping and limit the number of cats per household. Until companion cats can be identified, control of feral or stray populations adjacent to urban areas is almost impossible. GWRC has also been involved in a national working group to create the draft New Zealand National Cat Management Strategy. This draft strategy is seeking to gain central government support for national cat management legislation, compulsory microchipping, and eradication of feral cats from New Zealand over the next 10 years.

Means of achievement

Reduce densities of select Site-Led biodiversity pest species (feral deer, feral goats, feral pigs) in KNE sites and territorial authority reserves.

Actual performance

GWRC employs professional hunters to control ungulates in a number of KNE sites within our regional park and water supply catchment network. Total animals shot for the year were 298 feral goats, 43 feral pigs and 51 feral deer.

GWRC staff have also undertaken feral goat control in several urban sites where animals were damaging public and private property adjacent to KNE sites, Regional Park or reserve areas. Problems often occur where residential properties border on to large tracts of reserve or farmland where feral goats, deer or feral pigs are present.

Deer numbers continue to expand in the Wairarapa and parts of the Hutt Valley. The animals are seen as a welcome addition by some landowners while others express concern at damage to agricultural crops and native bush remnants. Wellington has a large hunter population and the majority of deer management is undertaken by private hunting.

Requests for pig traps or advice have been low this year.

Means of achievement

Facilitate the involvement of community groups in pest control, where appropriate.

Actual performance

GWRC has been involved with community groups undertaking pest control for many years. The management at several KNE sites benefits significantly from the enthusiasm and resources of community groups. Groups have been carrying out plantings, pest control, ecological surveying and fundraising to support the management of KNE sites.

Pest control involvement continued in 2015/16 with groups participating at 17 sites and private landowners doing their own control at four sites in the KNE programme and numerous other QEII National Trust covenant sites.

Means of achievement

Monitor site recovery after pest control using a range of ecological indicators.

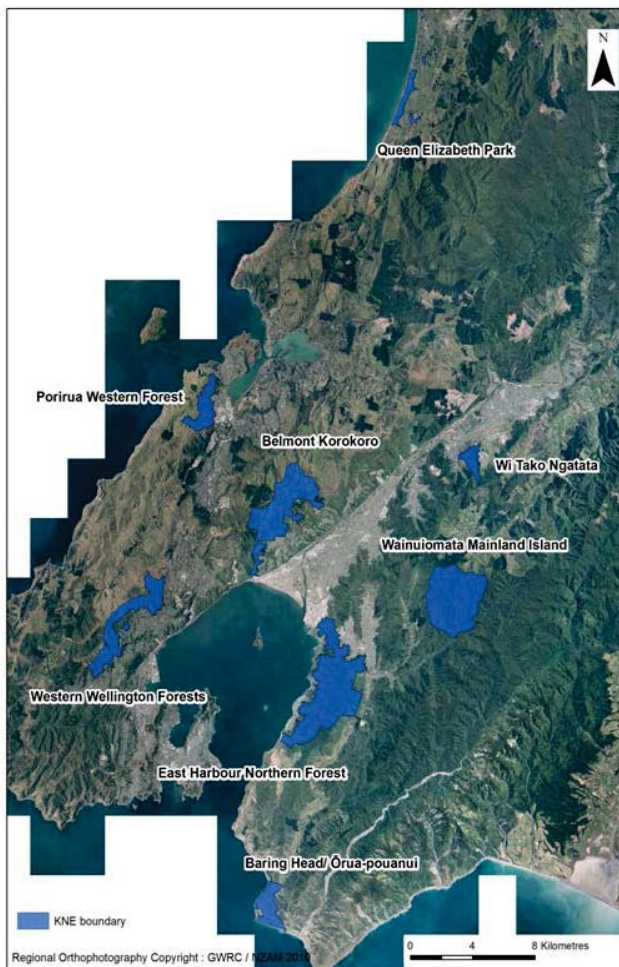
Actual performance

In order to better understand pest mammal dynamics and to ensure that small mammal control is effective, monitoring of rodents and mustelids is carried out at a sub-set of KNE sites where small mammal control regimes are undertaken. Small mammal monitoring was conducted in nine KNE sites during August 2015 and February 2016. Key results are summarised below:

- The tracking rates for rats were low in all monitored forest sites. Wellington Western Forests KNE site (Johnsonville Park), where a gas operated trap trial is underway, was the only site to record rat activity over the management target, although the tracking-rate fell from 50% reported in August 2015, to 15% later in the year.
- The mouse tracking rate was generally declining at all sites and often significantly lower than the level reported in the last monitor. This is thought to be a consequence of the rodent population crash seen across the region, following the exponential population increases recorded during the beech mast year.

- In the Wainuiomata Mainland Island KNE site and the non-treatment (control) site, rat tracking rates continue to drop following extremely high tracking rates related to the 2014 mast event. Uncharacteristically, there was a corresponding fall in mouse tracking in the Mainland Island site. Usually mice numbers increase as rat numbers fall, but reports received note that numbers have fallen around the country. This phenomenon is thought to be caused by the population crash mentioned above.
- A similar pattern of decreasing rodent numbers was recorded at the other forest sites (East Harbour Northern Forest (Mainland Island and non-treatment site), Belmont-Korokoro, Wi Tako Ngātata and Wellington Western Forests KNE sites (Otari/Wilton’s Bush and Johnsonville), with the exception of mouse tracking at the Johnsonville site.

Possum Monitoring using wax tags was carried out in two KNE sites in the 2015/16 year. In Wellington Western Forests KNE site (Otari) there were no possums detected on any of the 8 lines. In Porirua Western Forests KNE site there were no possums detected on any of the 10 lines. This monitoring confirms that possum numbers are well below the 5% Residual Trap Catch target, and that pest control techniques employed in the reserve are successfully maintaining low possum levels.



Map 3: Key Native Ecosystem sites in which monitoring is conducted.

8 Site-Led – Biodiversity – Possum

Aim: To minimise the adverse impacts of possums in areas of ecological significance (outside of the KNE programme) and maintain accrued biodiversity and economic gains in the Wellington region.

Means of achievement

Undertake direct control in sites of ecological significance (outside of the KNE programme) in agreement with the landowner/occupier.

Actual performance

GWRC supported landowners who undertake possum control in QEII National Trust covenanted sites across the region. Bait, traps and advice are provided by GWRC at cost.

During 2015/16 year GWRC have conducted a range of cost recovery possum, rat and mustelid control work outside the KNE programme for territorial authorities.

Means of achievement

Provide a referral or cost recovery service to landowners/occupiers who require possum control.

Actual performance

GWRC provides assistance and advice on the management of possums to individual property owners, usually in urban or peri-urban situations, with materials supplied at a cost recovery price. Assistance is usually with the intent that the occupier can self-manage any future possum problems. Nuisance possums can sometimes be managed in conjunction with, or, as an extension to our existing possum control areas.

Several information talks and field days were attended across the region.

9 Site-Led - Mt Bruce - Pukaha Predator Buffer

Aim: Complement the native flora and fauna restoration programme undertaken by the Department of Conservation (DOC), Rangitāne o Wairarapa and the National Wildlife Trust at the Mt Bruce Pukaha Scenic Reserve

The main objective of the Pukaha predator buffer is to maintain all predator numbers at very low levels within the buffer area and to reduce re-infestation by predators to the Mt Bruce Reserve. These control operations benefit a wide range of flora and fauna within the reserve. The focus is particularly on helping the survival of reintroduced threatened native bird species such as kaka, kokako and kiwi. The predator species targeted for control are possums, feral cats, mustelids, hedgehogs and rats.

Control is undertaken by kill-trapping and laying toxic baits in bait stations. Servicing of all equipment within the 2,200 hectare Pukaha predator control buffer was carried out by GWRC staff. Servicing occurred at monthly intervals, although due to a ferret incursion mid 2015 additional services were carried out during this period. The trapping programme accounted for 84 feral cats, nine ferrets, four stoats, 289 hedgehogs and 610 rats during the 2015/16 servicing year. This was the highest number of rats caught since the buffer operations began. Further control of possums and rats was achieved by the use of brodifacoum in bait stations.

A trial of Celium wireless sensors is planned for the Pukaha/Mt Bruce buffer operation. Each trap will have a sensor and connect with a satellite hub that feeds information back to a website if the trap has been triggered. This will allow landowners to become involved in servicing traps and also allow staff to target areas when maintaining traps.

Wireless technology has the potential to significantly reduce pest control costs and allow greater improvement of land owners and volunteers across the region.

A review of where and how many ferrets have been caught has identified the Ruamahanga River corridor as an area where the most catches occur. Forty extra trap sites were installed in June 2016. The A24 traps installed alongside the DOC250 traps are working well, killing multiple rats and keeping the DOC250s available for other target pests, particularly ferrets and stoats.

10 Goodnature Traps Trials

Goodnature traps are gas operated self-resetting traps able to make multiple kills (up to 12/24 depending on the model) of the target species over a prolonged period of time (the A12 model targets possums, the A24 is designed for rats, stoats and mice). GWRC has a long history of working with the manufacturer trying to improve the efficacy of the traps in field situations.

10.1 Project HALO

Project HALO has been setup over a 63 hectare area of land alongside the Zealandia Sanctuary for WCC. The intention of the trial is to control possums, rats and mustelids in the area using the Goodnature self-resetting, toxin-free A12 and A24 traps. Trials have included looking at different lures, trigger mechanisms and the effect that pre-feeding has on catch rates.

A mixture of pre-fed and non-pre-fed traps clearly demonstrated the value of attracting possums to the site before trapping by using pre feed. Alongside the possum work, A24 traps were activated for rats using the Goodnature automatic lure pump (ALP) filled with synthetic chocolate. Initial results have been successful, with further monitoring needed to ascertain specifics.

The next phase of the operation is to use rabbit meat at a lure in 50% of the A24's to present an attractive lure to mustelids. Monitoring will then be

undertaken to detect presence or absence of target species. In the last year 110 possums, 30 rats and 20 mice have been destroyed across the 63 hectare area.



Image 7: Successful rat kill using the A24 trap with chocolate lure.

10.2 Parangarahu Lakes

Goodnature A24 traps have been used at Parangarahu Lakes to target hedgehogs for the protection of threatened banded dotterels; this area is one of the largest of a handful of breeding colonies of banded dotterels in the Wellington region. Previous monitoring of banded dotterels around the Parangarahu Lakes identified hedgehogs as the main predator of dotterel nests.

During other trials of the Goodnature A24 gas powered traps, it was found the traps were effective against killing hedgehogs using peanut butter as lure. Throughout the nesting season these traps have outperformed the DOC200 traps leading to an increase in the number of fledged chicks this year. Sixteen banded dotterel chicks were observed at various stages during the breeding season, alongside two oyster catcher and three black-backed gull chicks that have successfully hatched within the control area.



Image 5: Raised Goodnature A24 trap at Pencarrow so that dispatched hedgehogs roll away and clear the trap entrance.

10.3 Pukaha/Mt Bruce Buffer

The predator traps in the 2,200 hectare farmland buffer around Pukaha/Mt Bruce National Wildlife Centre are targeted to catch mustelids and cats. A large by-catch of rats and hedgehogs is frequently caught in these traps, often days after the last servicing, making the traps unavailable for mustelids, particularly ferrets, which have caused a lot of predation issues on adult kiwi in the Pukaha forest. In an attempt to keep the traps open for mustelids, 50 Goodnature A24 traps have been installed at trap sites where rats are mostly caught. Results of this trail are pending.



Image 6: Goodnature A24 installed on a DOC250 box in the Pukaha Buffer.

11 Site-Led – Regional Possum and Predator Control Programme (RPPCP)

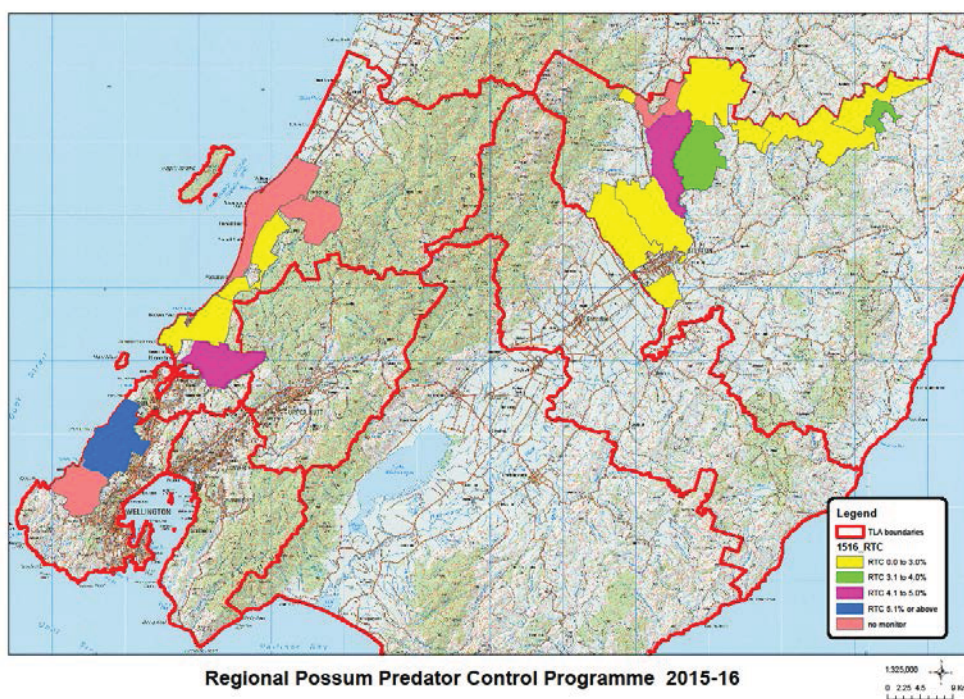
Aim: To minimise the adverse impacts of possums in areas declared Bovine Tb free or in areas which are outside of the Tb Free New Zealand programme.

Means of achievement

- (i) Address the adverse impacts of possums in bovine Tb free areas for catchment functions, biodiversity and economic prosperity
- (ii) Maintain a possum residual trap catch (RTC) of 5% or lower across the Wellington region in areas which have been declared bovine Tb free
- (iii) Commence possum control in areas not included within the Tb Free New Zealand programme.

Actual performance

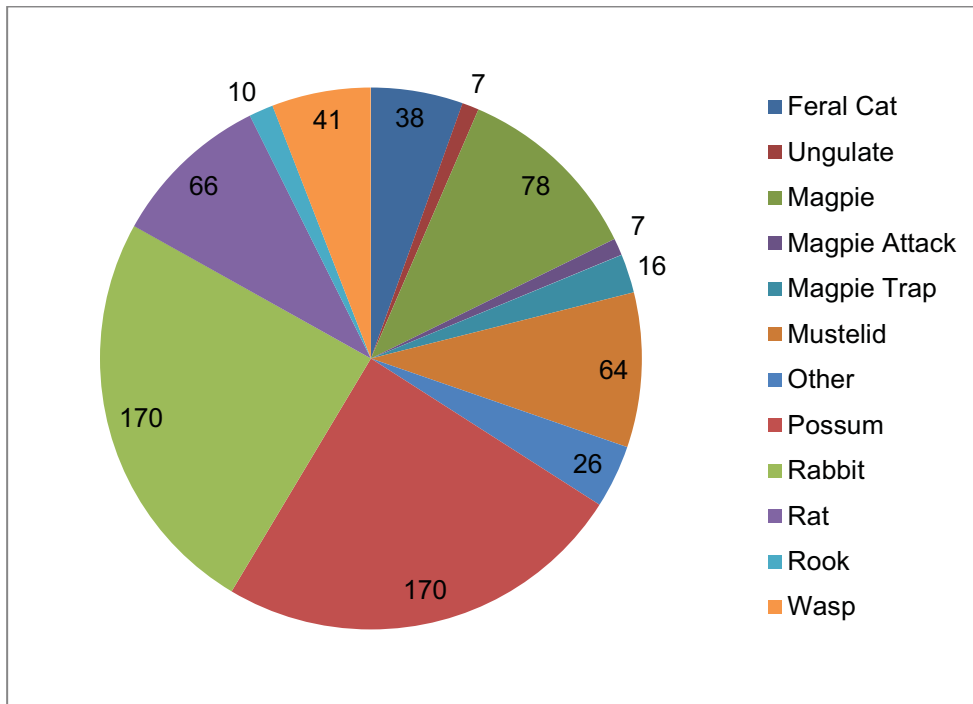
The Regional Possum Predator Control Programme (RPPCP) for the Wellington Region covered approximately 72,200 hectares. The 2015/16 programme included 42,700 ha which has been declared Tb free and a further 29,500 ha which has never been included within the TBfree New Zealand programme. The programme was delivered significantly under budget due to efficiencies in the servicing of the bait station network and a smaller than anticipated area declared free of bovine Tb.



Map 4: Regional Possum and Predator Control Programme 2015-16.

12 Public Enquiries

Responding to public enquiries is a significant focus of the Operational Plan. This year we received and processed 611 public pest animal related enquires.



Graph 7: Client response activity 2015-16 year.

Part Two

Pest Plants

13 Regional Surveillance Species

Aim: To determine the distribution and means of control for Regional Surveillance pest plants within the Wellington region.

Means of achievement

Identify new sites of Regional Surveillance pest plants by GWRC staff and the public through the Regional Surveillance programme.

Actual performance

There are 23 Regional Surveillance species listed in the RPMS. A factsheet for each regional Surveillance species can be found on the GWRC website.

To date only the 11 species have been discovered in the Wellington region (Table 2). This year, one new site containing a Regional Surveillance species was discovered (chocolate vine). This brings the total number of sites of Regional Surveillance species to 328.

Due to staff involvement in the national biosecurity responses (fruit fly response in Auckland and velvet leaf response in Wairarapa) some of the planned delimiting surveys (surveying a specified distance around a known infested site) were postponed for the 2016/17 year resulting in reduced spending.

Plant name	Number of sites
African fountain grass	2
Asiatic knotweed	36
Australian sedge	1
Bomarea	52
Chilean flame creeper	6
Chocolate vine	199
Delta arrowhead	1
Purple loosestrife	16
Senegal tea	10
Spartina	3
White edged nightshade	2
Total:	328

Table 2: Number of sites of Regional Surveillance species in the Wellington region

Means of achievement

Undertake a control trial programme on selected Regional Surveillance pest plants within the region.

Actual performance

Trial work continued on a number of species where there is no sufficient control information. We are trialling control of purple loosestrife, spartina and Senegal tea. The results of the trials will assist with future management of these species and will be used to inform forthcoming RPMS review in 2016/17.

Means of achievement

Use biological control agents where appropriate, and support relevant biological control research initiatives.

Actual performance

GWRC is part of the National Biological Control Collective (NBCC) along with a number of other Councils, DOC and Landcare Research. The NBCC is currently funding research into biocontrol agents for a range of pest plants including some Regional Surveillance species such as purple loosestrife.

Means of achievement

Provide information and publicity to enhance public awareness of the threat posed by Surveillance species to the region.

Actual performance

MPI continued their funding of the Check, Clean and Dry (CCD) programme for the eighth consecutive year. The aim of the programme is to raise public awareness of didymo and other freshwater pest species and the risk these pose to our waterways. A Regional Advocate is employed to engage with the public by targeting high use areas of our rivers and attending specialist outdoor events. Information is also given out to relevant organisations, businesses and clubs involved in the recreational activities around our waterways.



Image 8: Competitors in the Karapoti Classic mountain bike race check, clean and dry their bikes prior to the competition to avoid spreading weed seeds.

14 Total Control Species

Aim: To control all Total Control species within the Wellington region.

Means of achievement

Identify new sites of Total Control species through incidental reports by GWRC staff, the public, or through the Regional Surveillance programme.

Actual performance

This year, 51 new sites of Total Control species were discovered (29 blue passionflower, 13 moth plant, six woolly nightshade, two Bathurst bur, one climbing spindleberry). This brings the total number of known Total Control species sites to 1,160 (table 3).

Plant name	Number of sites
African feathergrass	104
Bathurst bur	14
Blue passionflower	436
Climbing spindleberry	64
Eelgrass	91
Moth plant	214
Perennial nettle	89
Saffron thistle	9
Woolly nightshade	139
Total:	1,160

Table 3: Number of sites of Total Control species in the Wellington region.

This year a number of delimiting surveys (surveying a specified distance around a known infested site) occurred in an attempt to locate further sites of targeted species. The most significant survey took place in the township of Featherston where 29 new sites of moth plant and blue passionflower were found.

There was also a very comprehensive survey undertaken of 44 ponds in Waikanae and Upper Hutt. A number of pest plant species were found but no Regional Surveillance or Total Control species were located.

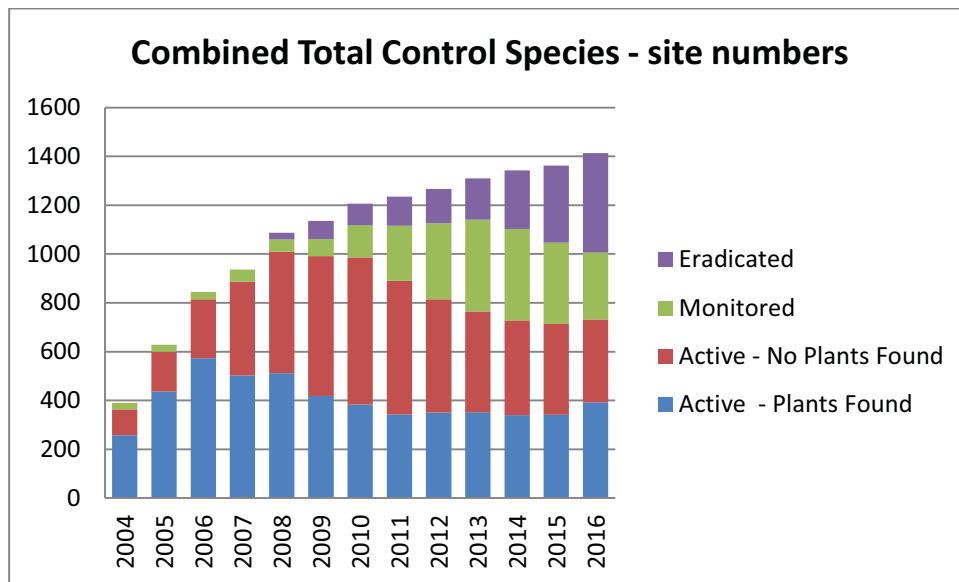
Means of achievement

Undertake direct control by service delivery of all Total Control species at all known sites within the region on an annual basis.

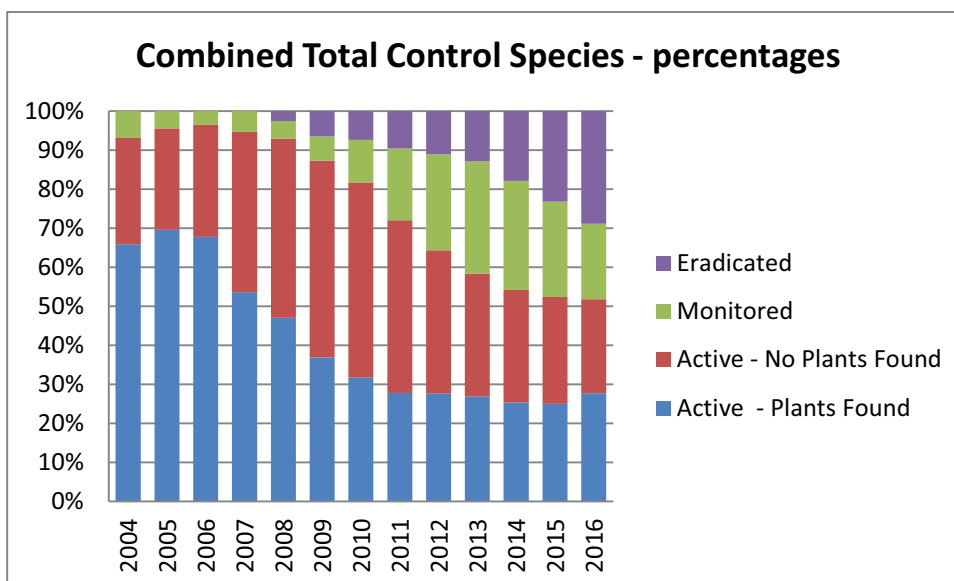
Actual performance

All Total Control sites were inspected at least once during the year and any plants found were controlled. Some sites required multiple inspections due to the plants reproductive capabilities i.e. species that can seed a number of times in a growing season.

Excellent progress is being made with current sites of Total Control species with 406 of the 1,160 sites being assessed as eradicated and a further 265 being monitored. Some operational savings were made due to the reduced number of sites and plants under active control. The cost is likely to increase in 2016/17 year as a result of new sites found during further delimiting surveys.



Graph 8: The status of Total Control species in the Wellington region.



Graph 9: Status of Total Control species (%).

Means of achievement

Annually inspect all plant outlets and markets within the region for the sale and/or propagation of Total Control species.

Actual performance

Eighty five plant outlets and markets in the region were inspected for RPMS and National Pest Plant Accord (NPPA) species. There was only one incidence of non-compliance resulting from a market selling wild ginger. The plants were removed from sale and a follow-up inspection undertaken to ensure compliance.

Means of achievement

Use biological control agents where appropriate, and support relevant biological control research initiatives.

Actual performance

The NBCC is currently undertaking research into finding suitable biocontrol agents for two Total Control species; moth plant and woolly nightshade.

The woolly nightshade lace bug (*Gargaphia decoris*) was released in 2010, and has established in some areas of the country, causing significant damage to plants.

The moth plant beetle (*Colaspis argentinensis*) was approved for release in 2011 but no releases have been made to date. Landcare Research is waiting for export permits to be granted by Argentinian authorities, before the beetles can be brought into New Zealand.

The moth plant rust fungus (*Puccinia araujiae*) was approved for release in 2015 but no releases have been made to date.

15 Containment Species

Aim: To control all Containment species outside the Containment zones within the Wellington region.

Means of achievement

Undertake direct control of Containment species outside the Containment zone within the region on an annual basis.

Actual Performance

Biosecurity staff continue to inspect and control all known boneseed sites outside areas determined as containment zones. The programme has made considerable progress in reducing the number of boneseed plants setting seed. Control areas are located in coastal Wairarapa, Titahi Bay and on Wellington's south coast.



Image 9: Aerial control of boneseed continues on the coastal escarpment at Ngawi, South Wairarapa.

All known sites of sweet pea shrub and evergreen buckthorn outside the containment areas were controlled.

Means of achievement

Provide information and publicity to enhance public awareness of the threat posed by the Containment species to the region.

Actual performance

The GWRC website includes information on all Containment species. A factsheet on boneseed is available online. This is also used as a poster in selected coastal shops to inform the public of the threat posed by this plant.

Means of achievement

Identify new sites of Containment species outside the Containment zones through incidental reports by GWRC staff, the public, or through the Regional Surveillance programme.

Actual performance

Boneseed, evergreen buckthorn and sweet pea shrub were controlled whenever they were found outside the containment zones. This mainly occurred on dunes and escarpment ecosystems.

Means of achievement

Use biological control agents where appropriate, and support relevant biological control research initiatives.

Actual performance

The boneseed leaf roller caterpillar (*Totrix s.l.sp. chrysanthemoides*) has been released in previous years within the Wellington and Porirua coastal escarpments, but failed to establish likely due to predation by ants and wasps. Landcare Research and NBCC continue to look for suitable biocontrol agents for boneseed.

16 Site-Led Boundary Control and Human Health Species

Aim: To minimise the adverse impacts of Site-led boundary control species and the risk to human health of species in specific situations throughout the Wellington region.

Means of achievement

Action complaints received to comply with the RPMS rules.

Actual performance

A number of enquiries were received regarding Site-led Boundary Control and human health species. Staff responded to all complaints and public requests for inspections this year. Direct compliance action by staff is usually the most cost effective way to address a complaint from a member of the public. The spread of biological control agents remains the most effective means of targeting widespread, established pest plant species.

Means of achievement

Use biological control agents where appropriate, and support relevant biological control research initiatives.

Actual performance

As these species are widely established in the region, the most effective management is through the use of biological control agents. These agents reduce the vitality of individual plants and lessen their ability to flower, fruit and seed. Once established the agents can be manually spread or will travel to new infestations, providing benefits on a landscape scale.

The National Biological Control Collective continues research into finding suitable biocontrol agents for a number of Site-Led species including: banana passionfruit, nodding thistle, old man's beard and wild ginger. Landcare Research is continuing trials of a banana passionfruit foliage-feeding moth (*Pyrausta perelegans*) and a stem-boring moth (*Odonna passiflorae*). Host testing for the wild ginger weevil (*Tetratopus sp.*) and ginger fruit fly (*Merochlorops dimorphus*) is progressing well.

17 Site-Led – Key Native Ecosystems, Reserves and Forest Health

Aim: To protect indigenous biodiversity in a comprehensive selection of Key Native Ecosystems and Reserves.

Means of achievement

Ensure KNEs are legally protected into perpetuity.

Actual performance

Most KNE sites treated during 2015/16 included legally protected or publicly owned land. This includes Territorial Authority Reserves, QEII covenants, or legally protected sites were contained within the management area.

Means of achievement

Undertake direct control of pests identified in the management plan for KNEs and Reserves.

Actual Performance

Control work was undertaken at 58 KNE sites. Work was either carried out by external contractors or by GWRC staff. Work was also carried out collaboratively with DOC as agreed in a Memorandum of Understanding.



Image 10: Biosecurity department's field team control valerian on Wellington's South Coast.

Means of achievement

Co-ordinate site management with other biodiversity initiatives where possible.

Actual performance

In addition to the work completed in KNE's and Reserves this year, staff worked on a number of other biodiversity initiatives. These included working with:

- The GWRC Biodiversity department on a range of biodiversity projects including planting and follow up weed control after planting
- Porirua City Council (PCC) and the Biodiversity Department on the Porirua Harbour Catchment programme, involving controlling multiple environmental pest plants at Bothamley Park, Porirua Park and Kakaho-Motukaraka Reserves
- DOC and the Biodiversity department on aerial spray operations on alder and willow species around Lake Wairarapa
- QEII National Trust and Kiwirail at Taupo Swamp controlling multiple pest plant species
- DOC surveying and controlling the pest plant gunnera along the Tauherenikau River
- Hutt City Council on controlling boneseed, marram grass and horned poppy at Parangarahu lakes.

Means of achievement

Manage external pressures that are inconsistent with KNE and reserve management objectives.

Actual performance

KNE plans systematically identify all threats to indigenous biodiversity and make available resources to target pest control and manage external pressures.

GWRC made all reasonable efforts to mitigate threats to restoration areas such as livestock access, rubbish and garden waste dumping, boundary encroachment and pest animal incursions. Efforts are made to raise awareness on such issues and referrals are made to relevant internal and external partners when necessary.

18 Biological Control

GWRC has a long involvement with the national biological control programme (appendix 1). Biological control involves release, into the environment, of living organism that attack and eventually reduce vigour of widely established pest plant and animal species minimising their negative impact on the environment. Since the first releases of biocontrol agents in 1972 there have been 35 agents released in our region and 22 established self-sustaining populations.

Staff worked with 12 different species of biocontrol agents during the year. This work included releasing and transferring agents, and monitoring their establishment and spread. The following is a summary of some this work.

Three species of beetles which attack tradescantia have been released in the region, including the tradescantia leaf beetle (*Neolema ogloblini*), the tradescantia tip beetle (*Neolema abbreviata*) and the tradescantia stem beetle (*Lema basicostata*). Each beetle targets a different part of the plant to systematically weaken it in an effort to minimise its impact. At this stage it is too early to determine whether they have established in the region or what impact they are having.

There were five transfers of the green thistle beetle (*Cassida rubiginosa*) made this year. Over 30,000 beetles have been collected from the main harvest site at Rangitumau in Masterton in recent years for releases in our region and other parts of the country.

This year a monitoring programme on the impacts of the green thistle beetle on Californian thistle was started in collaboration with AgResearch. This is a long term programme involving intensive monitoring at seven sites each month from October through to March.

Twenty six transfers of broom gall mites (*Aceria genistae*) were made throughout the region and previous release sites were also inspected. Establishment results have been promising for this agent, with some plants becoming heavily infested and subsequently dying.

Buddleia leaf weevil (*Cleopus japonicus*) was transferred to 22 new sites in the region. This agent continues to do well and significant impacts have been observed at various sites around the region (image 11).

There were two new agents released into the region this year. They were the privet lace bug (*Leptoypha hospita*) at Te Ahumairangi, Wellington and the Darwin's barberry seed weevil (*Berberidicola exaratus*) at Mangaroa Valley, Upper Hutt and the Karori Skyline walkway, Wellington. The barberry seed weevil release is the first time that this species has been used as a biocontrol agent anywhere in the world.

An information stall on biocontrol was included at PestFest in Wellington this year. Samples of agents were present and staff provided information and discussed the availability and status of biocontrol agents in the Wellington region. The day was a closing event for Conservation Week in Wellington and involved interactive activities for kids.



Image 11: Buddleia leaf weevil juveniles feeding on the surface of a buddleia plant.

19 National Interest Pest Response Programme (NIPR)

The MPI-led National Interest Pest Responses (NIPR) aim to eradicate selected established pests from New Zealand. These pests were selected for national response because of their potential to have a significant impact on our economic, environmental, social and cultural values. GWRC is part of the programme to eradicate Manchurian wild rice (MWR) and Cape tulip from New Zealand. GWRC deliver's pest plant control management for these two species on behalf of MPI.

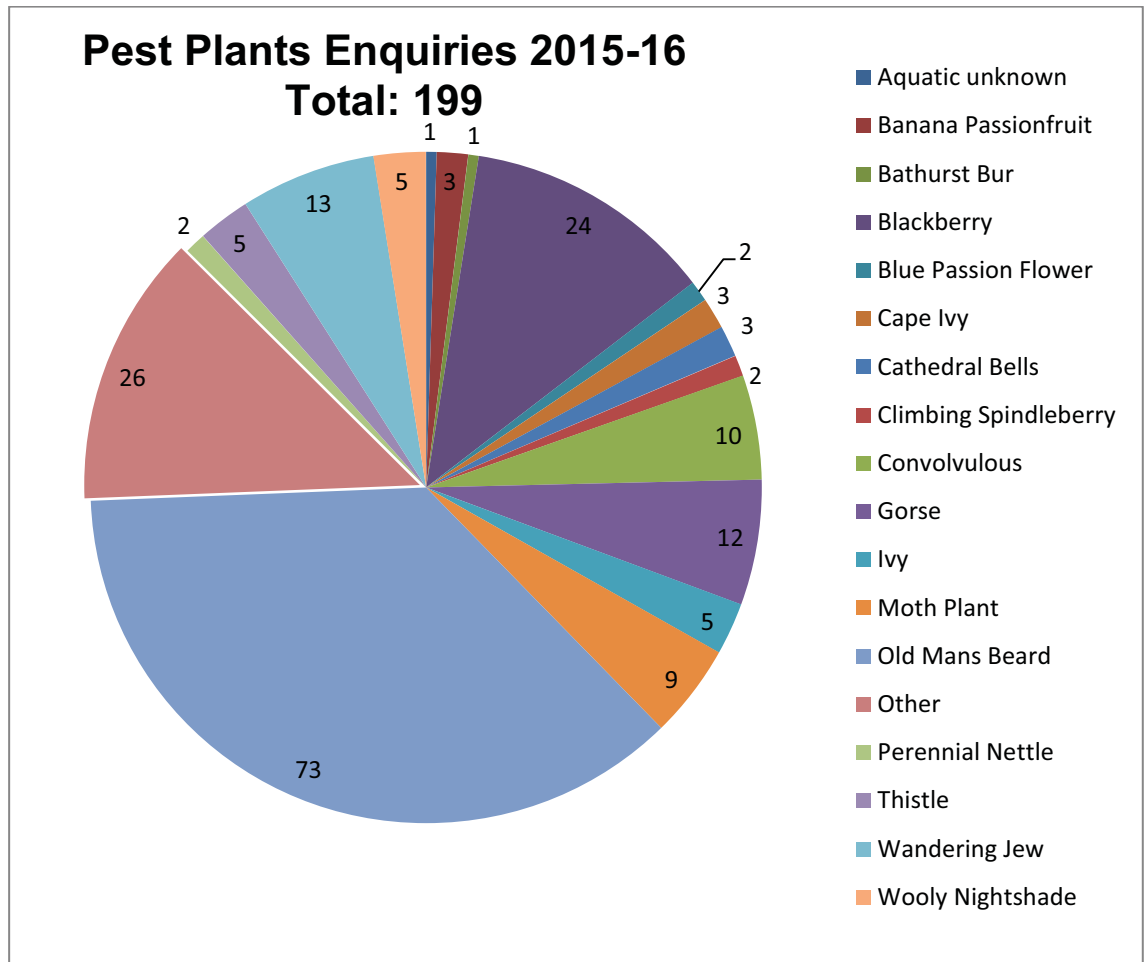
There is one site of MWR in the region at Te Harakeke swamp in Waikanae. This was surveyed and controlled using a helicopter and staff on the ground to manage areas close to housing. Infestations, although now significantly

reduced in size and number of plants, continue to be very difficult to control due to changes in water level, accessibility and infestations being obscured by vegetation.

There are two active Cape tulip sites in the region. GWRC staff inspected these sites on two separate occasions and no plants were found.

20 Public Enquiries

This year Pest Plants staff received and responded to 199 public enquiries.



Graph 11: Client response activity 2015-16 year.

21 Financial Summary

The financial year end result for pest management under the Regional Pest Management Strategy was an operating surplus of \$373,000 due mostly to the increased demand on the department's pest animal management services.

	\$ (000's)
Rates and Levies	3,663
External Revenue	423
Internal Revenue	1,432
Total Operating Revenue	5,518
Total Direct Expenditure	4,596
Dept Overheads	549
Total Operating Expenditure	5,145
Surplus	373

Appendix 1 – Biocontrol agents released in the Wellington Region

Agent species name	First released	Total number of known sites	Overall agent status
Boneseed agents			
Boneseed leaf roller	2007	8	suspect failure
Broom agents			
Broom gall mite	2009	400+	established
Broom leaf beetle	2009	3	uncertain
Broom psyllid	1995	400+	widespread
Broom seed beetle	1994	200+	widespread
Broom shoot moth	2008	3	uncertain
Buddleia agents			
Buddleia leaf weevil	2007	100+	established
Darwin's barberry agents			
Darwin's barberry seed weevil	2015	2	Released this year
Gorse agents			
Gorse colonial hard shoot moth	2002	4	failed
Gorse pod moth	1997	abundant	widespread
Gorse soft shoot moth	2007	4	uncertain
Gorse spider mite	1989	abundant	widespread
Gorse thrips	1990	abundant	widespread
Mistflower agents			
Mistflower gall fly	2001	2	established
Mistflower fungus	2009	1	established
Old man's beard agents			
Old man's beard leaf fungus	1997	4	failed
Old man's beard leaf miner	1995	abundant	widespread
Old man's beard sawfly	2002	2	failed
Privet agents			
Privet lace bug	2015	1	Released this year
Ragwort agents			
Cinnabar moth	2006	abundant	widespread
Ragwort plume moth	2012	3	established
Ragwort flea beetle	1988	abundant	widespread
Thistle agents			
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	177	established
Nodding thistle receptacle weevil	1972	abundant	widespread
Nodding thistle crown weevil	1990	4	established
Nodding thistle gall fly	2005	2	established
Scotch thistle gall fly	2005	52	established
Tradescantia agents			
Tradescantia leaf beetle	2011	6	established
Tradescantia stem beetle	2012	5	uncertain
Tradescantia tip beetle	2013	5	uncertain
TOTALS:		1239	

The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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