greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

If calling please ask for: Democratic Services

30 November 2018

Environment Committee

Order Paper for the meeting of the Environment Committee to be held in the Council Chamber, Greater Wellington Regional Council, Level 2, 15 Walter Street, Te Aro, Wellington on:

Thursday, 6 December 2018 at 9.30am

Membership

Cr Kedgley (Chair)
Cr Brash (Deputy)

Cr Blakeley
Cr Gaylor
Cr Laidlaw
Cr McKinnon
Cr Ponter
Cr Swain

Cr Donaldson
Cr Laban
Cr Lamason
Cr Ogden
Cr Staples

Barbie Barton

Ihaia Puketapu

Recommendations in reports are not to be construed as Council policy until adopted by Council

Environment Committee

Order Paper for meeting to be held on Thursday, 6 December 2018 in the Council Chamber, Greater Wellington Regional Council, Level 2, 15 Walter Street, Te Aro, Wellington at 9.30am

Public Business

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Please note that these minutes remain unconfirmed until the meeting of the Environment Committee on 6 December 2018.

Report 18.506
31/10/2018
File: CCAB-10-636

Minutes of the Environment Committee meeting held on Wednesday, 31 October 2018 in the Council Chamber, Greater Wellington Regional Council, Level 2, 15 Walter Street, Te Aro, Wellington at 09:30am.

Present

Councillors Kedgley (Chair), Blakeley (from 09:39am) Brash (Deputy Chair), Donaldson, Gaylor, Laban, Laidlaw, Lamason, McKinnon, Ogden, Ponter, Swain, and Staples; Barbie Barton and Ihaia Puketapu (from 09:42am.)

Public Business

1 **Apologies**

Moved *(Cr Kedgley/Cr Donaldson)*

That the Committee accepts the apologies for lateness from Cr Blakeley and Ihaia Puketapu.

The motion was **CARRIED**.

2 **Declarations of conflict of interest**

There were no declarations of conflict of interest.

The Committee noted that Peter Brooking, Friends of Queen Elizabeth Park was unduly delayed and agreed public participation would occur when Mr Brooking arrived, immediately prior to item 7 on the agenda *Report on Environmental Defence Society (EDS) Climate Change and Business Conference.*

3 **Confirmation of the public minutes of 20 September 2018**

Moved *(Cr Laidlaw/Cr Donaldson)*

That the Committee confirms the public minutes of the meeting of 20 September 2018, Report 18.428

The motion was **CARRIED**.

4 **Action items from previous meetings**

Report 18.423 File ref: CCAB-10-589

Moved *(Cr Kedgley/Cr Staples)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*

The motion was **CARRIED.**

5 **Update from the Climate Change Working Groups**

Report 18.423 File ref: CCAB-10-593

Moved *(Cr Brash/Cr Gaylor)*

That the Committee:

1. *Receives the report.*
2. *Notes the contents of the report*

The motion was **CARRIED.**

6 **Public Participation**

Peter Brooking, Friends of Queen Elizabeth Park spoke to item 10 on the agenda.

Councillor Blakeley arrived at 09:39am and Ihaia Puketapu at 09:42 during public participation.

7 **Report on Environmental Defence Society (EDS) Climate Change and Business Conference**

Cr Blakeley spoke to the report.

Report 18.326 File ref: CCAB-10-562

Moved *(Cr Blakeley/Cr Kedgley)*

That the Committee:

1. *Receives the report.*

2. *Notes the content of the report.*

3. *Agrees to request officers to report back to the Committee on greater disclosure of financial and other risks and opportunities, relating to Council's regulatory and operational responsibilities, as an annual statement in its Annual Report about the climate change risks it faces and the steps it is taking to mitigate and adapt to these risks.*

The motion was **CARRIED**.

8 **Whaitua programme update – October 2018**

Report 18.502 File ref: CCAB-10-632

Moved *(Cr Lamason/Cr Swain)*

That the Committee:

1. *Receives the report.*

2. *Notes the content of the report.*

The motion was **CARRIED**.

9 **Recreational water quality monitoring programme and regional swimming targets**

Lucy Harper, Team Leader Policy Implementation spoke to the report.

Report 18.479 File ref: CCAB-10-629

Moved *(Cr McKinnon/Cr Donaldson)*

That the Committee:

1. *Receives the report.*

2. *Notes the changes to the recreational water quality monitoring programme.*

3. *Recommends that Council adopts the regional swimming targets of 75% of rivers as swimmable by 2030 as final.*

4. *Notes that the regional swimming targets will be amended as each whaitua process is integrated into the Natural Resources Plan.*

The motion was **CARRIED.**

10 **General Manager's report to the Environment Committee**

Nigel Corry, Deputy Chief Executive, Graeme Campbell, Manager, Flood Protection and Wayne O'Donnell, General Manager, Catchment Management spoke to the report.

Report 18.451 File ref: CCAB-10-590

Moved *(Cr Lamason/Cr Brash)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*

The motion was **CARRIED**.

The meeting closed at 11:40am.

Cr S Kedgley
(Chair)

Date:

Report	**18.569**
Date	29 November 2018
File	CCAB-10-654
Committee	**Environment Committee**
Authors	**Matt Hickman, Acting General Manager, Environment Management and Wayne O'Donnell, General Manager, Catchment Management**

Action items from previous meetings

Attachment 1 lists items raised at Environment Committee meetings that require actions or follow-ups from officers. All action items include an outline of current status and a brief comment. Once the items have been completed and reported to the Committee they will be removed from the list.

No decision is being sought in this report. This report is for the Committee's information only.

Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

Report approved by:	Report approved by:
Matt Hickman Acting, General Manager, Environment Management	**Wayne O'Donnell** General Manager, Catchment Management

Attachment 1: Action items from previous meetings

Attachment 1 to Report 18.569

Action points from previous Environment Committee meetings

Meeting date	Action point	Status and comment
20 September 2018	**Resolution** *Requests that the Greater Wellington Climate Change Working Group review the emissions reductions guidelines and report back to the Committee.*	**Status**: *To be actioned* **Comments**:

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Report	2018.536
Date	29 November 2018
File	ENPL-9-253
Committee	**Environment Committee**
Author	**Davor Bejakovich, Manager, Biosecurity**

Regional Pest Management Strategy 2002-2022: Operational Plan Report 2017/18

1. Purpose

To report on the performance of the 2017/18 Operational Plan for the implementation of the Regional Pest Management Strategy 2002-2022.

2. Background

Greater Wellington Regional Council (GWRC) is responsible for the Wellington Regional Pest Management Strategy 2002-2022 (RPMS). The Council approved the current RPMS on 17 September 2002.

Under Section 100B of the Biosecurity Act 1993, Council is required to prepare an annual Operational Plan outlining the activities under the RPMS. Following the end of the financial year, Council is required to produce an Operational Plan Report, detailing the results of the Operational Plan.

The Operational Plan Report is made available to the public and a copy forwarded to the relevant Minister(s).

3. The Operational Plan Report

During 2017/18 the Biosecurity Department continued the implementation of the RPMS as outlined in the Operational Plan 2017/18. Control activities are based on the biology of the pest plant and pest animal species and best practice pest control methodology. Resources are allocated according to the impact of the species and the subsequent requirements of the management programmes.

The control and management regime for each pest species is considered against the impacts, spread, costs and benefits of the species. All pests in the strategy are listed in one of five management categories; Regional Surveillance, Containment, Total Control, Suppression and Site-Led. The majority of resources were allocated to Total Control and Site-Led species.

i. **Total Control**
As part of the GWRC proposed Regional Pest Management Plan 2019-2039 review, intensive inspections and delimiting surveys for Total Control pest plants were undertaken across the region, with 2,274 individual properties inspected.

ii. **Biocontrol**
Staff worked with ten different species of biocontrol agents during the year. This includes beetles to control tradescantia and green thistles, the broom gall mite, the Buddleia leaf weevil, Scotch thistle gall fly, and the Japanese Honshu white admiral butterfly to control Japanese honeysuckle.

iii. **Rooks**
The Total Control rook programme in 2017/2018 was successfully undertaken with the number of nests requiring treatment having being reduced from 150 in 2009/10 to 16 in 2017/18. The programme is aiming to achieve total control of rooks in the region by 2025.

iv. **Rabbits**
The suppression of feral rabbits continues across the region with numbers remaining at low levels overall, with small pockets of rabbits persisting around traditional hotspots. The release of the RHDV1-K5 virus took place in April 2018 with results showing 50% of sites had less rabbits, 16% of sites had the same number, and 34% of sites had more rabbits.

v. **Regional Possum Predator Control Programme (RPPCP)**
The Regional Possum and Predator Control Programme (RPPCP) currently covers approximately 138,900 ha of the Wellington Region which includes new projects within the Whangaehu, Bideford and Tinui areas of the Masterton District. In the 2017/18 year, 92,800 ha were treated to control possums. Seven projects were monitored and the annual Residual Trap Catch index was 0.9% (vs target of <5%).

vi. **Site-Led**
Site-Led programmes remain a primary focus of the RPMS, with successful management of a wide range of plant and animal pests in specific sites. This year control work was undertaken at 58 KNE sites across the region. The long-running Key Native Ecosystem programme, now administered by the Biodiversity Department, continues to be successfully implemented.

vii. **Relationships**
An essential part of implementing the Strategy is successful relationship building and providing advice and education to the community. The Biosecurity department retains strong partnerships with central and local government, iwi, science providers, community groups and the general public.

viii. **Advice & Education**
Advice and education remains an important tool to ensure that the public are aware of their responsibilities under the RPMS, and can access resources and information for successful pest management.

ix. **Public enquiries**
Responding to enquiries from the public remains an important part of the RPMS. There was almost double the amount of public enquiries received in 2017/18 with 1034 enquiries, compared to 581 in 2016/17. The increased activity can be contributed to the communities increased demand for resources (both pest animals and pest plants) and the implementation of GWRC's new internal client database. Many of these required site visits or inspections, often followed by control advice and sale of equipment. The GWRC website continued to receive regular enquiries seeking information and advice on pest management.

The attached 2017/18 RPMS Operational Plan Report further details the achievements against the objectives of the Operational Plan, and lists the spending and outcomes of the control programmes.

4. Communication

Public notices will be issued to inform the public that the RPMS Operational Plan Report 2017/18 is available for inspection. Copies will be forwarded to the appropriate Minister(s) for their review and comment.

5. Consideration of Climate Change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

5.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

Operational emissions associated with biosecurity operations are measured and reported via the GWRC Carbon Inventory and subject to the emissions reduction initiatives set out in the GWRC Corporate Sustainability Action Plan.

GWRC's role in enabling forests in the region to draw CO2 down from the atmosphere (carbon sequestration) is significant. Biosecurity operations contribute to protecting native forest and vegetation by maintaining large scale pest animal management programmes.

Possum control and KNE programmes help maintain the carbon sequestration capacity of forests located within the 188,000 ha under GWRC possum control (the KNE programme encompasses 48,000 ha of mostly forest ecosystems and regional possum control covers over 140,000 ha of the region). Biodiversity and Parks programmes, along with erosion control initiatives, have resulted in thousands of new trees being planted each year.

5.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

Biosecurity threats are expected to increase as the climate in the Wellington Region continues to change. Future challenges will include new exotic pests, weeds and diseases which have previously not been able to flourish becoming established. The potential establishment of subtropical pests and current seasonal immigrants are of greatest concern, along with taxa that are already recognised as high risk.

Subsequent Operational Plans will address identified threats, as well as options for managing the effects climate change is expected to have on the departments' operations (for example severe weather can impact service delivery of aerial and ground based pest control).

6. The decision-making process and significance

The matter requiring decision in this report has been considered by officers against the requirements of Part 6 of the Local Government Act 2002.

6.1 Significance of the decision

Officers have considered the significance of the matter, taking the Council's significance policy and decision making guidelines into account. Officers recommend that the matter is considered to have low significance.

Officers do not consider that a formal record outlining consideration of the decision-making process is required in this instance.

7. Recommendations

That the Committee:

1. ***Approves** the Operational Plan Report 2017/18 (Attachment 1) for the Regional Pest Management Strategy 2002-2022.*

2. ***Notes** that a copy of the Operational Plan Report 2017/18 will be forwarded to the relevant Ministers.*

3. ***Notes** that the Operational Plan Report 2017/18 will be made available for public inspection.*

Report prepared by:	Report approved by:
Davor Bejakovich Manager, Biosecurity	**Wayne O'Donnell** General Manager, Catchment Management Group

Attachment 1: Operational Plan Report 2017/18 for the Regional Pest Management Strategy 2002-2022

Attachment 1 to Report 18.536

Regional Pest Management Strategy 2002-2022

Operational Plan Report 2017/18

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1. Introduction

1.1 Biosecurity at the Greater Wellington Regional Council

The Wellington region is under threat from a number of pest animal and plant species. The 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 ecosystems.
- Pest plants and pest animals cause considerable economic loss in many of New Zealand's primary industries. Pest management is essential to the success of our agricultural and horticultural industries.
- Pest plants and pest 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.

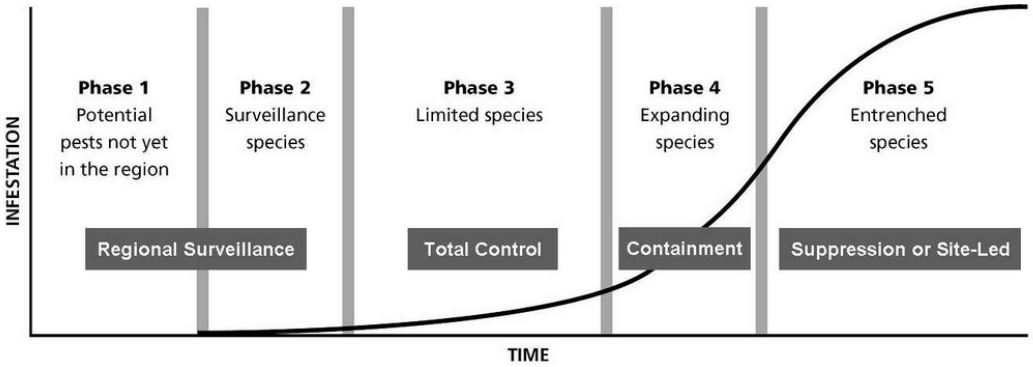
The Regional Pest Management Strategy 2002-2022 (RPMS) provides the strategic and statutory framework for effective pest management in the Wellington region. The central focus of the RPMS is on mitigating pest threats to society, to farming and agriculture in general, and supporting indigenous biodiversity and the ecological health of our ecosystems. There are 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 pest 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. The ability for this to be achieved was due to support from landowners, care groups and Territorial Authorities (TA).

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.



Graph 1. Pest infestation curve.

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.

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 2017/18 and aligns with the GWRC Annual Plan, which sets overall priorities and work programmes for the organisation.

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 regarding how and where those resources were applied in the 2017/18 year.

The report is structured in two parts:

Part One - Pest Animals

Part Two - Pest Plants

The content is organised to align with the Operational Plan 2017/18. In the Pest Animal and Pest Plant sections, the aim, cost, 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 at a cost of $12,000.**

Annual cost: **The cost of Surveillance species management (monitoring, investigation, publicity and reporting) for the region was $9,200.**

Means of achievement

Provide information and publicity to enhance public awareness of the surveillance species. The species in this category are Argentine ants, Australian subterranean termites, Darwin's ant, rainbow skink and red-eared slider turtle.

Actual performance

Publicity around Argentine ants at Raumati South created a lot of interest and kept staff busy following up requests. Activities included a delimiting survey to gauge the extent of infestation, providing advice, and selling bait at cost price to landowners for ant control.

The infestation at Raumati South was a new site and from the work in this area more locations with Argentine ants have been detected. The ants are thought to have been brought to the area in infested pot plants. These ants can be dealt with by landowners combining efforts and baiting the entire infested area, and inspecting pot plants and soil before moving it around. An infested edge of Queen Elizabeth Park was treated for Argentine ants by our staff.

We are working with the Department of Conservation (DOC) and Kapiti Coast District Council (KCDC) to treat Argentine ants at the Paraparaumu boat club which is the loading point for visitors to Kapiti Island, and at other sites of interest such as helicopter pads and private owner's residents on the mainland.

Social media posts instigated a biosecurity response in Happy Valley road. A dead adult wallaby was photographed in the gutter on Happy Valley road near Owhiro Bay school. It was posted on Facebook, but by the time GWRC staff made it to the site the wallaby was gone. Wellington City Council (WCC) and DOC were also involved, with Biosecurity staff spending time doing a night search with a thermal imager, and bringing in an indicator dog, however the wallaby was not recovered.

3. Total Control – Rooks

Aim: **To manage rooks as a Total Control category pest to levels that protects production systems at a cost of $108,000.**

Annual cost: **The cost of rook management (surveys, research, compliance, education) for the region was $45,348.**

Means of achievement

Undertake direct control by service delivery where rooks are known to exist.

Actual performance

Eight breeding rookeries were identified in the Wairarapa during 2017/18. This is three less rookeries than recorded in the previous two years. Between monitoring and control there were strong periods of north westerly winds but fortunately no nesting disruption appeared evident at active rookeries. Unsettled weather delayed the first round of nest baiting by several days, but 13 nests containing eggs or chicks were treated at seven rookeries on the 27 October. A subsequent baiting was carried out on the 6 November where a rookery with three nests holding eggs or chicks was treated.

The male rook is responsible for nest building and there has been an increasing trend of fresh but unused nests seen at active rookeries both in Horizon and Wellington regions. We feel that this is a reflection of the imbalance of males to females from years of repeated nest control. This year, 50 fresh but unused nests were recorded at the active rookeries.

The rook control programme remains on track to achieve total control of rooks in the Wellington Region by 2025. The number of treated nests has reduced from 150 in 2009/10 to 16 in 2017/18.

For a number of years, GWRC have not received any reports of rook damage to crops in arable farming regions. This indicates the success of the aerial baiting strategy.

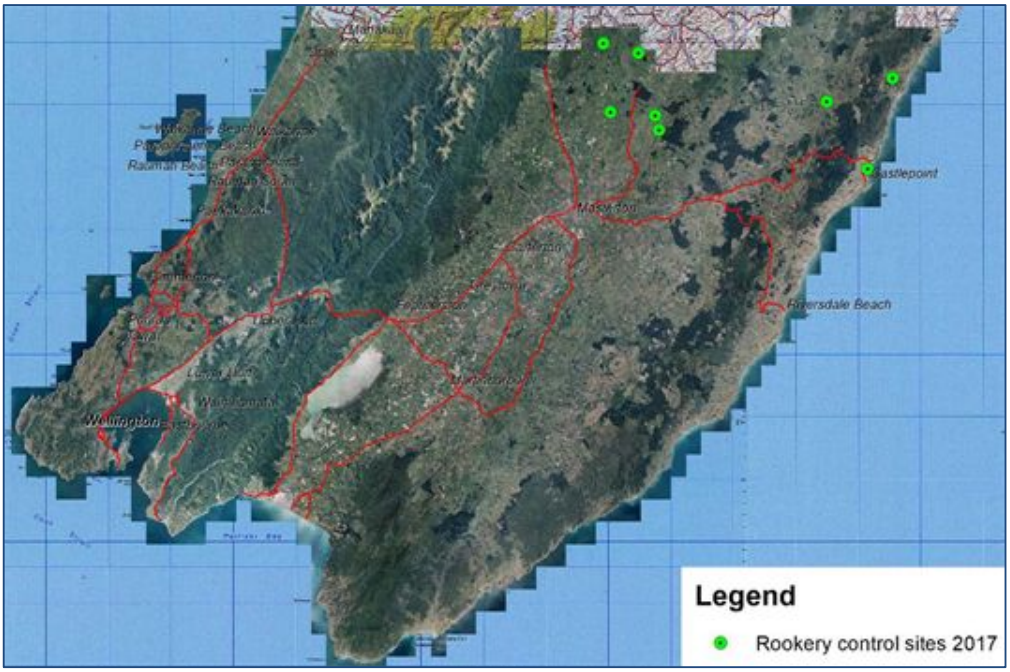
Means of achievement

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

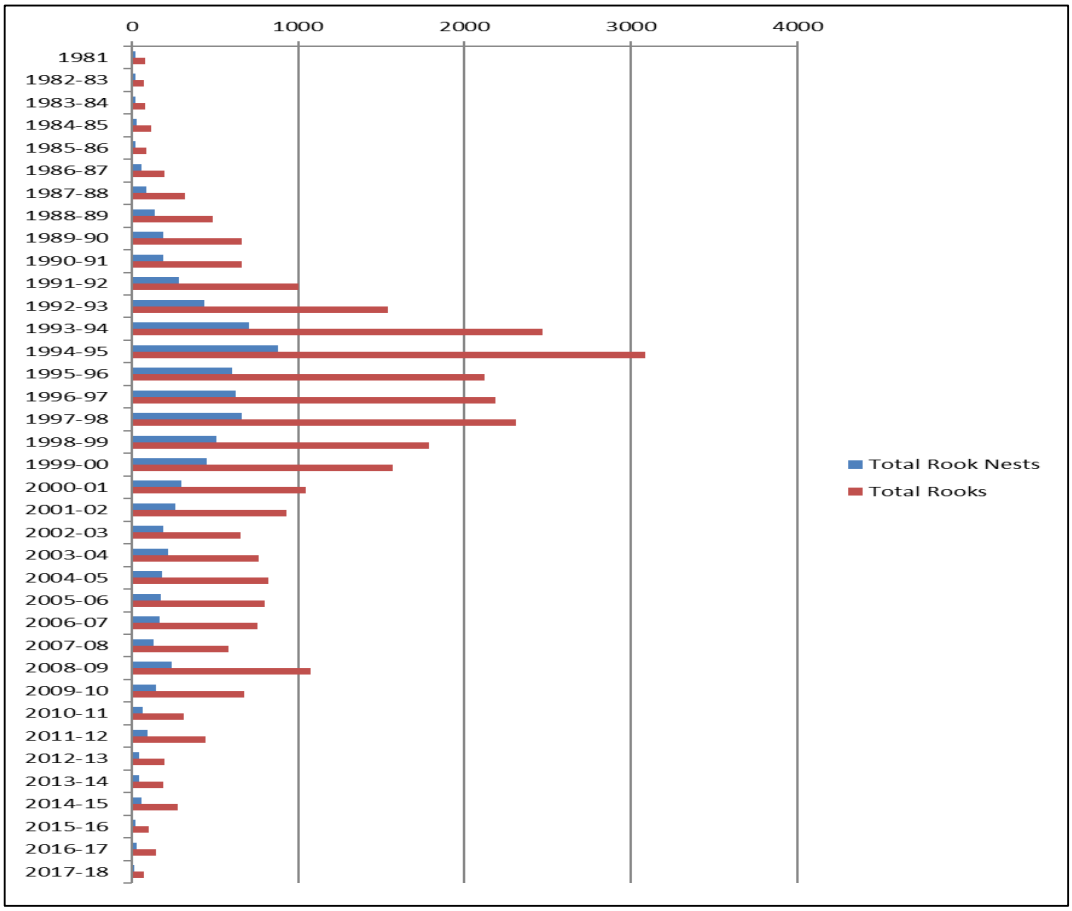
Actual performance

There are presently 116 known rookery sites in the region, both historical and current. All known sites were visited to determine the presence or absence of rooks. Areas of likely habitat are also surveyed from helicopter when travelling to known rookeries with the aim of locating new colonies. Some ground surveys are followed by an aerial survey in spring to check for the presence/absence of nests with eggs or chicks.

The rook programme relies heavily on the public and landowners in the region to help with locating rooks. The control programme is publicised annually in newspapers urging the public to report sightings. One new rookery was reported by a landowner. Alongside this, three old rookeries had reactivated with the balance still active since control of the previous year. All rookeries were relatively small in size.



Map 1. Rookeries treated during the 2017 season.



Graph 2. Total number of rookeries and number of rooks (estimated) in the Wellington Region.

Means of achievement

Ensure compliance with the RPMS rules.

Actual performance

The advertising campaign continues to remind landowners of their responsibilities when managing rooks. Private 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. Public and landowner education is the key to ensure control is managed by GWRC.

Means of achievement

Encourage Horizons Regional Council to actively pursue management of rooks within their region that complements GWRC's Total Control programme.

Actual performance

Horizons Regional Council was actively involved in aerial nest baiting in the 2017/18 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 the Wairarapa.

4. Suppression Species – Rabbits

Aim: **To minimise the adverse impacts of feral rabbits throughout the region at a cost of $216,000.**

Annual Cost: **The cost of rabbit management (surveys, service delivery, biological control, compliance, education and research) for the region was $219,000.**

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.

Actual performance

There were no situations in the region that required regulatory intervention. Most rabbit control undertaken during the year was 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 WCC, Hutt City Council (HCC) and KCDC and GWRC's Akura Nursery. Costs for these activities were fully recovered. The use of the thermal imaging equipment has made these operations significantly more effective.

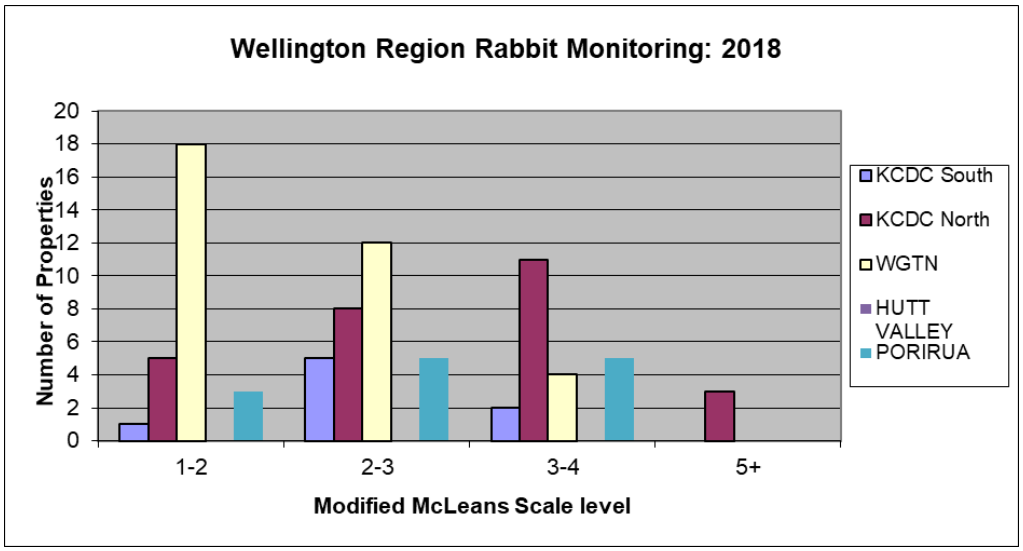
Means of achievement

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

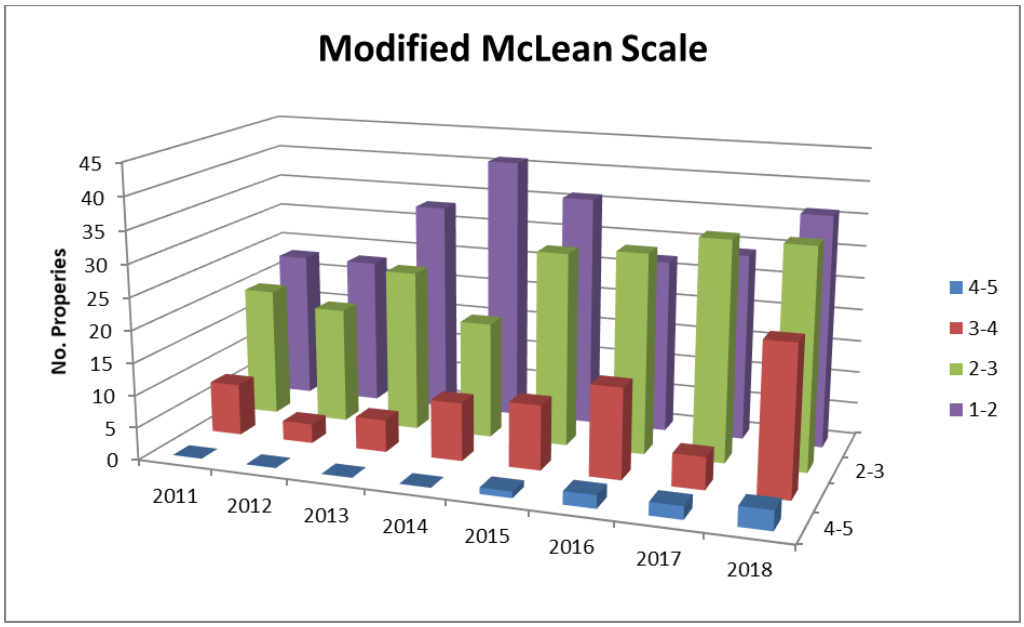
Actual performance

A daytime survey of the Tauherenikau River and the adjacent properties was completed in May 2018 with rabbit numbers being very low. These surveys assessed rabbit abundance between Level 1 & 3 on the Modified McLean Scale. This river system historically produced hordes of rabbits that spread onto neighbouring stony free-draining farmland requiring periodic poisoning programmes to control numbers. The last intensive poisoning campaign was undertaken in the summer of 1993.

The rabbit prone areas of the Kapiti Coast, Wellington City and the Hutt Valley were also monitored in May 2018. Inspections have shown that rabbit numbers are again low in most areas, with small pockets of rabbits persisting around traditional hotspots.



Graph 3. Modified McLeans Scale Level.



Graph 4. Rabbit property survey results 2011 – 2018.

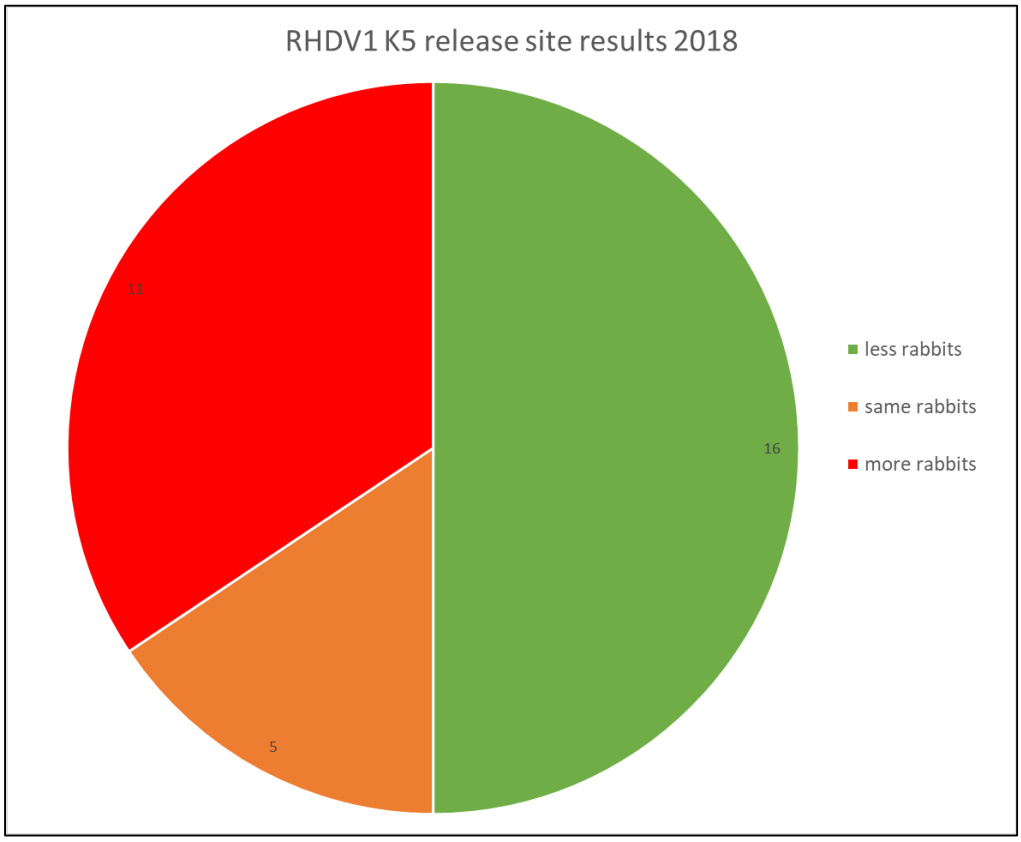
Means of achievement

Release biological control agents for the control of feral rabbits when appropriate.

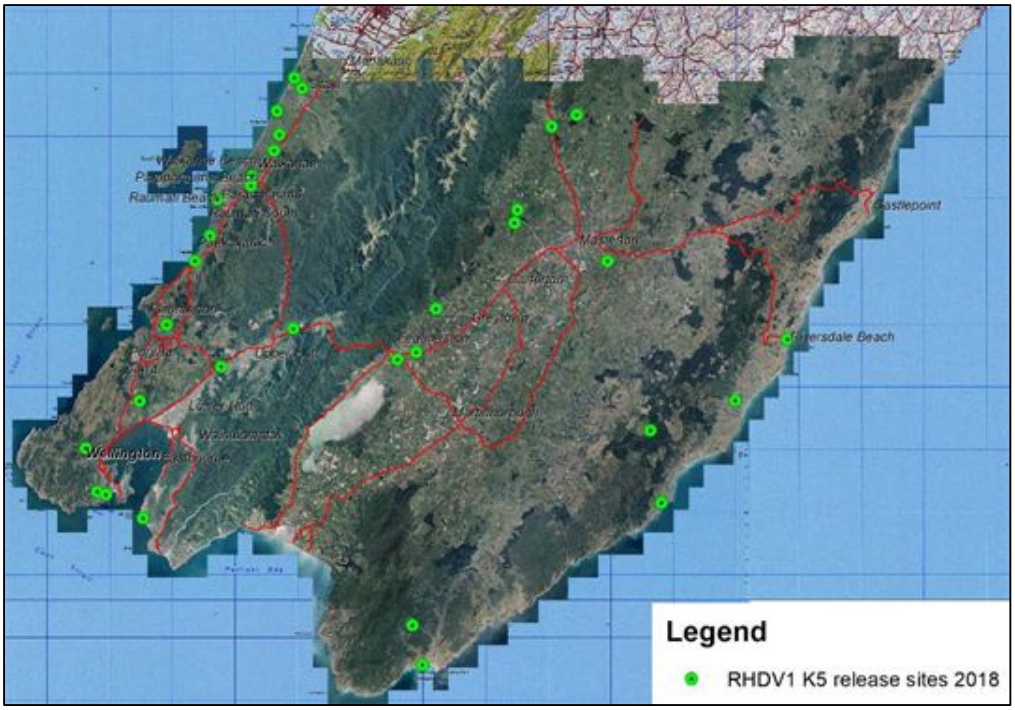
Actual performance

The current virus RHDV1 has continued killing feral rabbits in a few places throughout the region. A new strain of rabbit haemorrhagic disease virus (RHDV) known as RHDV1-K5 was approved for release in New Zealand in March and April 2018. The Wellington Region was included in this release, with GWRC releasing the virus at 32 sites across the region on 23 April 2018.

Prefeeding and night counts took place before the virus was released and night counts were re-done to assess effectiveness. The virus appears to have killed most rabbits that ate the bait directly. Post-release monitoring showed 16 sites had less rabbits, five sites had the same number of rabbits, and 11 sites had more rabbits.



Graph 5. RHDV1 K5 release site results 2018.



Map 2. RHDV1-K5 release sites 2018

On 15 May 2018, the Ministry for Primary Industries (MPI) confirmed that a new strain of the rabbit calicivirus RHDV2 had been discovered in a single wild rabbit found on Molesworth Station in the South Island. It was picked up by Manaaki Whenua Landcare Research (LCR) as part of routine sampling for research into the impact of RHDV1-K5.

The strain, called RHDV2, is widespread in Europe and Australia but had not previously been found in New Zealand. While they still don't know how widespread this strain is in New Zealand, the virus can spread rapidly, so there is a chance it is already prevalent in the wild. A rabbit from northern Wairarapa has since been confirmed as having also died from the virus.

Means of achievement

Support research initiatives including biological control.

Actual performance

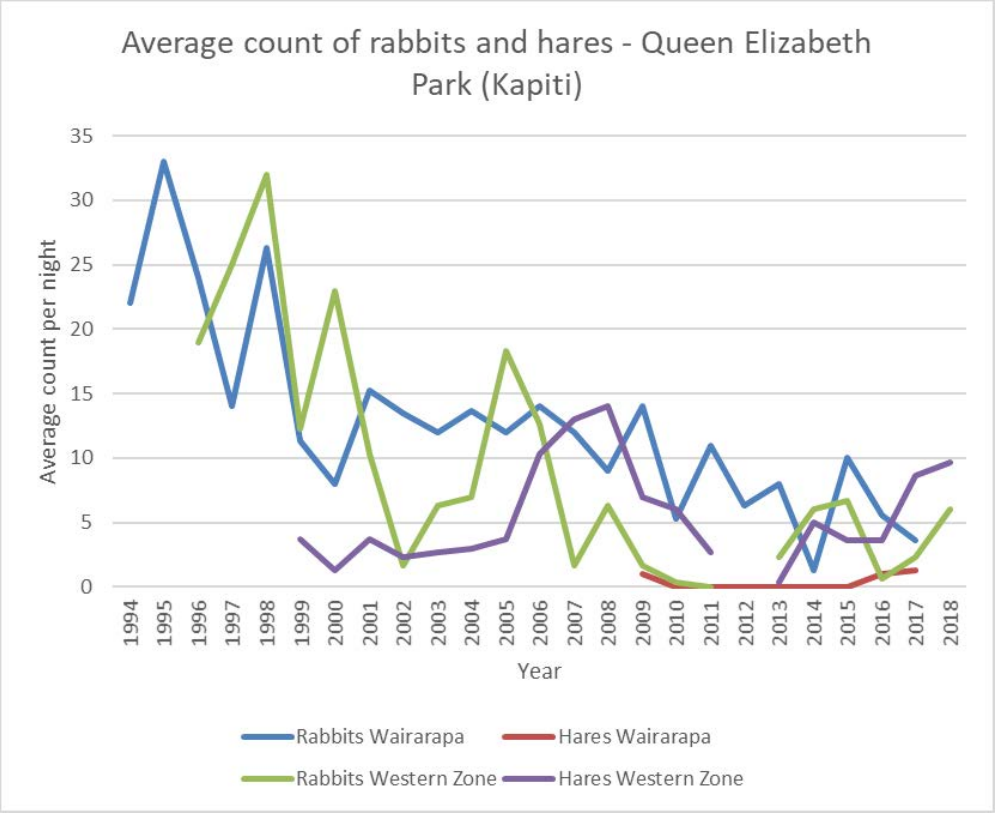
Prior to the RHDV1-K5 release, a reduced amount of blood sampling was conducted (due to funding required for release of the K5 strain) in KCDC reserves and private land to assess immunity for RHDV1. Results showed a high level of immunity in the northern areas of the Kapiti Coast. Following the release, RHDV-K5 testing was done when dead rabbits were found. Results showed one confirmed case of death caused by the K5 strain.

Rabbit trend monitoring

Rabbit and hare night counts are conducted between May and July each year in Queen Elizabeth II Park (QEP) on the Kapiti coast, and on the Tora coast in the Wairarapa. The aim of the monitoring is to determine rabbit and hare populations at these two sites in the absence of formal control.

Monitoring for the 2017-18 year was not done in the Wairarapa (Tora coast) as the properties used for monitoring had restricted access due to the *Mycoplasma bovis* outbreak.

The counts in the QEP site showed an increase of roughly double the rabbit and hare numbers counted from last year.



Graph 6. Average count of rabbits and hares in 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 at a cost of $65,000.**

Annual Cost: **The cost of magpie management to minimise adverse environmental and health impacts for the region was $37,400.**

Means of achievement

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

Actual performance

Ten (10) complaints were logged regarding magpies attacking public. All complaints were responded to within 10 working days including capture and destroying the magpie(s) involved in some cases.

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

During the 2017/18 we received 29 calls and all calls had response times within 15 working days. Staff provided advice on best practice trapping techniques to maximise catches, and had loan traps available.

Image 1. Multi-catch magpie trap loaned to private landowners full of caught magpies.

6. Site-Led Species – Human Health – Wasps

Aim: **To minimise the adverse human health and environmental impacts of wasps at selected sites at a cost of $7,000.**

Annual Cost: **The cost of wasp management to minimise the adverse human health and environmental impacts for the region was $18,400.**

Means of achievement

Provide advice and education to occupiers wanting to undertake wasp control.

Actual performance

GWRC continues to contribute funding to the National Wasp Research Collective. The research focussed on potential biocontrol agents and a mite recently found on Vespula wasps in New Zealand as a form of biocontrol. The Sustainable Farming Fund programme led by Manaaki Whenua – Landcare Research (in conjunction with a support group in the upper South Island) has been awarded funding for another three years to enable the identification of novel biocontrol agents for wasps. There will undoubtedly be other wasp-infested nations watching with interest.

This project initially explored the potential for a mite, *Pneumolaelaps niutirani,* found on the wings of wasps to provide perpetual control at a landscape scale. While it was found that this was unlikely to be effective as a classic biocontrol, the work with the mite, in conjunction with wasp-specific pathogens will continue under the Biological Heritage National Science Challenge. In addition, the Collective re-introduced new genetic stock of the parasitoid *Sphecophaga* from the UK. These were collected along with wasp parasite hoover flies *Volucella zonaria* and *Volucella inanis*, and *Metoecus paradoxus* beetles. Unfortunately over wintering of these organisms in laboratory proved difficult and only a fraction of the flies emerged after winter, threatening the success of the biocontrol programme.

Wasp season 2017/18

There were 16 human health complaints from occupiers about neighbouring wasp nests affecting them. This is an increase from previous years. It may reflect the change in our reporting process and favourable weather conditions.

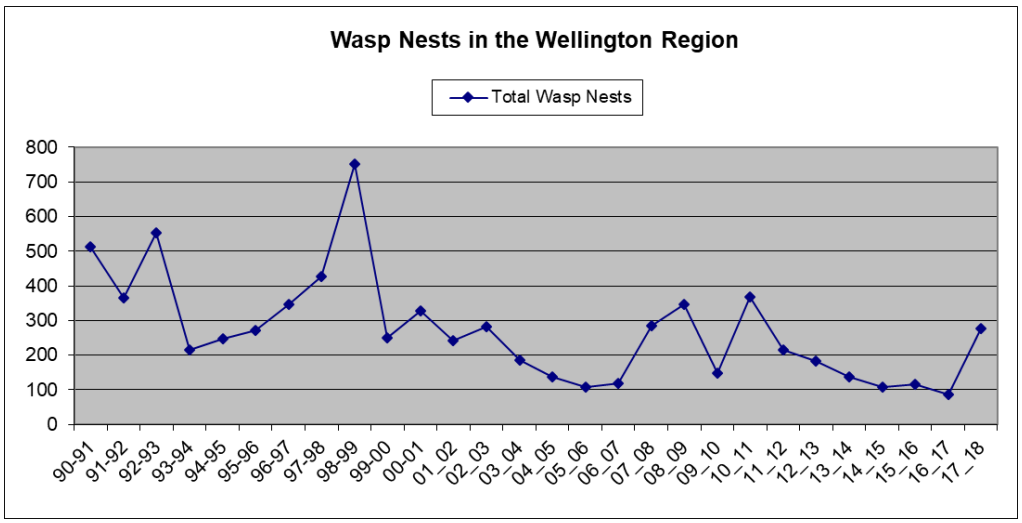
Various Territorial Authorities, DOC and GWRC respond to wasp nest nuisance calls within the Wellington Region. All calls have been recorded in the 'Wasp Nest Register' since 1990/91. A sharp increase for the 2017-18 season is a change from recent years. The amount of calls regarding wasp nests to GWRC and various TAs is indicative of a favourable season weather wise (Graph 7).

All Biosecurity department Pest Animals staff became registered users of the new wasp bait Vespex which came on the market in December 2015. Biosecurity staff have trialled the product in random sites to test the accepted prognosis from other organisations is that it is only really effective in beech forests with little other food availability.

The large willow aphid infestations in the region are likely to drive wasp numbers up with the right climatic conditions. The aphids cause the secretion of large amounts of honeydew from willow trees, creating a food source for wasps, which leads to

increased wasp activity near areas with willow trees. Treatment options will vary depending on the site.

We are working with the community to enable them to treat wasps and nests. We do this through the website, social media and at open days, sharing information, discussing technique and building traps.



Graph 7. Wasp nuisance nest calls for the Wellington Region.

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 at a cost of $1,654,000.**

Annual Cost: **The cost to achieve a measurable improvement in the ecological health and diversity of Key Native Ecosystems and reserves through pest animal control was $1,812,000[1].**

Means of achievement

Establish and implement integrated pest management plans for all KNE sites and selected reserves.

Actual performance

KNE operational plans are being produced for all 58 KNE sites that identify pest management requirements at each KNE site.

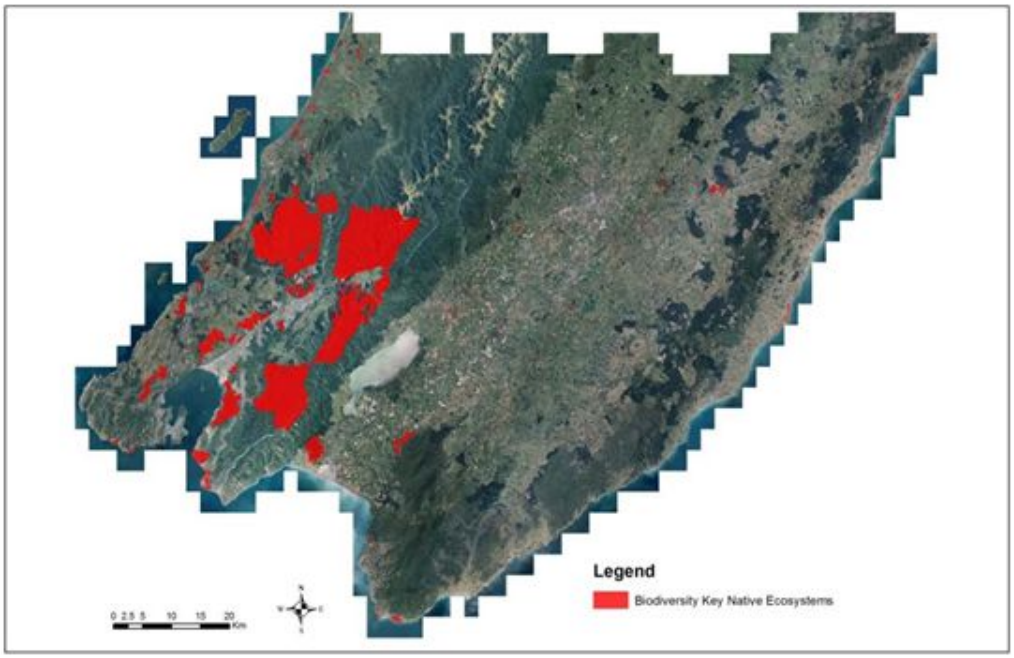
[1] Pest Animals team delivered a significant number of additional cost recovery pest control operations for TAs (see table 2)

Means of achievement

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

Actual performance

During the 2017/18 year, pest animal control of possums, rats and/or mustelids was undertaken at 51 of the 58 KNE sites.



Map 3. Sites managed as part of GWRC's Key Native Ecosystem (KNE) programme in the Wellington Region 2017/18.

Case Study: Parangarahu Lakes

As a result of intensive and refined trapping and night shooting, no dotterel nests at the Parangarahu Lakes Block were predated on. This is a really big reward for the huge amount of effort by volunteers and staff. A huge amount of learning has occurred and best practise trapping methods refined to suit the suite of pests and harsh coastal environment. This learning is now being used to improve trapping along the same coastline and at Baring Head, another site where dotterels nest.

Image 2. Ramp system to allow hedgehog kills to roll away from the trap entrance (Goodnature A24 traps).

Image 3. Banded dotterel at Parangarahu Lakes.

Means of achievement

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

Actual performance

GWRC maintains good working relationships with all of the regional TAs, including a number of shared funding agreements for pest management. Memoranda of Understanding (MOU) provide a formal platform for these relationships. The MOU is prepared and agreed between GWRC's Biodiversity and Biosecurity departments and the relevant TAs (annual agreements – Hutt City Council, Upper Hutt City Council, Kapiti Coast District Council, Porirua City Council; longer term agreements – Masterton District Council, Wellington City Council). 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.

Means of achievement

Coordinate site management with other biodiversity initiatives, where possible.

Actual performance

KNE operational plans identify all management partners and relevant stakeholders and GWRC works collaboratively with these groups to coordinate site management.

Pest animal control is undertaken with volunteers to assist them in achieving a range of biodiversity based objectives. This continues in a wide range of Territorial Authority (TA) reserves and KNEs across the region.

Means of achievement

Undertake direct control of feral and unwanted cats by service delivery as part of the integrated pest management of KNE 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, as the high number of domestic cats in urban areas prevents the use of current cat management techniques. GWRC also works in conjunction with TA's and private landowners to manage feral and unwanted cat populations.

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 are given advice on control options, offer of materials at cost price or referred to commercial pest management operators.

WCC have had bylaw changes to introduce compulsory microchipping. Until pet cats can be identified, control of feral or stray populations is almost impossible anywhere near urban areas.

Means of achievement

Reduce densities of select Site-led biodiversity species (feral deer, feral goats, and feral pigs) in KNE sites and TA reserves.

Actual performance

Another successful year of ungulate control has concluded with 320 feral goats, 31 feral deer and 173 feral pigs being destroyed. Control was undertaken in Wainuiomata Mainland Island, Wainuiomata/Orongorongo Catchment, East Harbour Regional Park, Hutt Catchment, Kaitoke, Pakuratahi, and Akatarawa. Aerial control was successfully undertaken in February, and the Judas goat in Kaitoke was re-collared. Requests were made by the hunting team for more hunting time in several areas, in particular Pakuratahi, to counter the increasing reinvasion rates from DOC land.

GWRC staff have undertaken feral goat control in several KNE sites and assisted WCC with pig control work around urban areas.

Means of achievement

Facilitate the involvement of community groups, where appropriate.

Actual performance

GWRC has been involved with community groups undertaking pest control for many years. Several KNE sites benefit significantly from the enthusiasm and resources of community groups. Groups have been carrying out plantings, pest control, monitoring and ecological surveys, and fundraising to support the management of KNE sites.

Pest control involvement continued in 2017/18 with the Biosecurity team having involvement with groups, participating at 22 sites, and private landowners doing their own control at four sites in the KNE programme and numerous other QEII covenant sites.

Legends of pest control operations, Allan and Glennis Shepard, have retired from servicing bait stations and traps. Areas they have been involved in, the Keith George KNE, Wi Tako KNE, Maidstone Park, Tunnel Gully, and Trentham Memorial Park KNE, have benefited greatly from their efforts.

Predator Free Wellington

Predator Free Wellington Ltd (PFWL) is a joint venture between Wellington City Council, Greater Wellington Regional Council, the NEXT Foundation and Central Government funders - PF2050 Ltd. While this is a technical challenge bringing innovation and creativity to the fore, it is also a social challenge with success dependent upon the community connecting with the goal and seeing themselves as part of this uniquely Wellington story.

Wellington is at the forefront of a remarkable social movement with 44 suburbs having established community led backyard trapping groups involving tens of thousands of households contributing to the shared vision. This is further reinforced by over 120 community groups working in reserves in the broader ecological restoration space. A

comprehensive social survey of Wellingtonians completed in March 2017 showed 84% support for the eradication goal. We are working off a strong mandate from the public.

PFWL builds on a 20 year programme of integrated predator control and broader ecological restoration undertaken in reserves and rural landscapes in partnership between WCC, GWRC and communities.

The success of this project will provide a huge milestone in the national context of achieving a Predator Free New Zealand by demonstrating that eradication of multiple species can be achieved in both the urban and commercial context right here in our capital city. This ground breaking project will prove if eradication is possible in complex urban environments and, if successful, will inspire other urban communities across New Zealand and internationally.

The first phase of the project is to launch a full scale eradication operation on the Miramar Peninsula in the winter of 2019, before moving into the CBD and beyond in subsequent years. Securing the peninsula against re-invasion through an effective barrier zone is absolutely critical to ensure the gains are not lost. To achieve this, PWFL has partnered with Zero Invasive Predators Ltd (ZIP) and are in the process of engaging key stakeholders in the development of potential options.

In the 2017-18 year GWRC staff have been involved with:

- Developing an eradication plan and price to eradicate Miramar Peninsula of rats and mustelids
- Planning and implementing another 200m x 200m chew card monitor across the Miramar Peninsula and Wellington International Airport land with the assistance of volunteers to assess the pre-control predator numbers
- Preparing a monitoring plan for the Predator Free Wellington project, incorporating detection monitoring and outcome monitoring to assess the benefits of the programme for local native species.

Means of achievement

Monitor site recovery using a range of ecological indicators.

Actual performance

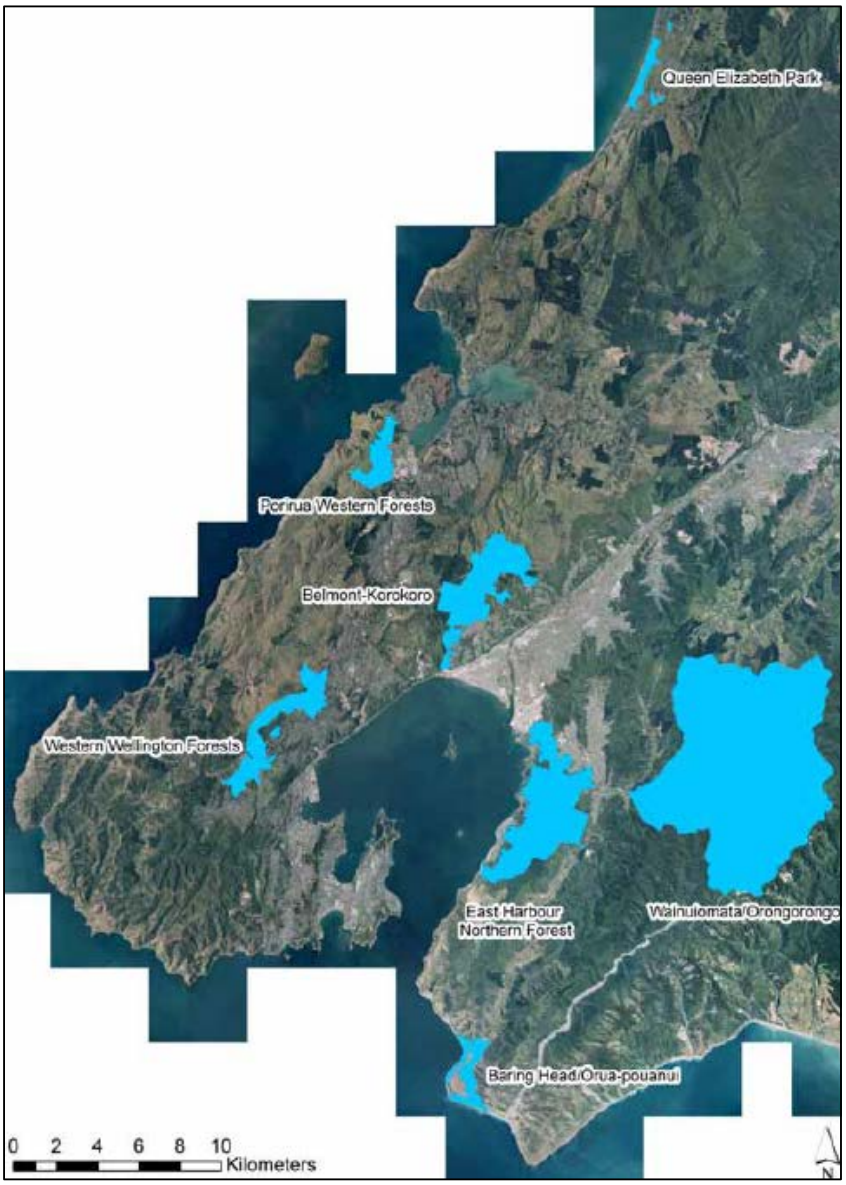
In order to better understand pest mammal dynamics and to ensure that small mammal control is effective, monitoring of rodents and mustelids is carried out at a sub-set of KNE sites. Small mammal monitoring was conducted at eight KNE sites (Map 4) during 2017/18.

An aerial 1080 possum control operation is planned to be undertaken in the Wainuiomata/Orongorongo KNE site during the spring of 2018. Officers doing the operational planning are taking advantage of the expected benefit of this operation, in the way of suppression of possum and rat populations, by pausing ground based possum and rat control and diverting funding from these into the maintenance and improvement of the pest control infrastructure. Possum traps and rodent bait stations were last re-baited in December 2017. Rebaiting of these traps and bait stations will resume three months after the aerial operation. This pause in control has led to an increase in rat tracking rates from a low of 6% in February 2018 to 32% in May 2018. Mice tracking rates have remained at low levels in both the Mainland Island and the

non-treatment area. This may be due to the extreme rat tracking rates interfering with mice activity.

In the East Harbour Northern Forest KNE site the rat tracking rate in the non-treatment area has increased from its peak 28% in February 2017 to 50% in May 2018. In the Mainland Island rats have remained at low levels reaching 8% in May 2018. Mice tracking rates have stabilised below the 10% tracking rate in both the Mainland Island and the non-treatment areas.

The tracking rates for rats were relatively low in most other monitored forest sites. Belmont Korokoro (12%) Wellington Western Forests – Otari (3%), Porirua Western Forests (13%) KNE sites. The exception is at Wellington Western Forests – Johnsonville Park where the tracking rate increased to 35% in June 2018 (refer Section 9 for detail about this trial).



Map 4: Key Native Ecosystem small mammal monitoring sites.

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 at a cost of $132,000.**

Annual cost: **The cost for minimising the adverse impacts of possums in ecologically significant areas and maintaining current biodiversity and economic gains in the Wellington Region was $141,500.**

Means of achievement

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

Actual performance

GWRC supported landowners who undertook possum control in QEII covenanted sites across the region. Bait, traps and advice are provided by Biosecurity staff through the local QEII representatives, with the Biodiversity department covering the cost of the equipment up to $2000.

Service Delivery - Cost Recovery

GWRC undertakes a range of advice and cost recovery possum and rat control work outside the KNE programme for local TAs and private landowners.

TA work undertaken for:	Number of control sites	Target pest animals controlled	Cost recovered
Wellington City Council	20	Possums, rats, mustelids, rabbits	$261,000
Hutt City Council	3	Possums and rats	$32,000
Kapiti Coast District Council	4	Possums, rats, mustelids	$8,000
	Total		$301,000

Table 2. Cost recovery work undertaken 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 at cost 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.

9. Goodnature Trap Trials

9.1 Johnsonville Park

In the bid to improve pest animal control methodology, GWRC is continually experimenting with new control techniques always aiming to achieve more effective control and minimise the use of toxins.

In Johnsonville Park attempts are being made to get the Goodnature A24 traps working at greater spacing than recommended, using the same spacing as poison bait stations. This has been an ongoing project for over four years, trialling innovative solutions. We now have enough information to prove that the A24 traps spaced at 150m intervals cannot maintain rat numbers at our target 5% tracking rate, therefore the next phase is to move the traps closer together at 100m intervals. Through our collaboration with the manufacturer, trap and lure reliability improved significantly with only 3 out of 100 traps serviced running out of gas.

Image 4. A24 customer at Johnsonville Park.

9.2 Te Ahumairangi

On Te Ahumairangi (Tinakori Hill), A24 traps for rat control were installed in July 2016. Rats have been maintained at almost undetectable levels since November 2016. The trapping grid is tighter than a poison bait station network. The perimeter of bait stations was discontinued in March 2018. This will be bolstered with 69 additional A24 traps at the same 150 x 75m spacing to see if it can hold the line with re-invasion from urban areas.

Monitoring for possum activity continues with wax tags and chew cards used at every service with no detections to date.

	15/06/16	13/10/16	15/02/17	16/05/17	11/09/17	20/12/17	26/03/18	4/10/18
Rats	2	5	0	0	5	1	6	3
Mice	5	1	0	0	2	0	0	0
Hedgehog	0	4	1	0	1	5	9	3
Rodents	7	6	0	0	7	1	6	3
Rodent %	17.5	15	0	0	17.5	2.5	15	7.5
Rat %	**5**	**12.5**	**0**	**0**	**12.5**	**2.5**	**15**	**7.5**

Table 3. Tracking tunnel monitoring results

9.3 Project HALO

The network of A12 traps in this area is failing to control possums with the current hands-off approach. Each time traps are serviced (freshly lured and baited) there is a spike in kills. Further lure and trigger development needs to occur for the A12 to be a long-term effective control option.

A24 and A12 traps have been installed along the Zealandia fence as part of the Wellington City Council funded 'Project HALO' operation. Should the fence be damaged in a storm, these traps will help to reduce incursions, particularly rats.

11. Site-Led – Regional Possum 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 at a cost of $1,395,000.**

Annual cost: **The cost for minimising the adverse impacts of possums in the RPPCP areas of the Wellington Region was $ 1,368,000.**

Means of achievement

(i) Address the adverse impacts of possums in bovine Tb free areas for catchment functions, biodiversity and economic prosperity

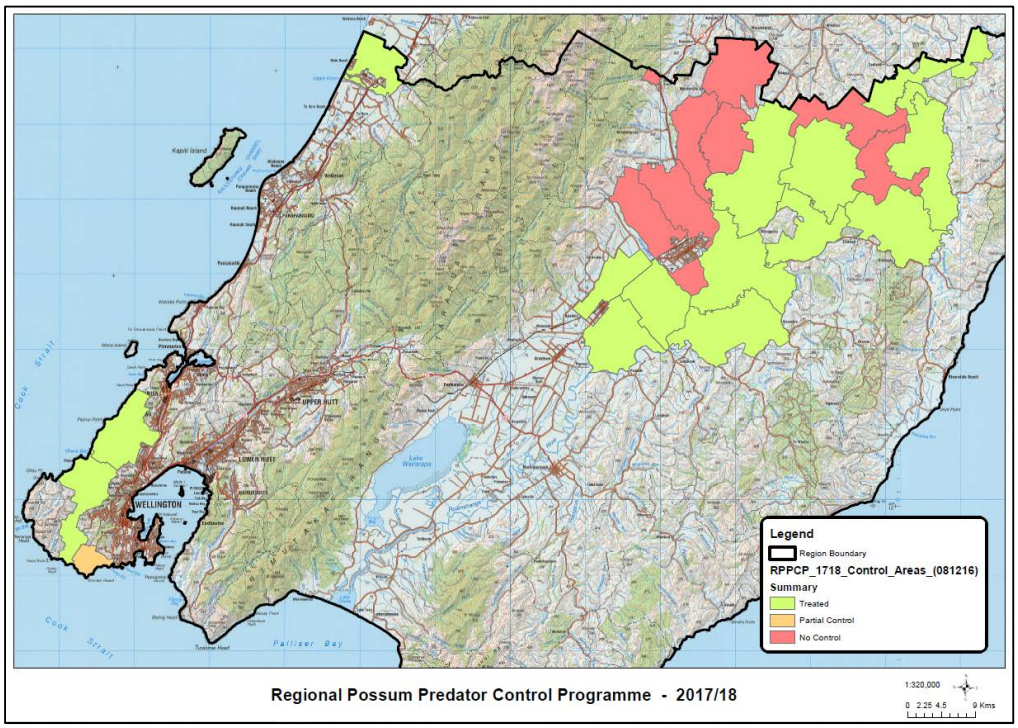
(ii) Maintain a possum residual trap catch (RTC) of 5% or lower across the Wellington Region in areas which have been declared bovine Tb free

(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 covers approximately 138,900 ha which include new projects within the Whangaehu, Bideford and Tinui areas of the Masterton District.

In the 2017/18 year 92,800 hectares were treated for possum control. Seven projects were monitored and the annual Residual Trap Catch index was 0.9% (vs maximum target limit of 5%).

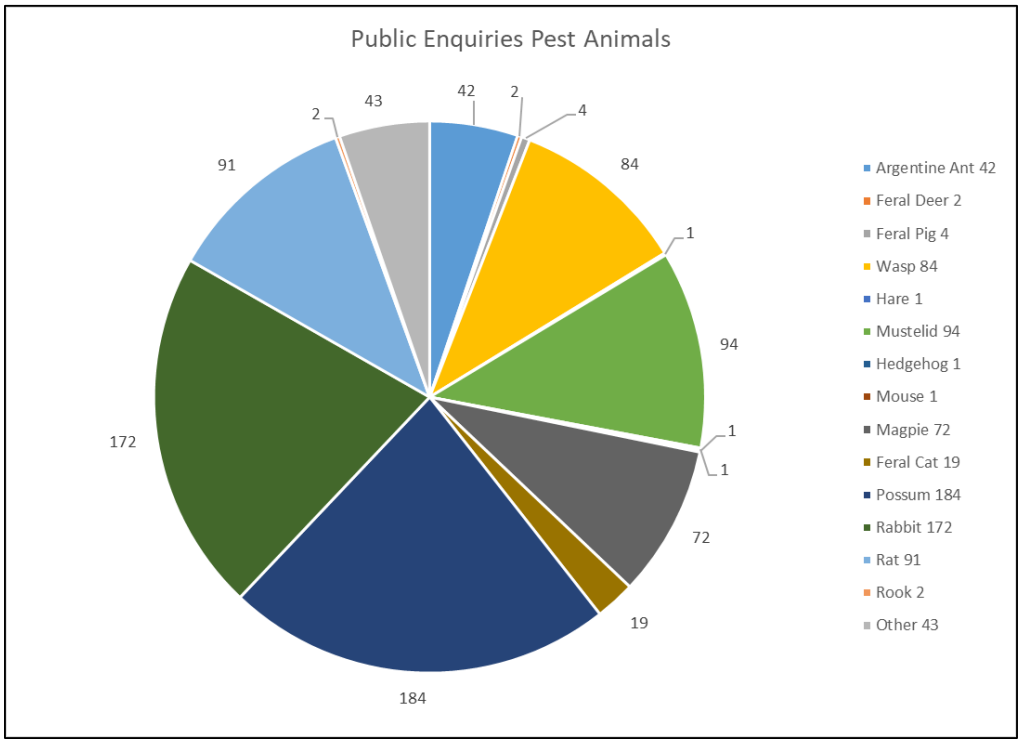


Map 5. Regional Possum Predator Control Programme 2017-18.

12. Public Enquiries

Responding to public enquiries is a significant focus of the Operational Plan. This year we received and processed 812 public pest animal related enquires, compared to 476 the previous year. There is a real surge in interest regarding pest animals and their control.

The increase of activity can be contributed to the Predator Free movement and to the implementation of the Ozone database meaning that public enquires are accurately recorded. With the increase in enquiries there is now a roster dedicating one staff member to this task each week to ensure customer responses are timely.



Graph 8. Client response activity Pest Animals 2017-18 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 at a cost of $270,000.**

Annual cost: **The cost of managing Regional Surveillance plants throughout the region during 2017/18 was $129,800[2].**

Means of achievement

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

Actual performance

There are 34 Regional Surveillance species listed in the RPMS. To date, only 12 species have been discovered in the Wellington Region (Shown in Table 4).

Thirteen new sites with a Regional Surveillance species infestation were discovered this year: chocolate vine (4), purple loosestrife (2), Senegal tea (5), water hyacinth (1) and white edged nightshade (1). This brings the total number of known sites with Regional Surveillance species in the last 10 years to 307.

Plant name	Number of sites	Found this year
African fountain grass	1	
Asiatic knotweed	29	
Bomarea	26	
Cape tulip	34	
Chilean flame creeper	3	
Chocolate vine	140	4
Nassella tussock	1	
Purple loosestrife	26	2
Senegal tea	14	5
Spartina	2	
Water hyacinth	6	1
White edged nightshade	12	1
Total:	**307**	

Table 4. Number of sites with Regional Surveillance species in the Wellington Region over the previous 10 years.

Means of achievement

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

[2] Pest Plants team made significant saving on the surveillance component of the programme through coordinated surveys for Total Control and Surveillance plants to be included in the proposed Regional Pest Management Plan.

Actual performance

All known purple loosestrife sites in the Wairarapa were ground truthed along with any sites where previous sightings or reports had been recorded.

An extensive survey was also carried out around the newly created wetlands along the Kapiti expressway. The known purple loosestrife sites within the construction path of the Kapiti expressway have been destroyed during construction, and no new sites of purple loosestrife were found.

Image 5. Purple loosestrife in flower Boggy Pond, South Wairarapa.

Spartina was controlled around Lake Onoke by contractors managed by DOC, and a site audit was undertaken by GWRC staff to assess their work. All historic spartina sites were also monitored to check for presence/absence.

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 MWLCR. The NBCC is currently funding

research into biocontrol agents for a range of pest plants including some Regional Surveillance species.

Means of achievement

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

Actual performance

A factsheet for each Regional Surveillance species can be found on the GWRC website.

The Ministry for Primary Industries continued their funding of the Check, Clean, Dry (CCD) programme for the tenth consecutive year. The aim of the programme is to raise public awareness of didymo and other freshwater pest species, and the risk they pose to our waterways. A regional advocate is employed to engage with the public by targeting high-use areas of our rivers, attending specialist outdoor events and looking at new ways to engage the public. A number of targeted adverts were sent out via social media which generated good uptake and views from the public. Two schools were also visited and an interactive lesson was held. Collateral information was handed out to relevant organisations, businesses and clubs.

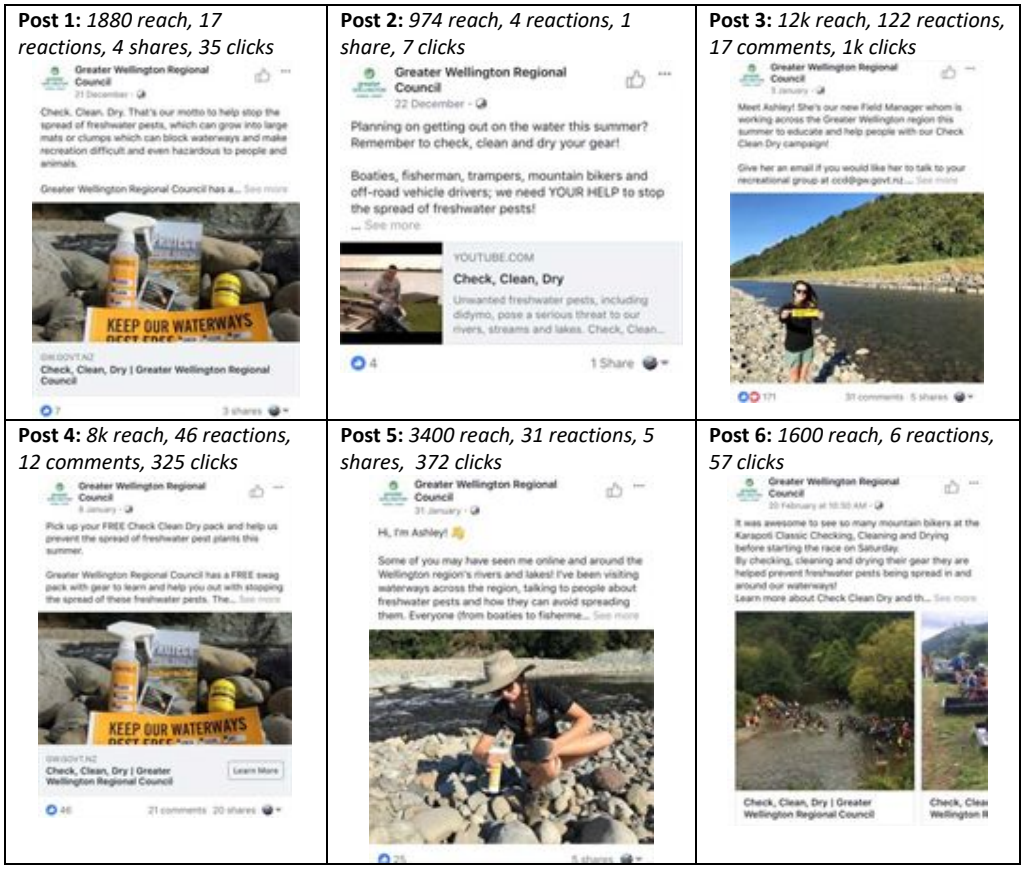


Image 6. Check, Clean, Dry social media posts.

14. Total Control Species

Aim: **To control all Total Control species within the Wellington Region at a cost of $363,000.**

Annual cost: **The cost of managing Total Control plants throughout the region during 2017/18 was $306,900[3].**

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 26 new sites of Total Control species were discovered (one Bathurst bur, six blue passionflower, six climbing spindleberry, six moth plant and seven woolly nightshade). This brings the overall number of Total Control species sites to 1,257 (Table 5).

This year 2,274 individual properties were inspected during Total Control species delimiting surveys. Delimiting surveys require the inspection of all properties within a specified distance, usually 200m from a known infestation site, in an attempt to locate further sites of a targeted species.

Plant name	Sites in total	New sites found this year
African feathergrass	102	
Bathurst bur	17	1
Blue passionflower	466	6
Climbing spindleberry	71	6
Eelgrass	91	
Moth plant	261	6
Perennial nettle	90	
Saffron thistle	10	
Woolly nightshade	149	7
Total:	**1257**	**26**

Table 5. Number of sites of Total Control species in the Wellington Region.

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.

[3] Pest Plants team made significant saving on the surveillance component of the programme through coordinated surveys for Total Control and Surveillance plants to be included in the proposed Regional Pest Management Plan. Also, changes to the control methodology were made for a number of species saving operational time.

Image 7. Moth plant in flower.

Actual performance

A total of 787 annual inspections on the following Total Control species were undertaken: climbing spindleberry, eelgrass, moth plant, and woolly nightshade, with any plants found being controlled. The remaining Total Control species: African feathergrass, Bathurst bur, blue passionflower, perennial nettle and saffron thistle were all subject to delimiting surveys instead of annual inspections to obtain data needed in preparation for the review of the Regional Pest Management Plan 2019 – 2039 (RPMP). Bathurst bur sites were inspected and controlled where there was any risk of spread to other sites through crop movement on the property.

A total of 274 adult Total Control plants were found over 43 properties (17 of these were new sites). Also, 1,816 seedlings of Total Control pest plant species were controlled over 80 properties.

Image 8. One of the many crops that were searched for Bathurst bur.

Means of achievement

Annually inspect all plant outlets and markets within the region to ensure no RPMS and National Pest Plant Accord (NPPA) species are being offered for distribution, sale or propagation.

Actual performance

Staff inspected 104 plant outlets and markets in the region for plant species listed in the RPMS and NPPA and all outlets were compliant.

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.

15. Containment Species

Aim: **To control all Containment species outside the Containment zones within the Wellington Region at a cost of $179,000.**

Annual cost: **The cost of managing Containment plants throughout the region during 2017/18 was $339,300[4].**

Means of achievement

Undertake direct control by service delivery 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, with the team often working in difficult terrain and under demanding conditions. Control areas are located in coastal Wairarapa, Titahi Bay and on Wellington's south coast.

Staff controlled 326 adult boneseed plants over 34 sites (five (5) of these sites were new). Total of 4,066 boneseed seedlings were also controlled over 75 properties, and overall 10 new sites were found this year.

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.

[4] Pest Plants team invested significant effort into ground truthing distribution of Containment species to provide reliable information for the RPMP review and changes to the species status going forward (as proposed in the RPMP review).

Image 9. An example of the terrain where boneseed control takes place, Cape Palliser, South Wairarapa

Image 10. Aerial control of boneseed continues on the coastal escarpment at Ngawi, South Wairarapa.

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. Boneseed signage remains in place in selected areas of coastal Wairarapa outlining the threat boneseed poses to vulnerable coastal environments.

A factsheet on boneseed is available online and also used as a poster in selected coastal shops and farm stores. It is also handed out with advice of entry forms 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

Plant name	Sites in total	New sites found this year
Boneseed	408	10

Table 6. Number of sites of boneseed monitored outside of the Containment zone.

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. Some damage to boneseed plants were observed, however no leaf roller caterpillars or moths were seen so staff are unsure if they are responsible for the damage. Manaaki Whenua Landcare Research and NBCC continue to look for suitable biocontrol agents for boneseed.

16. Site-Led Boundary Control, Suppression 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 at a cost of $194,000.**

Annual cost: **The cost of managing Site-led boundary control plants throughout the region during 2017/18 was $420,400[5].**

Means of achievement

Action complaints received, to comply with the RPMS rules.

Actual performance

Staff responded to 222 enquiries throughout the year, regarding a variety of species. The majority of enquiries were regarding old man's beard. Of the 222 enquiries, 94 were regarding Boundary Control species: banana passionfruit (7) blackberry (14), cathedral bells (1) gorse (16), hemlock (1), old man's beard (53), and wild ginger (2).

Service delivery (control by GWRC staff) is often the most cost effective way to deal with complaints from members of the public. Unfortunately, repeated visits and significant staff time was often required to ensure compliance with the current RPMS rules as 45 enquiries resulted in actual complaints and six resulted in a notice of direction being issued. Our involvement with Boundary Control species is currently under review, with rules around Boundary Control species being proposed to be removed from the proposed RPMP.

Means of achievement

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

Actual performance

NBCC 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. Manaaki Whenua Landcare Research is continuing trials of a shoot mining fly for wild ginger which mines the stem.

17. 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 at a cost of $1,199,000.**

[5] Pest Plants team invested significant effort into ground truthing distribution of Supression and Human Health species to provide reliable information for the RPMP review and changes to the species status going forward (as proposed in the RPMP review).

Annual Cost: The cost to achieve a measurable improvement in the ecological health and diversity of Key Native Ecosystems and reserves through pest plant control during 2017/18 was $1,189,700.

Means of achievement

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

Actual Performance

This year control work was undertaken at 58 KNE sites across the region, with control work also undertaken at seven wetlands as part of the Wetland Programme. The work was either carried out by external contractors or by our staff depending on the scope of the work. Biosecurity staff also worked collaboratively with DOC (as agreed in a MoU) to control a variety of pest plants including willows, alders and gunnera in Wairarapa Moana, and Spartina grass at Lake Onoke.

Image 11. Biosecurity department's field team control yellow flag iris at Lake Kohangatera.

Means of achievement

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

Actual performance

In addition to the work that GWRC completed in KNE's, wetlands 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
- DOC and the Biodiversity Department on aerial spray operations on alder and willow species around Lake Wairarapa

- QEII and Kiwirail at Taupo Swamp controlling multiple pest plant species infesting this area
- DOC surveying and controlling the pest plant gunnera along the Tauherenikau River, and
- Hutt City Council on controlling boneseed, marram grass, and horned poppy at Parangarahu lakes.

18. Biological Control

Staff worked with 10 different species of biocontrol agents during the year. This work included releasing and transferring agents, and monitoring their establishment and spread.

Monitoring of the green thistle beetle (GTB) continued this year at the five sites, throughout the months October to March. Climatic conditions at these sites were also collected. AgResearch presented on this study at the National Education Training Seminar (NETS2018) in Nelson, July 2018. GWRC staff also assisted AgResearch with harvesting 1,000 green thistle beetles for their research programme. One release of GTB took place in South Makara this year.

Two releases of the tradescantia yellow leaf spot fungus were made. A scientist from Commonwealth Scientific and Industrial Organisation (CSIRO) in Canberra confirmed that the fungus was established at one of the sites, unfortunately there wasn't any sign seen at the second site. Australia has the fungus in containment and is where NBCC obtained it from but it isn't approved for release in Australia yet making New Zealand the first country to release the fungus.

Tradescantia stem beetles were monitored at one site, with one stem beetle found showing they are still present. There wasn't a lot of damage observed indicating they're not present in big numbers. The stem beetle release site was also inspected with this site having previously shown the most promise with beetles easily spotted on earlier visits. No beetles were seen on this last visit, however, there is still reasonable signs of damage.

One new release was made of tradescantia tip beetle and the damage is noticeable. There was a second release which was added to an existing population.

Staff made 95 transfers of broom gall mites (*Aceria genistae*) throughout the region and previous release sites were also inspected to prospect for new harvest sites. This agent is becoming well established and is expected to have a good impact on broom as infestations become heavier over time.

Two transfers of buddleia leaf weevil (*Cleopus japonicus*) were made this year. One to a heavily infested site of buddleia in Paekakariki and another in the Wairarapa. The agent continues to be observed in other areas throughout the region where it is spreading by itself, particularly in the Hutt Valley.

Inspections were made on the two historical release sites of Darwin's barberry weevil but no weevils were found. They have been found at release sites in Southland which bodes well for our success here long term. MWLCR is to visit in November 2018 to assist looking for the weevils and hopefully confirm establishment in the region. A third release was made in February 2018 at Makara.

As part of the national assessment study on nodding thistle agents (conducted by MWLCR), three sites were inspected in the Wairarapa and Porirua for both nodding thistle crown and receptacle weevils. All the sites had releases of nodding thistle agents in the 1990s and hadn't been visited for some time. The Porirua site has transformed into construction of Transmission Gully and was unable to be accessed. Nodding thistle receptacle weevil were present at one of the sites in the Wairarapa.

One transfer was made of the Scotch thistle gall fly (*Urophora stylata*), within the Wairarapa. This agent has been slow to show effects at long-standing release sites.

Image 12. Three green thistle beetles and their damage on a Californian thistle at Bennetts Hill monitoring site.

Two more releases of the Japanese honeysuckle Honshu white admiral were undertaken; one release to add to the existing site, and the other at a new site. The second release was sent as caterpillars rather than adult butterflies and it is being monitored to see if this proves a more successful method for establishment. Follow up inspections were done at these sites but neither butterflies nor caterpillars were seen. It is still early days for this project, and the sites are difficult to access so there is some

reliance on being there at the right time to spot butterflies. MWLCR will be assisting GWRC in November 2018, to help monitor butterflies (in all their life stages), and identify any damage caused by them. GWRC is responsible for collecting data from other release sites throughout the country for assessment monitoring of the Honshu white admiral. This has begun with baseline information collected from the relevant councils.

Image 13. Jen McGowan transferring broom gall mite by cable tying infested stems onto broom bushes.

19. National Interest Pest Response Programme (NIPR)

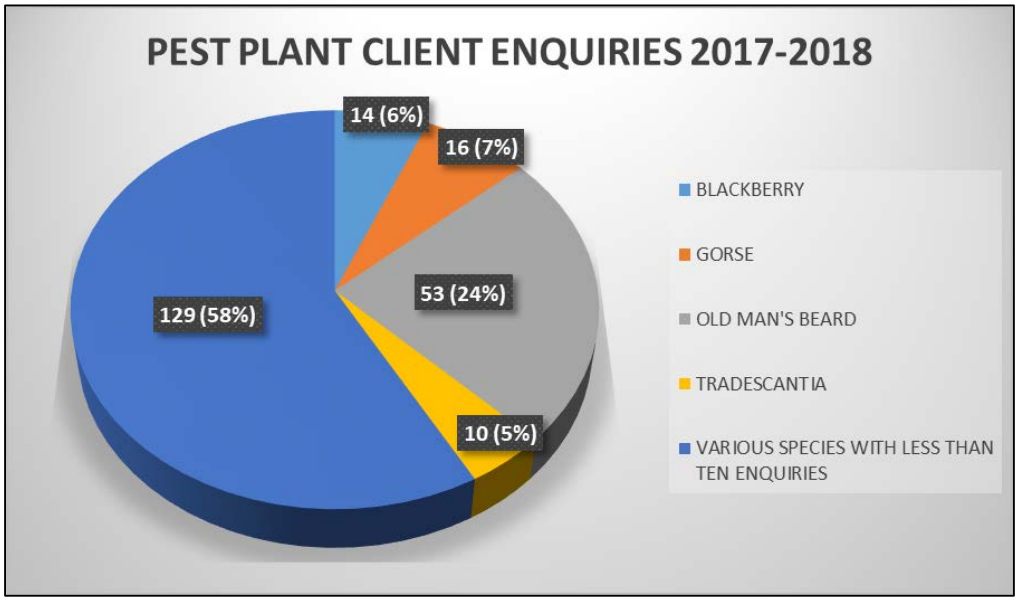
GWRC is part of the Ministry for Primary Industries led national programme to eradicate Manchurian wild rice (MWR) and Cape tulip from New Zealand. GWRC delivers pest plant control management for these two species on behalf of MPI.

There is one site of MWR in the region at Te Harakeke swamp in Waikanae. The swamp was initially surveyed using an unmanned aerial drone after which a helicopter spot sprayed infestations over two operations; the first in December and the follow-up in April. Biosecurity staff undertook ground control in those areas close to housing. Infestations, while significantly reduced in size and number of plants, continue to be very difficult to control, due to changes in the 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 222 public enquiries, compared to 105 the previous year.



Graph 9. The most common species Biosecurity Officers received enquiries about.

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	800+	established
Broom leaf beetle	2009	3	uncertain
Broom psyllid	1995	1000+	widespread
Broom seed beetle	1994	600+	widespread
Broom shoot moth	2008	3	uncertain
Buddleia agents			
Buddleia leaf weevil	2007	100+	established
Darwin's barberry agents			
Darwin's barberry seed weevil	2016	4	Uncertain
Gorse agents			
Gorse colonial hard shoot moth	2002	5	failed
Gorse pod moth	1997	abundant	widespread
Gorse soft shoot moth	2007	12	uncertain
Gorse spider mite	1989	abundant	widespread
Gorse thrips	1990	abundant	widespread

Japanese Honeysuckle			
Japanese Honshu white admiral butterfly	2017	2	Uncertain/first year released
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	3	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	failed
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	2	failed
Californian thistle stem miner	2010	2	uncertain
Green thistle beetle	2008	221	established
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	established
Tradescantia agents			
Tradescantia leaf beetle	2011	7	established
Tradescantia stem beetle	2012	10	uncertain
Tradescantia tip beetle	2013	7	uncertain
TOTALS:		**2905+**	

Attachment 1 to Report 18.536

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

For more information, contact the Wellington Regional Council:

Masterton office
36-37 Chapel Street
PO Box 41
Masterton 5840
T 06 378 2484

Upper Hutt office
1056 Fergusson Drive
PO Box 40847
Upper Hutt 5140
T 04 526 4133

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pest.plants@gw.govt.nz
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greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.530**
Date	29 November 2018
File	PKPL-4-1289
Committee	**Environment**
Authors	**Fiona Colquhoun, Parks Planner**
	Kyn Drake, Project Officer

Parks Network Plan review update

1. Purpose

To provide an update on the Parks Network Plan review and discuss possible new directions.

2. Background

The current Parks Management Plan was adopted in 2011 and encompasses eight places:

- Akatarawa Forest
- Battle Hill Farm Forest Park
- Belmont Regional Park
- East Harbour Regional Park (Baring Head, Northern Forest, Parangarahu Lakes)
- Kaitoke Regional Park
- Pakuratahi Forest
- Queen Elizabeth Park
- Wainuiomata Recreation Area

The Plan is now being reviewed. After a two month initial public consultation period in May-June seeking feedback on issues and opportunities for parks, a summary report was presented to the Environment Committee in August 2018 (2018.307).

Key community **aspirations** included:

- Improving park ecosystem health, freshwater quality, biodiversity, wetlands

- Expectations of Greater Wellington leading best practice in land management, water way protection and restoration activities

- Improving ecological habitat links within parks and outside parks

- Reconsidering farming activities in parks and more restoration, particularly in sensitive natural areas
- Improved access to and within parks such as the closed areas of Queen Elizabeth Park and the farmed areas of Belmont
- Improving facilities for activities such as horse riding, dog walking, biking, nature play and camping
- More visible Māori presence in parks e.g. art, storytelling, Te Reo Māori

3. Exploring community issues and opportunities

3.1 Officer workshops

Eight officer workshops were facilitated during October and explored how best to respond to the topics raised by mana whenua and the community during the engagement period:

1. Regional parks – identifying core values and attributes to craft a new vision
2. What does demonstrating best practice in land management mean in regional parks? Where do parks fit within the continuum of best practice?
3. How can we improve access to and within regional parks?
4. What are our future trail and accessibly facility opportunities?
5. Leading regional parks into the future. The economy of regional parks. What can we do more / less of?
6. Within and beyond parks, how do we enhance biodiversity?
7. What future role does stock grazing have in regional parks?
8. Parks Department workshop: visions for each park, what attributes make them special places?

The discussions involved subject matter experts from across Greater Wellington, including from the Parks, Biodiversity, Land Management, Environmental Science, Environmental Policy, Te Hunga Whiriwhiri, and Strategy, Communications and Engagement and Flood Protection teams. Future opportunities were explored and common ground was found in a shared passion for protection and enhancement of parks.

A number of **key themes** were identified for consideration in the new plan:

a) Responding to **climate change**

b) **Environmental restoration**. Progressive land use change with long term goals to retire farmed areas of parks (except Battle Hill which has farming has part of its purpose) for restoration (wetlands, streams and ecological connections) or recreation.

c) Improving **public access** to and within parks. This may include trail improvements, better recreation information, minimising closures and accessible by design facilities

d) **Working collaboratively** with mana whenua partners and community to achieve greater benefits

e) Setting **new directions**

These themes are explored below. Note that a bullet point workshop summary is provided in **Attachment 1**.

4. Climate change and parks

Greater Wellington's Climate Change Strategy identifies that climate change is the biggest environmental challenge we face, with increased risks to settlements, infrastructure and ecosystems from rising seas, storms, flooding or drought. It identifies that the worst impacts can be avoided in the long term if carbon dioxide emissions are significantly reduced as soon as possible. In managing our regional parks, we need to consider both the effects of climate change on the parks and the opportunities for reducing greenhouse gas emissions from parks and offsetting.

Climate change impacts for parks include stronger and more frequent storms, higher rainfall levels and intensity, longer periods of drought and potentially more frequent and severe impacts on the natural environment and park infrastructure. Carbon emissions come from drain wetlands and agricultural activities in parks.

Regional parks, as natural buffers and carbon stores, have a role in helping to minimise the effects of climate change. Natural environments and plantation forests contribute to capturing and storing carbon.

The Climate Change Strategy primary objectives are very relevant to regional parks:

Objective 1: Greater Wellington will act to reduce greenhouse gas emissions across all its areas of influence, including its own operations, helping to create the conditions for a smart, innovative, low-carbon regional economy

Objective 2: Risks from climate change-related impacts are managed and resilience is increased through consistent adaptation planning and actions based on best scientific information

Objective 3: Community awareness of climate change mitigation and adaptation solutions increases and organisations and individuals know what they can do to improve the long term resilience and sustainability of the region.

4.1 Carbon emissions

Our parks have highly altered landscapes and activities which may be contributing to carbon emissions. For example, drained peat wetlands can become a carbon source rather than a carbon sink. Healthy wetlands in general are very efficient as carbon sinks but damaged peatlands release about 6% of global CO2 emissions per year.

Wetlands have the capacity to store 550 tonnes[1] of carbon per hectare, but if drained they also have the potential to release 550 tonnes of carbon into the atmosphere over time. Queen Elizabeth Park has approximately 85 hectares of drained wetland.

Carbon emissions produced by farm stock and farming operations in parks are difficult to calculate because there are many variables. The New Zealand Agricultural Greenhouse Gas Research Centre identifies that agriculture produces greenhouse gas emissions in ways such as:

- Direct emissions by livestock
- Emissions from the production of livestock feed
- Energy use in fertiliser manufacture
- Farm operations such refrigeration, shearing, machinery and transport.

Carbon emissions from Greater Wellington's regional park farming licence operations are not currently calculated.

4.2 Minimising effects and building climate change resilience in parks

Parks primarily contribute to ecosystem resilience when they are in a natural, less modified, state. To reduce carbon emissions and support ecosystem health and resilience, suggestions made as part of the workshops were:

- Concentrating on planting and restoring natural landscapes; wetlands, dunes, hill country to increase overall resilience and excluding stock from them
- Promoting mātauranga (wisdom) Māori knowledge as part of the solutions concept
- Shifting towards the 'natural solution' concept of: protecting, connecting, restoring and leading by example in park management practice
- Allowing coastal dunes space to retreat and minimising coastal infrastructure
- Maintaining investment in weed and pest control
- Promoting parks as part of the solution to the climate change. For example, using storytelling to increase awareness about fragile ecosystems, sand dunes, wetlands and headwaters of catchments
- In the eastern Wellington region parks, increase drought resilience, such as planting drought and heat tolerant plants.

4.3 Carbon credits from forestry

Plantation forests in Battle Hill Farm Park, Pakuratahi and Akatarawa forests have harvesting agreements in place until 2075. Plantation forests minimise the

[1] (Liu, Y, Ni, H, Zeng, Z & Chai, C 2013, *Effect of disturbance on carbon cycling in wetland ecosystem', Advanced Materials Research*, pp. 3186-3186-3191.)

effects of climate change as carbon stores for many years, releasing carbon and impacting water quality when harvested.

Council can earn emissions units for forests established after 1989 through the Emission Trading Scheme (ETS) or Permanent Forest Sinks Initiative (PFSI) as they grow to full maturity. The Council presently has 440 Ha of land in the PFSI, and these have earned Council 67,000 emissions units (by sequestering carbon dioxide from the atmosphere) over the past 10 years. These emissions units can be kept as an investment, sold or used for voluntary offsetting e.g. to achieve carbon neutral status. Emissions units from NZ-based native re-afforestation/PFSI command a premium price.

Ownership of cutting rights along with some carbon benefits for the majority of GWRC's plantation estate have been transferred to Resource Management Service FGI NZ Ltd (RMS) under registered forestry rights. Two forestry rights were granted in 2014 over approximately 5,600 hectares of commercial plantation forest. The forestry rights are each for an initial term of 60 years, with options to seek renewal for a further term of 30 years. Obligations and benefits arising from the Emission Trading Scheme for this forest land rest with RMS while they retain ownership, although liabilities could be transferred to GWRC when the land is handed back.

At a workshop on *Carbon trading and offsetting – options for Council* on 17 October 2018 Councillors expressed a desire for officers to explore increasing council's supply of emissions units by planting forests on Greater Wellington owned land. This work has been initiated and links closely to the review of the Parks Network Plan.

5. Environmental restoration

5.1 Farming in regional parks

Most areas of park currently grazed are former farms which have since become regional parks. Farming activity has been continued as a land management tool and for the benefit of grazing licence revenue, weed control and fire risk reduction. Farming history differs by park, for example, Queen Elizabeth Park has been a recreation reserve for many years, but has also been farmed by Landcorp and others since WWII. Baring Head has more recently become a park and the sheep grazing activity is identified as being useful for maintaining archaeological sites and minimising fire risk.

Impacts of farming have been reduced with fencing and planting, guided by Sustainable Land Use plans.

However, over time, community values about land uses in parks have changed and become more polarised. Feedback received during the public consultation period indicates that, while many people enjoy looking at farm animals, there are significant concerns about farming impacts on park land, and that protection of the natural environment, land restoration activities and public access in parks is a now a priority for many people.

Some park stakeholders have argued that current farming practices are contrary to the primary purpose of Queen Elizabeth Park under the Reserves Act as recreation reserve. The Reserves Act identifies protection of the natural

environment as being central to the purposes of recreation and scenic reserves. The Act does not specify what farming practices are acceptable. The purpose of recreation reserves is:

Section 17 Recreation reserves

(1) It is hereby declared that the appropriate provisions of this Act shall have effect, in relation to reserves classified as recreation reserves, for the purpose **of providing areas for the recreation and sporting activities and the physical welfare and enjoyment of the public**, and **for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside**.

Much of Greater Wellington's regional park land is classified as recreation or scenic reserve under the Reserves Act. The Act identifies that any part of any recreation reserve which is not periodically required for the purposes of its classification, may be grazed, farmed or used for gardening activities under lease or licence. The 'Farming in regional parks' document developed for the initial public consultation outlines further details of the statutory context for farming.

5.1.1 Minimising farming impacts

Since 2012 farming activities in parks have been guided by Sustainable Land Use Plans which provide guidance about land capability and ways of minimising impacts. Many kilometres of stream have been fenced to exclude stock and particularly sensitive land retired from farming. However mana whenua, park stakeholders and some community members have advocated that these plans have not been fully implemented and the measures outlined in them are insufficient to counteract the impacts of farming, particularly the loss of public access and ongoing former wetland impacts such as carbon emissions.

Some of the impacts of farming can be minimised, however the longer grazing continues, the longer the opportunity to build resilience into park ecosystems and deliver broader environmental and community health benefits from these areas of parks is postponed.

Concerns about grazing impacts have also been identified by mana whenua. For example:

Queen Elizabeth Park related mana whenua feedback

"Everything is Connected" is the theme for the review of the PNP and fits well within Te Ātiawa values. In particular, the concept of mauri recognises the interconnection between the various elements of our world noting that the health of one element is connected to the health of another element. An example of this is the disconnection between mana whenua and the environment at the Park. Not only has this led to a degradation of the environment through various practices that would not be endorsed by Te Ātiawa but has also resulted in the emotional and spiritual suffering of Te Ātiawa people.

As an overarching priority, Te Ātiawa would like to see all the land use within the Park returned to uses that support natural ecosystems of the Park. Te Ātiawa considers that farming of recreation reserve land does not support the natural ecosystems of the Park:

- Farming has significant adverse effects for soil and water quality
- It is inappropriate to utilise recreation reserve land for farming that commercially benefits a very small portion of the community but generates adverse effects for the entire community.

Healthy mauri is required for the growth and health of all living things. With respect to the environment, a healthy mauri is reflected where water runs clean, fish and bird life are abundant, and habitat is appropriate to its environment. With respect to people, healthy mauri

is supported by access to the environment and the ability to undertake practices such as kaitiakitanga that support human health and wellbeing.

When mana whenua values, environmental impacts and opportunity costs such as loss of benefit from recreation use are considered, it is clear that there is a cost to farming in regional parks.

Despite significant capital and operating funds being invested into improving farming infrastructure and practice and reducing impacts, defending farming in recreation reserves has proven to be an ongoing public relations challenge for Greater Wellington.

5.1.2 Officer workshop cost/ benefits feedback of all types of grazing

Benefits and impacts relating to farming in regional parks identified in the officer workshops are set out below:

Benefits	Impacts/Costs
➢ Pastoral management ➢ Income ➢ Maintains the open space values (and farming heritage landscapes) ➢ Fire hazard reduction ➢ Weed management ➢ Some park visitors like to see the animals/ farm experience ➢ Can helps maintain archaeological features	➢ Direct costs e.g. fences, water supply ➢ Indirect costs e.g. ranger time ➢ Loss of potential habitat for native animals and natural vegetation ➢ Lost opportunities for recreation and public access, including health and wellbeing benefits ➢ Area no longer perceived as park ➢ Vegetation loss and drainage contributes to flood issues ➢ Community views ➢ Land capability - many areas of the regional parks are not suitable for farming[2] ➢ Over the years a lot of resource has been used to modify the land to make it work ➢ Climate change impacts/carbon emissions

[2] Note that sustainable land use plans have identified areas unsuitable for grazing, and many of these areas have been retired since 2012.

5.2 Restoration opportunities

There is potential for approximately 2000 hectares of park to be progressively returned to more natural states; forest, native grass and shrub land, wetlands, mown grassy areas or other landscape types.

There are options for different types of restoration such as passive or active restoration. A staged, project approach guided by master plans and restoration plans could be considered.

Resources to fund restoration work, replace farming licence revenue and increase staff time would need to be found to support broad scale restoration. Suggestions from the workshops included:

- **Social and community raised capital:** there is widespread community support for habitat restoration activities and wetland restoration. Community raised capital via crowdfunding can be highly successful on a project basis.
- **C**entral government has set a goal to plant **1 Billion Trees** over the next 10 years. Regional park land could benefit from this initiative with broad-scale restoration plantings.
- The **Million Metres Streams Project** is seeking to accelerate the riparian restoration activity and already funding work at Baring Head along the Wainuiomata River.
- **Revenue** from market rental rates for farm houses in parks (six) and a wider range of recreation related **leases and licences** e.g. events, cafes, food trucks, camping opportunities and fees.
- **Sponsorship and grant funds** are widely available from private enterprise, non-government agencies, philanthropy, government grants and other sources. Also club assistance such as Rotary.
- **Mitigation** from roading and housing projects near parks, for example State Highway 58 works and housing developments near parks.

Other agencies have addressed equally complex land management issues related to farming activities and achieved huge success. The following example of transformation was led by consultant Geoff Canham (also assisting Greater Wellington with this planning process).

Kopurererua Valley

Tauranga's 364 Ha park development project, the Kopurererua Valley, is now an outstanding restored natural environment in an urban setting developed in partnership with tangata whenua.

The hapu of Ngai Tamarawaho led a vision in 1999 that less than 20 years later has culminated in a range of achievements. Previously the valley was degraded, weedy, had limited public access, disaffected neighbours and a place of criminal activities. It was intensively farmed but had flooding problems.

The new park is a solution to all of these issues, and one of the most dramatic inner-city turnaround achieved in New Zealand. A sustainable land management approach with natural flood management via new wetlands and restored swamps saw it transformed.

The project is now known as an exemplar of tangata whenua-community-council partnership of iwi leading the visioning process and business leaders partnering to implement, supported by council. The revitalised park has:

- 12 km of shared trails
- An eye-catching entranceway to the city with large stands of Kahikatea trees and entrance sculptures
- Extensive native plantings to enhance views
- Wetlands and aquatic life
- Passive and active recreational areas including trails, picnic facilities, nature and play areas.

The restoration project has served as a 'model for export' and has been profiled at international conferences[3].
https://www.tauranga.govt.nz/exploring/parks-and-reserves/parks/kopurererua-valley-reserve

6. Improving public access to and within parks

6.1 Prioritising public access, promoting regional parks

The health benefits of parks are clear. Connecting with nature has been shown to have a positive effect on mental and spiritual health and wellbeing. To maximise the public health and wellbeing benefits of regional parks, the barriers to access should be minimised, and a broad range of recreation and public participation opportunities enabled.

A range of short, medium and long term practical solutions could be identified to help overcome access barriers and increase park visitation. Suggestions from the workshops included:

- Public transport connections/ route diversions to parks, bus shuttles in summer holidays, bus routes to include park entry points, working with tourism operators to bring people to parks

- Working with others to improve trail connections to parks

- Prioritising public access and removing as many permanently and temporarily 'closed' areas of parks as possible. Allowing vehicle access deeper into parks

- Improving signage to parks to encourage visits, and within the parks to give visitors confidence to use trails and explore. Improving website information

[3] Note that there were significant costs associated with this project.

- In hilly parks e.g. Belmont and East Harbour, upgrading and re-routing trails to achieve more gentle gradients and provide access for more people

- Adopting a 'universal access' approach to facility design to ensure that all new facilities are accessible for as many people as possible.

7. Working collaboratively

At the recent World Urban Parks Congress in Melbourne, the key driver to successful outcomes was overwhelmingly identified as community involvement. "Park management paradigms have changed… successful parks are about management and change through collaboration, which must be early and meaningful with the community" (key note speaker, October 2018).

Greater Wellington is already working in a collaborative way with mana whenua, the community and stakeholders in parks and the benefits of this approach are apparent; community groups are helping to manage recreation activities, resourcing and undertaking restoration work. In some parks there is a desire from the community to have a greater level of engagement and collaboration. This provides Greater Wellington with the opportunity to modify our approach, for example, by establishing community reference/collaboration groups.

7.1 Mana whenua partners

The review of the Parks Network Plan is being informed by each iwi or hapu with an interest in regional parks as they wish to engage with us. For some, this is written feedback about aspirations for parks, and others have provided verbal feedback. Outside this planning process Ngāti Toa and Port Nicholson Block Trust are developing regional 'iwi environmental management plans' which will inform directions for particular parks. The existing co-management plan for Parangarahu Lakes developed in 2014 remains current.

From feedback, common mana whenua interests and issues for the new plan include:

- Kaitiakitanga responsibilities, nurturing mother nature in regional parks
- Supporting mauri (in this context ecosystems life force) through aquatic and terrestrial restoration activities in parks
- Te Reo Māori park names for parks which don't currently have Te Reo Māori names (Battle Hill, Belmont, East Harbour Northern Forest and Queen Elizabeth Park)
- Restoring and enhancing freshwater quality to support mahinga kai (food gathering) and rongoā (medicine)
- Mahi Tahi approach to working together collaboratively in park management
- Responding to climate change to support ecosystem resilience

7.2 Community involvement

Officer feedback through the workshops indicated that more and deeper community involved in management should be encouraged. Supporting and enabling community members and volunteers to do more will realise greater benefits for people and parks. In the August report to the Environment Committee, the establishment of community reference/ advisory or collaboration groups was suggested as a model for engaging park stakeholders and community members to work together. This model is common elsewhere in New Zealand and overseas.

The time is good now for a new focus on community collaboration because there is a growing, skilled volunteer base wanting meaningful work (baby boomers retiring and healthy). Many companies have a social conscience and want to assist with recreation facilities and conservation work. Use of social media makes promotion of volunteering and project funding opportunities easy. Climate change impacts have created a high level of awareness of the need to support healthy local environments.

8. Setting future directions

Key themes from community feedback have been explored, and some challenges and opportunities are apparent. Greater Wellington has not recently undertaken 'state of the park' type reporting, and we will need to increase our level of science knowledge of parks in the future. From our environmental science work, we know generally where ecosystem health is strong and where the opportunities exist to make improvements to deliver more ecosystem service benefits.

The draft Parks Management Plan should support work towards more resilient and healthy park-wide ecosystem outcomes. It will be developed in the context of joined-up planning considering:

- Regional Policy Statement, proposed Regional Biodiversity Framework, Greater Wellington's Biodiversity Strategy (2016), Climate Change Strategy, Volunteer Strategy and other relevant plans and strategies
- National Policy Statement for Freshwater Management implemented through the proposed Natural Resources Plan and the Whaitua programme
- Community and Council feedback.

It is intended that the plan will have an overarching vision and goals, and identify reporting mechanisms so we can track progress along the way. The current Parks Network Plan has a 10 year management horizon, which is appropriate for achieving short and some medium term goals, however achieving long term ecosystem restoration outcomes take much longer, so new restoration activities which may take 30-50 years to achieve are proposed. Identifying long term goals with an ecosystem health approach will inform short term decision making for activities such as grazing and other activity licences.

8.1 Look and feel of new Parks Network Plan

At this stage it is envisioned that the new draft Parks Management Plan will:

- Remain a composite plan for eight regional parks and forests
- Support mana whenua values
- Contain strategic direction with a new overarching vision and long term goals supporting:
  - Ecosystem health, resilience and restoration (supporting climate change response)
  - Collaborative work with mana whenua and community
  - Recreational enjoyment of parks
- Contain individual visions for each park and park specific sections are maintained with new visions and goals for each. The park specific sections will progressively be updated (via Parks Network Plan amendments) to include spatial masterplans to illustrate desired future states for parks
- Maintain and update 'rules for use and development' section
- Contain updated guidance for leases and licences to provide better guidance for applicants with a focus on assessment and response to possible impacts
- Include or link to property maps to better identify land parcels within parks
- Place emphasis on measurable objectives and outcomes which can be monitored and reported on via mechanism such as 'state of the parks' reporting inclusive of environmental and social attributes and outcomes for the environment, recreation and community.

The Parks, Forests and Reserves Bylaws (2016) remain current and no change is proposed at present**.**

8.2 Where to from here?

The Parks Network Plan review process and timeline is set out in **Attachment 2**. A draft plan will be developed and presented to the Environment Committee for approval for public consultation early in 2019. The Reserves Act requires a consultation period of at least two months, and an opportunity for submitters to attend formal hearings to present their submissions.

9. Consideration of Climate Change

Climate change and the role of parks in minimising effects and opportunities to build ecosystem resilience have been considered extensively in this report and throughout the process. The public consultation material presented as part of the Parks Network Plan review also explored park management issues related to climate change in detail. Climate change effects for park assets and resilience of facilities and services and minimisation and mitigation measures were detailed as well as climate change projections for each Whaitua, as well as Greater Wellington's interests in the Emissions Trading Scheme and the

Permanent Forest Sink Initiative. Community climate change concerns were reported in the August parks planning report to the committee. The discussion document and supporting documents 'External Influences on Parks' and 'Farming in regional parks' remain available as reference documents on Greater Wellington's website.

Opportunities for emission reduction and consideration of adaptation responses will continue to be a key consideration as we progress the review of the Parks Network Plan.

10. The decision-making process and significance

No decision is being sought in this report.

The formal notification process for the new draft Parks Network Plan is outlined in the Reserves Act (s41(6)). This applies only to the new draft Plan which will begin to be developed after this meeting.

11. Engagement

A communications and engagement plan for the next formal stage of public engagement will be developed prior to the next consultation period in 2019.

12. Recommendations

That the Committee:

1. ***Receives** the report.*
2. ***Notes** the contents of the report.*
3. ***Notes** that a draft new management plan will be presented to the Environment Committee for feedback in early 2019.*

Report prepared by:	Report approved by:	Report approved by:
Fiona Colquhoun and Kyn Drake	**Nicola Shorten**	**Luke Troy**
Parks Planning, Corporate and Strategic Planning	Manager, Corporate and Strategic Planning	General Manager, Strategy

Report approved by:	Report approved by:
Amanda Cox Manager, Parks	**Matt Hickman** Acting General Manager, Environment

Attachment 1 to Report 18.530

SUMMARY OF OFFICER WORKSHOP TOPIC DISCUSSIONS, ISSUES AND OPPORTUNITIES

Project objective: Creating a vision and a plan that is aspirational and practical, reflects community feedback and leads positive change for the environment and people.

Environment, landscapes, heritage features

- Adopting a catchment-wide ecosystem approach
- Leading by example
- High quality freshwater required
- Restoring natural landscapes and fostering biodiversity with long term goals
- Building resilience in ecosystems in response to climate change
- Kaitiakitanga; protecting natural heritage values
- Minimising impacts - avoid first, then minimise, mitigate as last resort
- The impacts of farming are very high when carbon costs, loss of public access, landscape amenity, diminished mana whenua mauri, and opportunity cost of land not in the process of restoration are considered.
- Many other land use options and tools available instead of grazing stock. A shift from farming to other sustainable and environmentally friendly uses for some parks.
- Other uses better realise the inherent benefits of parks; environmental and human health and wellbeing
- Resources will follow new goals for restoration from a arrange of sources
- Farming is part of the purpose for only one park, Battle Hill. Opportunities to promote a 'best practice' farming model and education activities there.
- Climate change impacts and response with an ecosystem services approach

Mana whenua, mahi tahi/ partnerships approach, Kaitiakitanga

- Supporting mana whenua partners' aspirations, activities
- Visual identity in parks
- Kaitiaki responsibilities enabled
- Sharing knowledge and skills

Community, volunteers, economy

- Community involvement is the key to successful outcomes
- Working collaboratively with community/ enabling community support
- Enhancing recreation facilities and opportunities to support visits and memorable park experiences
- Revealing stories to foster nature appreciation and cultural connections
- Meaningful volunteering opportunities
- Community collaboration in park management decisions
- Battle Hill – farming focus - further farm education activities, demonstration of sustainable farming practice, connections with farming training etc.

Recreation, public access, memorable experiences

- A renewed focus on recreation and public access as primary; full access and freedom to roam. Grazing accommodating recreation (instead of the other way

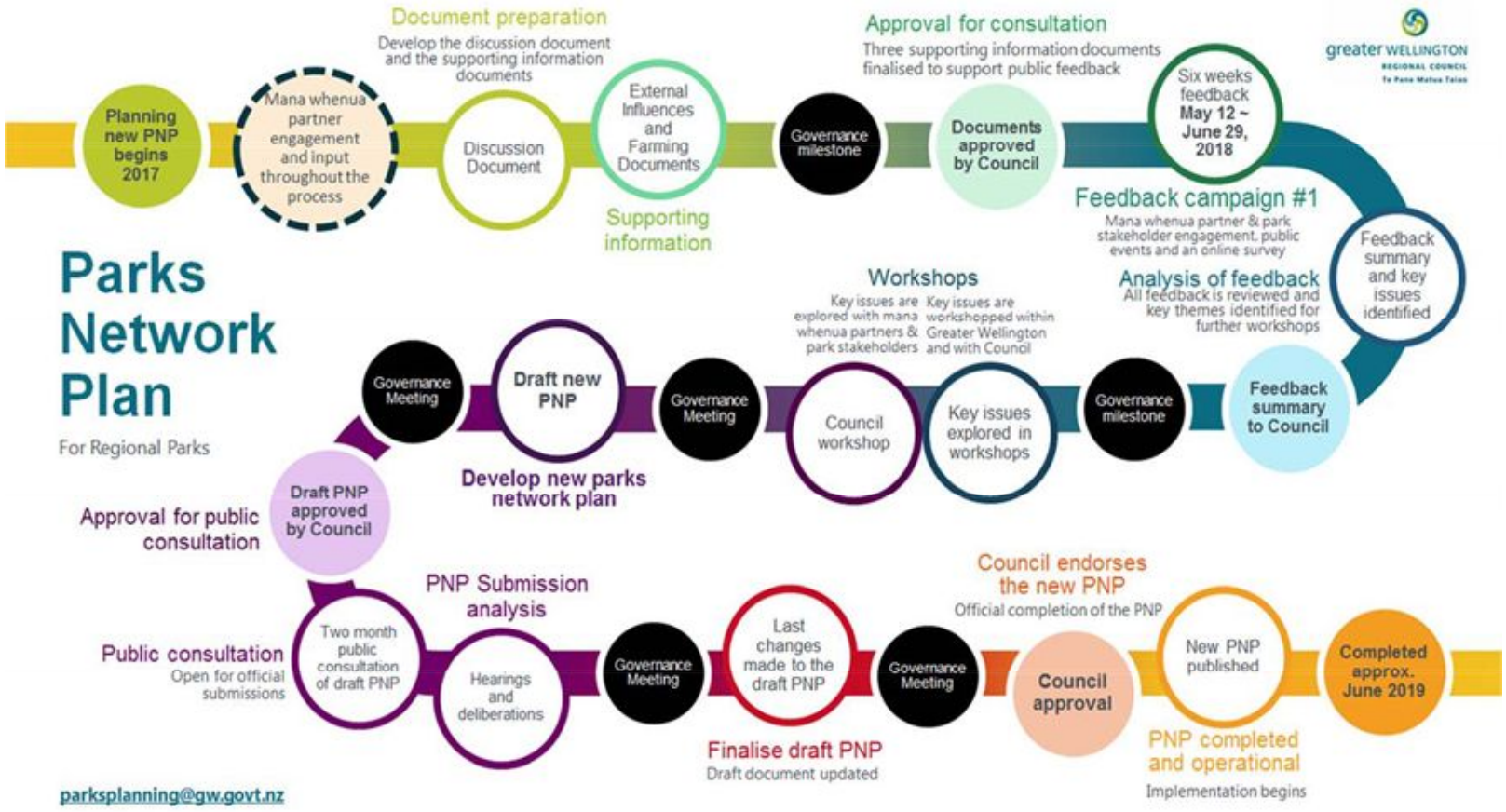
around). Progressive removal of fences as restoration activities progress (particularly QEP and Belmont)

- Recreation facility improvements with a focus on trails and improving accessibility, removing / reducing barriers.
- Trail connections based on feedback and the Regional Trails Framework
- Improving horse riding facilities such as access arrangements, float parking areas, horse tie up rails and mounting blocks.
- Camping – more locations, facility improvements such as BBQs, shelters and picnic tables
- Access improvements across parks. New entrance facilities at northern end of Queen Elizabeth Park
- Development of nature play opportunities and more story telling/ heritage interpretation
- Creative focus enabled. Community ideas sought community lead initiatives temporary or permanent.

The way we work

- Long term masterplan or spatial 'blueprints' developed for parks and integrated into PNP as amendments (noting that Kaitoke already has an operational masterplan)
- 'State of the parks' reporting – baseline, then reporting progress on plan goals
- Expanding what works well / 'appreciative inquiry' approach e.g. partnerships such Akatarawa (ARAC), Baring Head (Friends), Parangarahu Lakes (Iwi)
- Working more collaboratively across Greater Wellington to utilise wealth of knowledge, skills
- New long term goals for habitat restoration e.g. 50 years

Attachment 2 to Report 18.530



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REGIONAL COUNCIL
Te Pane Matua Taiao

Report	2018.547
Date	29 November 2018
File	CCAB-10-650
Committee	**Environment**
Author	**Bruce Geden**

Integrated Water Management investigations update

1. Purpose

The purpose of this report is to update the committee on the Integrated Water Management (IWM) investigations work programme. This work is presently being conducted by the consultants WSP-Opus.

In short, this work will explore what, if any, means exist whereby the Wairarapa community could improve its future water resilience.

2. Background

It's been projected that the Wairarapa will potentially face community-wide, both urban and rural, water resilience issues. The IWM investigations are therefore a component of the Ruamāhanga Whaitua's overall future water management.

More specifically, the key factors which influence the IWM investigations are:

2.1 Long Term Plan

The 2018-2028 Long Term Plan (page 115[1]) describes the IWM work programme investigations as follows:

> *Greater Wellington is partnering with Wairarapa councils to look at how water storage can be integrated with municipal water supply, wastewater, stock water races and provider wider environmental and amenity opportunities, such as increasing flows in rivers and lakes*

2.1.1 Cross-council involvement

The IWM work programme will develop a set of options and present information required by the four Councils[2] to consider their collective future

[1] The full LTP description of this work programme is provided in **Attachment 1**
[2] Greater Wellington Regional Council, Masterton, Carterton and South Wairarapa District Council's

support for a package of potential future water resilience measures. Included in the programme is an initial response to a subset of the Ruamāhanga Whaitua Implementation Plan (WIP) recommendations.

In particular, the investigations will consider how future water management can be potentially integrated with municipal water supply to help deliver regional prosperity, and to meet agreed environmental outcomes.

2.1.2 Climate change

A key consideration is NIWA's latest climate change forecasts on the impact to water quantity and quality in the Wellington region, especially the Wairarapa which is substantially affected compared with other parts of the region.

2.1.3 Water Wairarapa Ltd

In parallel with this work, Water Wairarapa Ltd (WWL) is independently, but collaboratively, progressing water storage, distribution and management investigations for the Ruamāhanga valley floor.

2.1.4 Ruamāhanga WIP

The Ruamāhanga Whaitua Committee studied the Whaitua, understanding its characteristics, its pressures, the cultural, economic, and environmental values residents associate with its waterbodies, and management options appropriate to its unique waterways and communities. This has been presented in the Whaitua Implementation Programme (WIP)

2.1.5 Constraints

The Ruamāhanga valley floor covers a broad geographical area with significant distances between the five relatively small urban settlements, with each settlement having its own infrastructure network. The current infrastructure systems are therefore not conducive towards achieving linkages that would result in scales of economy or resilience in developing and operating these.

Water supply especially is generally susceptible to the increasing vagaries of nature and are likely to become more so. In parallel, the costs of meeting human health and environmental reliability, standards and expectations are rising, but currently each town must survive these issues on its own.

3. Comment

3.1 IWM investigations

WSP-Opus commenced its investigations on 4th October with a review of current reports, plans, and resource consents etc. This work is scheduled to be completed by late February 2018.

An interim progress memo is scheduled for 30 November. As this memo won't be received in time for the preparation of this report, some form of update will be provided at the meeting.

The IWM investigations will explore high level conceptual solutions to help establish a resilient, viable set of solutions for those natural processes and community activities that rely on water. This builds on recent climate change

projections[3] that are forecast to significantly affect Wairarapa's water supply and demand i.e. ground and surface water levels/flows and the volume of water required under hotter/drier conditions.

The investigations recognise that all 'waters'[4] are in some way connected, but the surroundings in which they operate is not static. These variables include climate change, environmental management tolerances, organisational setting[5] plus the range, demand timing and scale of water uses.

In addition, the 'traditional' approach of Wairarapa's five independent town networks will be addressed to establish whether it's viable to develop synergies that could be used to develop a more resilient long-term approach. One possible outcome of course is that concept level interventions may not translate in actual changes that result in improvements either through physical constraints, undesirable or unintended consequences or cost ineffectiveness.

3.2 Key recent reports

The IWM investigations tie with the recent completion of the following key reports:

a) "Climate change and variability – Wellington Region", by NIWA June 2017

b) "Ruamāhanga Whaitua Implementation Programme", by Ruamāhanga Whaitua Committee - August 2018

c) "Water Wairarapa Reframing Investigations", Greater Wellington Regional Council - August 2018

d) "Wairarapa Economic Development and Strategy Plan" Greater Wellington Regional Council / HenleyHutchings - November 2018

The above reports together form a broad foundation on which a potentially viable set of solution options are being investigated and tested to determine their merit.

The IWM investigations will focus on the following priority areas, namely:

a) Urban Water
b) Regional Prosperity
c) Environment

Urban water comprises:

- Understanding the current status and future district infrastructure plans
- Opportunities for an integrated urban water solution(s)

[3] This information was presented to the council in the NIWA June 2017 report, "Climate change and variability – Wellington Region".

[4] 'Waters' in the case of the Ruamāhanga valley floor includes the '3 waters', namely storm-water, drinking water, waste water, plus race water, groundwater and surface water.

[5] Principally reflected by the4 councils, namely the Regional Council together with 3 autonomous district councils.

- Interim report due 27 November

Regional prosperity comprises:

- WIP & climate change impacts
- Land use change forecasts
- Integrated solution(s) on prosperity, including other NZ examples
- Interim report due 27 November

Environment (includes Masterton's lakes, water races, rivers, environmental hot-spots etc.)

- Water ecology (without water storage)
- Expected changes to rivers flows due to WIP and climate change
- Development of integrated solution(s)
- Commences December 2018 once the Urban and Regional prosperity report outcomes are agreed.

The **final IWM report** due February 2019

The IWM investigations are reliant on close liaison with key Wairarapa council officers as well as information gleaned from existing plans and reports etc. so that potentially practical, relevant solutions are explored.

4. Communication

Although GWRC is the lead party on these investigations, the three Wairarapa councils are an integral part of the process too. Reflecting this, it is appropriate that the local councils will be the prime disseminators of the process and the investigation outputs to local iwi, residents, special interest parties such as industry and farmers.

No external communication is proposed as an outcome of the consideration of this report. The reason for this is that the report at this stage is just to inform the committee of the investigations work programme and to provide an interim progress update.

5. Consideration of climate change

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

5.1 Mitigation assessment

Officers have considered the effect of the matter on the climate. Officers note that the matter will have an effect that is not considered significant or warrants the development of a Detailed Scenario Analysis.

Officers note that the matter does not affect the Council's interests in the Emissions Trading Scheme (ETS) and/or the Permanent Forest Sink Initiative (PFSI).

One of the major factors of the IWM investigations are in fact mitigating the effects that climate change is projected to have on the local environment, community activities and the local economy. Although the effects climate is having are already clearly evident, it's estimated that this will have a noticeable impact especially within the next 20 years or so[6].

5.2 Adaptation assessment

Officers have considered the impacts of climate change in relation to the matter. Climate change is integrated into this work and one of the reasons for the consideration of water resilience in the Wairarapa.

6. The decision-making process and significance

No decision is being sought in this report.

6.1 Engagement

The engagement process is limited to discussions with the four councils' staff directly associated with water asset management. This engagement has commenced. It is not intended within the IWM project that further engagement with the wider Whaitua Committee will be required; rather the project team is relying on the extensive and detailed documentation in the WIP.

Discussions have already been undertaken between WSP-Opus, GWRC and WWL to explore opportunities for information sharing that may build knowledge on factors that influence each party's decision making process but the IWM project is being conducted at arm's length from the WWL commercial objectives.

It was noted in the discussions with WWL and GWRC that future collaboration on overall water resource management including the development of a community water scheme may present opportunities for active participation by local Māori leadership and that may provide useful information for future plan changes or variations.

[6] Climate change effects will be gradually felt impact day-to-day life is not possible to know, but it's considered to be mid-century i.e. 2040-2059. In reality, the effects will be highly evident some years and not in others, but progressively change in the long run. These changes are already evident in the Wairarapa.

7. Recommendations

That the Committee:

1. ***Receives*** *the report.*

2. ***Notes*** *the content of the report.*

Report prepared by:	Report approved by:
Bruce Geden Strategic Projects Environmental Management	**Matthew Hickman** Acting General Manager Environment Management Group

Attachment 1: Regional initiatives – extract from GWRC Long Term Plan 2018-28

Attachment 1 - Regional initiatives

The following is an extract from page 115 of the Greater Wellington Regional Council Long Term Plan 2018-28

> *Increasingly severe water shortages are predicted in the Wairarapa due to future climate change effects. This will impact water quality and availability in the area.*
>
> *Greater Wellington and our partners are exploring ways of ensuring greater certainty of water supply for Wairarapa. Greater Wellington currently leads and funds this initiative. The project commenced in 2010.*
>
> *The completed scheme would comprise multiple water storage locations and a distribution network via rivers and piping. It would service each of the towns' future drinking water needs, provide irrigation support to around 30,000 hectares of productive agricultural land and be used to bolster minimum flows, thus protecting water quality where it is most threatened. Discussions with local mana whenua, businesses and other interested groups have been undertaken. Upon completion of the viability study, a commercial entity would be formed to raise the capital to develop and construct the scheme.*
>
> *Greater Wellington is partnering with Wairarapa councils to look at how water storage can be integrated with municipal water supply, wastewater, stock water races and provider wider environmental and amenity opportunities, such as increasing flows in rivers and lakes.*

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Te Pane Matua Taiao

Report	**18.524**
Date	29 November 2018
File	CCAB-10-637
Committee	**Environment**
Author	**Matt Hickman, Acting General Manager, Environment Management** **Wayne O'Donnell, General Manager, Catchment Management** **Luke Troy, General Manager, Strategy**

General Managers' Report to the Environment Committee meeting on 6 December

1. Purpose

To inform the Environment Committee of Greater Wellington Regional Council (GWRC) activities relating to the Committee's areas of responsibilities.

2. Key/Strategic issues

2.1 Regional Pest Management Plan Review

The review of the Regional Pest Management Plan has reached another significant milestone. A Public Hearing on submissions to the proposed Plan was held on 23-24 October with 15 submitters voicing their thoughts on the Plan. Some of the submitters' concerns were about the inclusion of the 'pest cat' category in the Plan (cats are a very emotional issue on both sides of the argument), the absence of pest status for feral deer and pigs, a perceived lack of focus on common weeds by reducing the number of pest plant species listed in the Plan.

Following deliberation on the submissions presented, the panel posed 54 points of clarification to Officers. The Biosecurity team worked tirelessly over the following week to provide the panel with Officers' responses on November 1st. The panel and a number of submitters recognised the effort the team had put into well thought through responses. Officers are now working on amending the proposed Plan to include suggestions made by submitters and directions from the panel.

2.2 Regional Biodiversity Framework

GWRC hosted a successful workshop on the Regional Biodiversity Framework project. The workshop helped the project team to gather mana whenua, community and stakeholder views about what the scope and terms of the project should be. Attendees confirmed their support for the project and provided very useful feedback on GWRC's proposals. Next steps for the project include working towards setting up an external working group that will collaboratively design the framework. GW staff will be updating Councillors on the progress of the project in early December.

Figure 1. Regional Biodiversity Framework workshop held on 31 October at Wharewaka in Wellington

2.3 Farm planning services review

Land Management has started a review of our Farm Planning services which is an opportunity to align this programme with national and regional drives including the Ruāmahanga Whāitua Implementation Programme. The review will seek to make the farm plan more farmer owned and trialling a number of approaches with farmers will be a crucial part of this process. Key tasks in the next month will be presenting to the Farming Reference Group on November 28th as well as an internal GW workshop on December 13th aimed at enabling the farm plan tool to deliver more aspects of GWRC service rather than solely Land Management functions.

3. Catchment Management

3.1 Biosecurity

3.1.1 Regional Possum and Predator Control Programme (RPPCP)

The 2018/19 RPPCP covers 110,000 ha of possum control and 3,900 ha of mustelid control.

To date, control is underway in nine projects throughout the region and a further project has been completed. Staggered starts have been required due to access issues caused by difficult ground conditions during winter and entry restrictions brought about by lambing and calving during spring. Approximately 41,600 hectares has been completed to date.

Some projects have been delayed due to the presence of M. bovis on isolated properties. In these situations control is delayed until the occupier is comfortable with the entry of staff on their property. Occupiers are pleased to see the mitigation measures adopted by Greater Wellington to minimise the spread of the disease.

There is considerable ongoing operational planning within the Bideford Pines and Makara project areas as staff plan for the application of cyanide baits within dense pine forest, gorse and scrub areas.

Mustelid control has started in two operational areas which include Otaki on the Kāpiti Coast, and along the Ruamāhanga River north of Masterton.

3.1.2 Pukaha Mt Bruce Rat Control

BioWorks is undertaking an aerial-1080 baiting operation on behalf of DOC, within the Mt Bruce Scenic Reserve and National Wildlife Centre Reserve to control ship rats. The aerial treatment area covers approximately 900 hectares. BioWorks will manage the aerial application and DOC and volunteers will undertake ground control works surrounding the aviaries and more popular visitor areas.

Pre-feed baits were applied on 12 November and the 1080 baits will be applied during the next suitable weather opportunity.

3.1.3 Yellow Flag Iris

Biosecurity Field Officers have been tasked with the control of the invasive weed yellow flag iris (*Iris pseudacorus*) in the Parangarahu Lakes wetlands. The plants are manually removed by hand and taken off site. Access to some of these sites can be difficult so a small rowing boat is used to access infestations from the water's edge.

Yellow flag iris infestation control – before and after control

3.1.4 Argentine ants

Spring treatment at the Queen Elizabeth Park entrance has been completed with ants successfully controlled on the boundary of GWRC land. Argentine ants are still present on nearby private land, meaning periodic re-invasion is highly likely at that site.

In collaboration with DOC and KCDC, treatment has been carried out at amenity planting islands in the Kapiti Boat Club carpark, and on amenity plantings and road verges on Marine Parade near the Boat Club. The adjacent property (No. 1 Marine Parade) has also been treated for ants. This is a risk area for ants getting to Kapiti Island.

Six properties associated with Kapiti Island landowners who take boats across to their private land were inspected – at Otaki, Paraparaumu and Waikanae. Argentine ants were found on two of these properties, and white-footed ants on another three. The properties with Argentine ants were treated (likely to have a temporary effect) and longer term options are being discussed with DOC. Other property owners were given control information for white-footed ants where they occurred.

3.1.5 Trapping - why are we buying makeup applicators?

Biosecurity have been trialling makeup applicators coated with a meat flavoured aerosol spray. This is to replace eggs which are good lures for mustelids, but eggs are fragile to transport and only last for a limited period. Initial trials have discovered that mice like to chew on the sponge eggs, which is problematic as the sponge gets destroyed.

To further the trial, a second lot of sponge eggs have gone out. Some have been hung in the traps to create a floating type setup and others have been placed in the original egg cradle, but no spray has been applied. The traps have been catching animals, mostly rats, indicating the non-treated eggs are not a deterrent.

Makeup applicators are being trialled as egg replacement

3.1.6 Rabbits

The rabbit spring flush is well underway throughout the region, with ideal conditions for breeding. Reports indicate that numbers are high in areas in Wairarapa, Porirua and Kāpiti Coast. We expect numbers to drop off into summer (as in previous years) when feed dries off, and a lot of small rabbits succumb to predation or natural mortality. Staff are undertaking a limited amount of spring baiting for occupiers as it is not especially effective at this time of the year with no guaranteed results.

3.1.7 Rooks

The aerial rook control for the 2018 season was once again very successful in terms of the low number of active nests treated. There was the same number of active nests treated this year (as were treated in 2017) but one less rookery located and controlled.

The nest baiting took place on 15th October, as the programmed start date was postponed by two weeks due to the lack of eggs and chicks sighted during surveying. Every rookery visited appeared to be intact and 16 nests containing eggs or chicks were baited or removed by hand at the seven active rookeries.

This year for the first time we had to invoke the powers of the Biosecurity Act to legally gain access to one property to undertake control; this was completed on the 23rd of October.

3.2 Land Management

3.2.1 Wellington Region Erosion Control Initiative (WRECI) Programme

The application to the Ministry for Primary Industries (MPI) for the next four year contract period for WRECI was submitted on 26 October. If this new application is successful, the WRECI programme is expected to grow, with support of additional MPI funding, from about $1.1M in 2017/18 to over $3.0M by 2023. MPI intend to notify successful applicants by December, with contracting taking place in February 2019.

Staff will be notifying landowners of the success of their WRECI application for afforestation and reversion projects for the 2019 winter season. Interest has been high and the fund is likely to be oversubscribed, as such prioritisation of projects will be required with an emphasis on priority catchments (as guided by the pNRP and Ruamāhanga Whaitua Implementation Programme) and erosion Land Use Capability (LUC) class.

The operations team has completed post-planting weed control spraying of the pine and native plantings with 150,000 spots sprayed within the past 6 weeks.

One Billion Trees

A consultant has been engaged to prepare an initial brief to investigate 1 billion trees opportunities at a region wide scale. This is anticipated to be completed by June 2019. This piece of work is being 100% funded by MPI through 1 Billion Trees "boost" funding that was received for the WRECI programme this plan year.

3.2.2 Akura Nursery

Routine seasonal maintenance works are being carried out in the growing of trees at Akura. This includes weeding and mowing, fertiliser application, disposing of wind-blown poles, irrigation, cutting "poison rogue" trees in shelter belts, and felling dangerous trees in shelter belts.

3.2.3 Farm Environment Plans (FEP) and contestable fund

A key project of the contestable fund currently is the coordinated release of Dung Beetles within priority catchments. Marketing to farmers has been successful at signing up twenty-six farmers around Wairarapa Moana with a further twelve farms in targeted areas around the region confirmed. The release period for these dung beetle packages is between January-March 2019.

Land Management Advisor, Kolja Schaller doing a release of dung beetles near Lake Wairarapa as Pirinoa School students looks on.

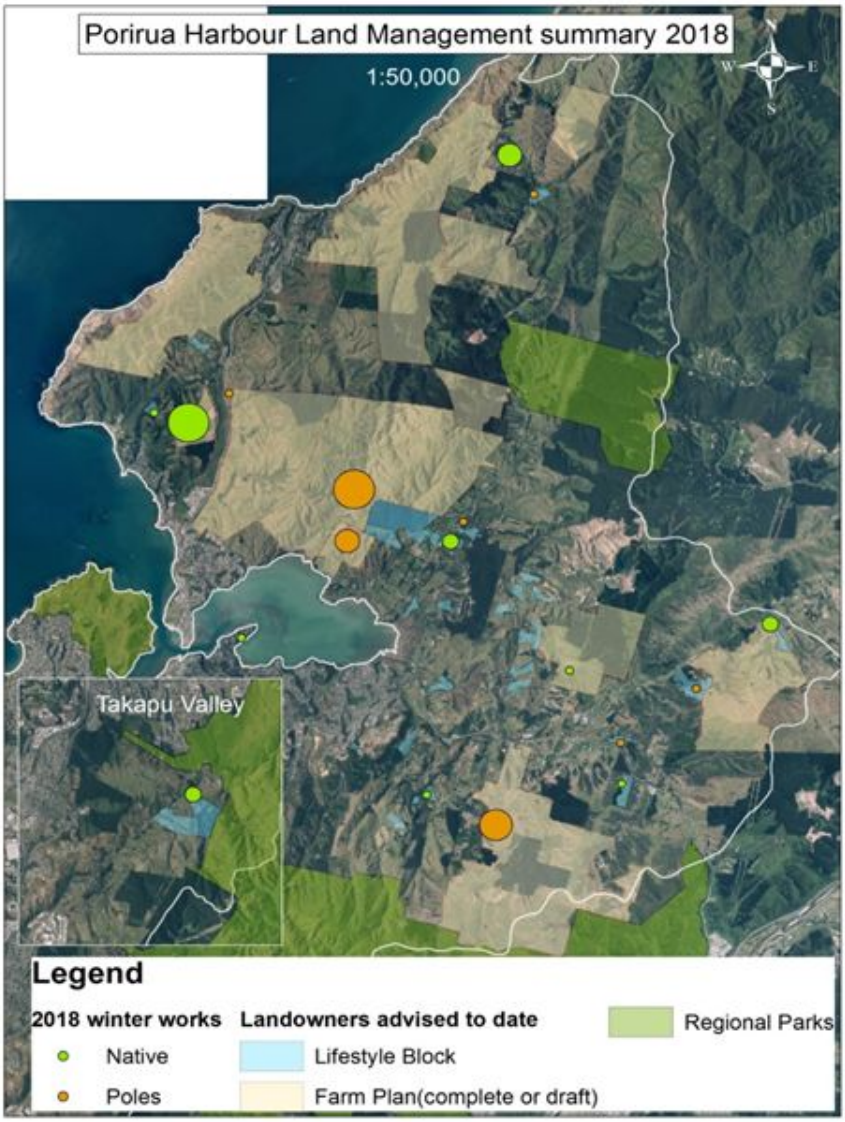
Land Management staff attended the Fonterra open gates day at Kaiwaiwai dairy farm on 11 November which saw approximately 500 people visit the farm. The open day gave an opportunity for farmers and the public to learn about our contestable fund along with other programmes. Kaiwaiwai showcases a purpose built nutrient stripping wetland – previously supported by the contestable fund - that removes nitrates from farm drainage water and provides habitat for aquatic and birdlife.

The contestable fund for 2018/19 is in full swing with a number of project applications prepared with farm plan holders and Land Management Staff. Year to date, approved planned – and some completed - projects have been across 25 farms in priority catchments totalling $262,000 of on-farm works that will result in water quality and/or biodiversity improvements.

Of the 25 projects approved for work for 2018/19 over 70% are on dairy farms with the balance on sheep and beef farms. Projects supported include wetland restoration and riparian management, stock crossings, water reticulation, and effluent system optimisation. One innovative project has involved the installation of a bio-reactor on a mixed dairy and piggery farm. The bio-reactor is a trench of wood chips which strip nutrients out of groundwater.

(a) Te Awarua-o-Porirua Harbour

The 2018 winter works programme spanned 18 projects with 720 poles planted on erosion prone land and 5,770 native seedlings planted in either riparian, erosion prone or wetland environments. Initial post-planting maintenance has been undertaken on all projects. A further 400m of stream fencing was subsidised and set for planting next year. Total engagement across Porirua rural landowners has totalled 44 landowners since beginning Land Management involvement in late 2015. Of those 44, 10 properties are in the farm plan system, with 3 farm plans complete, 2 properties with existing plans from previous programmes and 5 plans currently draft. The remaining 34 landowners have received works support and/or Land Management advice. This summary is displayed in the image below.



Land Management activities within Porirua Harbour for 2018

3.2.4 Riparian Programme

A Marketing campaign for the Riparian programme was rolled out in September and October with an intention to raise engagement levels of landowners across the region. This included improving the website content and showcasing the programme in the Wairarapa newspapers.

The emphasis over the next few months is to progress plan preparation and implementation of existing plans.

Riparian Programme Fencing and Planting in Whitemans Valley, Upper Hutt

3.2.5 Catchment schemes

Work planning is complete with about 70 days estimated of machine assisted works to be carried out within the six schemes this summer. Planned works include willow clearing, removal of large debris blockages from stream and rivers, and construction of erosion control structures within the catchments.

3.3 Flood protection

3.3.1 Asset Management and Operations

Willow and native planting work is now complete in all the western rivers. The windy weather over the last month has resulted in a number of large trees falling over and blocking water courses. A large tree that fell into the Porirua Stream was particularly difficult to remove and clean up.

Porirua Stream Blockage

Liaison and co-ordination of the Peka Peka to Ōtaki (PP2O) expressway works with Fletcher Construction continues to be major focus for the Kāpiti team. We have also been involved with discussions around shared path accesses, including possible routes from the Otaki River Bridge to Te Roto Road.

The Wairarapa operations team have been completing layering and planting programmes across the catchment, with planting programmes now complete. The team is continuing to work closely with the Environmental-Science team during the shorebirds nesting season. Programmed operations have been timed and located so as not to disturb the nesting birds and a number of successful hatchings have taken place across the river reaches. Staff have managed to photograph a number of identified nesting sites and a number of successful hatchlings.

Successfully hatched Banded Dotterel/Tūturiwhatu chick

Photo Credit R. Graham

Nesting Pied Stilt/Poaka

Photo Credit R. Graham

The cross-sections sight lines have been cleared by staff and contractors in the Hutt, Waitohu and Waiohine River in preparation for surveying which has commenced in the Waiohine.

3.3.2 Understanding flood risk

(a) Waiohine Floodplain Management Plan

Significant activities since the last report have included:

- A meeting with the Waiohine Action Group, which gave strong support for the recommended "inland" stop-banking option for Greytown
- Ongoing liaison with the Friends of the Waiohine River, particularly about how the community should be involved in ongoing river management and implementation of the FMP;
- Further developing the concept of the "living plan" and considering potential triggers for adaptive management;
- A meeting with NZTA to discuss the effects the State Highway has in the rural area between Greytown and the river, and some possible solutions involving lowering or maintaining the height during future works;
- An outline of our approach to river management, which involved making room for flood waters and adopting a flexible vegetated buffer approach for managing the river alignment; and
- A survey and concept developed for protection and drainage works at the urupa adjacent to State Highway 2 and Beef Creek.

Next steps include:

- Finalising flood maps;
- Possible external review of the process to date;
- Recommending an approach to achieving a 20-year level of protection to houses in the rural area;
- Refining concepts of funding, i.e. who should pay; and
- Recommending some approaches to the ongoing river management to be tested in the community.

The Project Team facilitator estimates progress at 85% with a degree of uncertainty around the submission/consultation and final plan drafting stage. We hope to have the main recommendations nailed down by the end of 2018 and be ready to draft the FMP after that.

(b) Te Kāuru Floodplain Management Plan

Public release of draft flood maps for the Waipoua River through the Masterton urban area occurred on 1 November 2018. A public engagement process relating to the maps ran from 1 to 11 November 2018 and included:

- A small group information session with residents of Oxford Street (7 Nov)
- Stalls at the Masterton Farmers Markets on two consecutive weekends (3 and 10 November)
- Stalls at the Masterton Car Boot Sale on two consecutive weekends (4 and 11 November)
- A drop-in session at the Masterton Library (7 Nov)
- A letter and information drop to all residents and property owners in Oxford Street and affected areas of Akura Road
- Sit down with operators of Mawley Park
- Information in the Wairarapa Times Age (advertorial)
- Social media campaigns (including a brief video)
- Information on the Te Kāuru and Masterton District Council websites
- Mayoral column from Lyn Patterson (13 Nov)

Overall approximately 140 people engaged with us at various events, with many more reached through the external publications such as the newspaper and social media.

Two newspaper articles were published; one in the Dominion Post (also on the Stuff website) and one in the Wairarapa Times Age.

The public engagement process highlighted that there is on-going mistrust of flood hazard mapping within the Masterton community. There was also a general appreciation from some community members of assessing the risk, and planning for management of the risk in the future.

Option development for managing the flood risk to Masterton is currently being undertaken and public input will be sought during the option development process in December 2018. Engagement will also occur on a draft preferred combination of flood management options in February/March 2019.

Work on Volumes 1 and 2 of the Floodplain Management Plan is on-going to respond to questions and concerns raised during the rural areas engagement process. Outcomes of these pieces of work will be communicated back to the community and included in the Floodplain Management Plan.

3.3.3 FMP Implementation

(a) RiverLink

(i) Geotechnical Investigations

The Geotechnical Investigations to support the RiverLink design will be occurring over the summer period. These works will identify ground conditions in the areas where the key pieces of RiverLink infrastructure are planned to be built. This includes investigation work to support our project partners Hutt City Council and NZ Transport Agency.

The works will be carried out by Griffiths Drilling Ltd who have extensive experience in geotechnical work within the Hutt Valley.

(ii) Detail design and statutory approvals

We have notified the market that we plan to invite tenders in December for professional services for the preparation of statutory approvals, including consent applications. The work required to progress the preliminary design to a level of detail necessary to support these applications will also be undertaken. This package of work is being developed inclusive of our partner agencies, and Hutt City Council will be lead agency for this work. An agreement between Hutt City Council, NZ Transport Agency and Greater Wellington Regional Council is being developed to address cost allocation for the duration of the contract.

(iii) Engagement

The recent Hutt City Council Highlight Festival which included a RiverLink information and lighting installation was a huge success. Estimated attendance at the event was 130,000 people over the four days of the HighLight event and the RiverLink installation was visited by a constant stream of interested Hutt City and Regional residents as well as a small number of people from further afield. The interest was very positive, particularly in the model mock-up of the riverside apartment concepts and promenade development.

The Whaitua project team shared the installation and chatted with visitors about water quality and Te Whanganui-a-tara Whaitua.

The summer events programme has been developed and RiverLink will feature in a number of these events. Key events being planned for includes a RiverLink orienteering type event that takes people to key project locations; a past, present and future of the river walk where RiverLink will be the focus of the future story for the river; and we are working with Hutt City Council to do some further place making around the riverbank beach.

(iv) NZ Transport Agency Update

The NZ Transport Agency has held the first of two key board meetings in relation to the Melling Transport Improvements project which are part of RiverLink. The first Board meeting confirmed that the Riverlink project meets the Governments GPS on Transport. The second board meeting in relation to the project re-evaluation is being held on 14 December 2018 and will confirm the priority for the work and when funding may be available.

(b) Waitohu Stream Project

A revised project programme has been developed for the Waitohu Stream project, Convent Road Deflector Bund and Channel works. This includes additional modelling services, design revision, an expanded approach to community engagement, consent and land entry processes.

We are working closely with Nga Hapu o Otaki in regard to this project alongside the Integrated Catchment Management Agreement, and have explored synergies with the Mahi Waiora trial being carried out within the stream catchment.

(c) Pinehaven FMP Implementation and Plan Change 42

The Environment Court mediation in relation to Plan Change 42 scheduled for 15 and 16 November was postponed by the Environment Court.

Upper Hutt City Council are exploring options to proceed with some of the road and reserve improvement projects that are linked to the Pinehaven Floodplain Management Plan. Greater Wellington Regional Council will work with Upper Hutt City Council to enable them to complete these works; however we will continue to postpone the channel upgrade works until the necessary planning measures to future proof the investment in the flood improvements included in Plan Change 42 are in place.

3.4 Biodiversity

3.4.1 Key Native Ecosystem Programme

A new KNE site (Kourarau) situated in the eastern hills near Masterton has been included within the KNE programme. This is the rarest forest ecosystem type (kahikatea, tōtara, mātai forest) in the Wellington region with just 0.4% left of its original extent. The site is 38 ha and under private ownership.

Possum monitoring has been completed in the Wainuiomata-Orongorongo Water Collection Area KNE site. This was carried out to assess the success of OSPRI's aerial 1080 operation. The result of 0.4% RTC (residual trap-catch) is very good, with the target being to keep the level below 5% RTC continuously.

3.4.2 Wetland Programme

46 landowners with wetlands are now signed up to the Wetland Programme (a total of 66 wetlands as some have more than one on their

property). 28 of these wetland sites have approved Wetland Restoration Management Plans.

3.4.3 Biodiversity Advice

Staff provided feedback to the Ministry for the Environment-led Biodiversity Collaborative Group on a draft National Policy Statement for Indigenous Biodiversity (NPSIB). In coming months, GWRC staff will have further direct involvement in overseeing a regional councils' contribution to the formal drafting of the NPSIB.

Following on from the release of the guidance document *Biodiversity Offsetting under the Resource Management Act*, lead in-part by Biodiversity staff, a regional workshop to socialise and enhance the uptake of the work will be held in Wellington on December 5. This workshop is aimed at officers involved in the drafting, implementing, or overseeing of local biodiversity offsetting policies.

An information and discussion session was held for Hutt-based GW staff to support their understanding of the Significant Natural Area policy process being carried out by territorial authorities. Key messages were communicated to staff that interact with affected landowners in the course of their work.

3.4.4 Biodiversity Advocacy

The first planning meeting for Restoration Day 2019 was held with the Restoration Day Committee. Restoration Day has been led by GW for the last few years and is being handed back to the Department of Conservation to lead for the next three years. Restoration Day 2019 will be held in Kāpiti in May.

Biodiversity staff attended the Owhiro bay Country Fair to gather information from the community about how proud they are about their local streams and why. This was a prototype to explore how we can engage with the community around urban streams.

3.4.5 Collaborative Restoration Projects

There were a record number of contestable fund applicants who qualified for funding this year. Staff are now in the process of undertaking site visits with all applicants and decisions will be made by 1 December.

Banded rail (classified as at risk and declining) have been spotted in the Pauatahanui Wildlife Reserve. This observation is being used to drive a local publicity campaign targeting local predator free groups with messages about increasing the frequency of checking traps over the bird breeding season.

Applications are open for the Mountains to Sea Wellington Kaitiaiki ki a Kāpiti competition, funded by GWRC. Students from the Te Awarua-o-Porirua catchment area who have led action projects to look after the freshwater, coastal or marine environments are invited to participate. Six winning students will be taken to Kāpiti Island for a two day conservation adventure.

4. Environment Management

4.1 Harbours

4.1.1 Navigation aids

During a recent inspection of the Barrett Reef buoy mooring some unusual wear was noticed on part of the mooring. After discussion with the diver that inspected the buoy we have added some safety chains and made the decision to change the buoy and its mooring in autumn. With regular inspection and maintenance work, we have managed to stretch the interval between changes by about 3 years.

Photo: Underwater Solutions

We worked with Camborne locals to place a 5 knot speed sign near the boatsheds and also re-aligned the channel markers between the boatshed and the main channel, drone photography helped identify where the channel was.

Photo: Arrowhead Creative

4.1.2 Harbour activities

Staff have taken part in several public events including two days testing lifejackets and promoting safety messages.

- Lowry Bay Yacht Club had a car boot sale and function around the visiting America's Cup.
- Wellington Coastguard had an open day which included a variety of marine-related organisations. Harbours checked lifejackets and promoted our safety messages.
- Sailability Wellington opened a floating pontoon at Onepoto in the Porirua Harbour to improve access to the harbour for sailors with a range of impediments.

On Labour Day the Harbourmaster attended the opening day at Evans Bay Yacht and Motor Boat Club, this was a special occasion marking the start of their 100th season.


Photos: Arrowhead Creative and James Allen

We are in the process of assisting Environmental Science in a bird count around the region. We have already taken the contractors around the Wellington Harbour islands to aid them in their study and we will also assist with Mana Island. The end result will be a detailed inventory of populations around the region's coast that can then be used for oil spill response planning.

Recently we have had a group from a yacht club visit Wellington Harbour Radio. Even those familiar with the harbour found it useful in understanding more of what we do and why we have the radio reporting requirements that are in place.

4.1.3 Other issues

Noise has been an issue recently with complaints made about noisy fishing vessels in the early morning and ships horns among other things. One of the cruise ship's visiting here has the ability to play a tune on its horns, which can be heard quite loudly around the harbour. As a result we have spoken to CentrePort and have agreed that a single blast on departure was more appropriate, in terms of the bylaws and the port's neighbours.

Cruise ship emissions have also been in the media lately. Cruise ships use similar fuel (heavy fuel oil) to most of the other visiting ships such as container, car carriers, log ships and tankers, described in the paper as 'marmite' - not a bad description. The media stated this was the same as the Cook Strait ferries, which was incorrect; they burn a light fuel oil, somewhere between marmite and diesel. Many cruise ships are fitted with scrubbers systems that remove most of the sulphur emissions from their exhaust. These are only used where it is required and the 'open loop' systems discharge seawater that is slightly acidic, about the same acidity as grapefruit juice. At present, there are no environmental requirements for scrubbers to be used in New Zealand; however we understand there are discussions between Environment Southland and the cruise ship companies about their use in Fiordland.

As part of work commissioned by the Regional CEO's group we received a copy of a report looking at **wreck removal liability.** This identifies Wellington as having the highest risk in terms of wreck removal liability in the country. A significant proportion appears to come from vessels travelling past our coast-lines; these are mostly ships larger than those that come into the port. Also our southern and eastern coastlines are very exposed, making any salvage potentially difficult and expensive. This needs further discussion internally and with our insurers before considering changes to our current insurance provisions.

The Harbourmaster and Deputy Harbourmaster attended the NZ Marine Pilots' conference in Wellington. Their theme was "Reflecting on Training and Practices for Piloting in Today's World." Pilots are at the coal face of moving shipping safely in and out of ports around the world and this conference reflected on changes that are happening in the industry and changes that may need to happen in the future. There were many good speakers and the content is relevant to us as a regulator and partner with CentrePort in the Port and Harbour Marine Safety Code.

4.2 Environmental Regulation

4.2.1 Regional bore security investigation

GWRC officers will be following up with the bore owners on the Kāpiti Coast at the end of this month to ensure the required remedial works are done as soon as possible and to minimise any contamination risk to the groundwater resource. The Wairarapa investigation is near completion. Griffiths Drilling will physically inspect the bores with potential issues before Christmas. They will also compile an inspection report for the Wairarapa, which will detail the findings for each inspected bore and any recommended remedial works.

4.2.2 Southern Landfill Stage 4

Southern Landfill has only a few years of airspace remaining within their currently consented Stage 3 landfill. In 2013, Wellington City Council applied for resource consents to extend the landfill into 'Stage 4'. That application would allow for approximately 10 million cubic metres of additional waste material to be disposed of at the site, taking approximately 80 years to fill. The application was publicly notified in 2013, and submissions were received. Based on the submitters comments Wellington City Council decided to put the consent on hold in early 2014 and review their application; mainly, the approach from filling the valley from the top down, to filling from the current stage 3 up the valley. Wellington City Council came back to GWRC in October 2018, proposing to modify the consent application. The modified application will have a much smaller footprint (3.05Mm^3), and aims to have lesser environmental effects by adopting the 'bottom up' approach to filling, preferred by many of the submitters.

GWRC are continuing to work with WCC and their consultants by providing pre-application advice for the Stage 4 of Southern Landfill consent application. WCC have recently indicated that they are looking to apply for a new consent, rather than amend their 2013 application. The new consent application is expected to be lodged in mid-2019.

View towards Carey's Gully and proposed Stage 4 of Southern Landfill from operational landfill (Stage 3)

4.2.3 Featherston Wastewater Treatment Plant re-consenting

South Wairarapa District Council's (SWDC) applications to re-consent Featherston wastewater discharges were notified in May, and a total of 159 submissions were received of which 152 were opposed.

SWDC has formally requested an extension of time to allow for the Hearing to commence post-April. This is mainly due to the availability of their key expert witnesses. We have sought submitters views on the applicant's proposed timetabling and on receipt of which we will discuss the matter with the panel of independent commissioners in order that a timetable can be set for the production of evidence and for a date for the hearing itself. In the meantime discussions are continuing between GW and SWDC project teams over key technical land and water discharge matters, and Regional Plan policy direction issues which need to be resolved.

4.2.4 Significant Incident Response, Investigations and Enforcement

Houghton Bay sediment and leachate discharge: We received a notification of extensive discolouration of Houghton Bay following rainfall. In conjunction with Wellington Water, we are looking at what is contributing to the storm-water outfall in the bay. Leachate discharge from a closed landfill in the area is being managed under consent and work is also being undertaken in collaboration with Wellington City Council officers to look at a number of housing developments sites which may be contributing to the issue.

Strategic Response to Burning Incidents: In line with our public messaging on the **Better Burning** campaign we are working with Fire and Emergency New Zealand and the local authorities to address how we respond to the varied notifications we get around burning and smoke. This campaign is being promoted through our website and at public events with a positive message of "how to do it right". The ultimate goal is to have a coordinated and appropriate response across the region to improve our air quality.

Wharemauku Watercress contamination: Concerns were raised to us by Te Atiawa ki Whakarongotai of high levels of campylobacter in watercress at a mahinga kai site following sampling of the Wharemauku Stream. We are working with iwi, Regional Public Health, MPI and TA's on communicating risks and investigating possible causes.

We have one live case before the courts, a prosecution for works in the bed of a river. This is still waiting to proceed to trial.

4.3 Environmental Science

4.3.1 And the Better Burning winner is…

With 81% of our region's particle air pollution estimated to be produced by home fires over the course of a year, Tamsin Mitchell and Penny Fairbrother headed to the Wairarapa A&P show in October to promote our 'Better Burning' webpage, starting with a 'win a winter's worth of firewood'. To enter the competition participants had to answer a simple question about how much particle air pollution comes from home fires in our region (20%, 50% or 80%). People were very surprised to learn that it's 80%. The purpose of the competition was to start building awareness contribution of home fires to air pollution and the importance of getting wood in early so it has a chance to dry before being burnt.

And the winner was … Kevin, a retiree who restores furniture on a rural property just outside Masterton. He has a large home and has his wood burner running almost all winter, so winning this much firewood will make a huge difference to him.

4.3.2 Kai te pēhea te āhua o te rangi? How's the weather?

The outlook for summer is not as straight forward as usual due to the probability of El Niño developing by the end of the year. Our climate scientist reports that the climate is unlikely to behave like normal El Niños; a westerly regime will predominate but easterly rainfalls are possible, and it is expected to be drier and warmer than average with a chance of heat waves occurring. The table below gives an indication of weather patterns for each whaitua.

Whaitua*	Variables	Climate outlook for summer 2018/2019
Wellington Harbour & Hutt Valley	**Temperature:**	Average to above. Heat waves possible, but in between cooler unsettled periods. Not like 2017-2018.
	Rainfall:	Average to below. Very variable month to month.
Te Awarua-o-Porirua	**Temperature:**	Average to above. Heat waves possible, but in between cooler unsettled periods. Not like 2017-2018.
	Rainfall:	Average to below. Very variable month to month.
Kāpiti Coast	**Temperature:**	Average to above. Heat waves possible, but in between cooler unsettled periods. Not like 2017-2018.
	Rainfall:	Average to below. Very variable month to month.
Ruamāhanga	**Temperature:**	Above average. Increased chance of heat waves, but not as hot as 2017-2018.
	Rainfall:	Below average, but severe El Niño induced drought unlikely for now. Irregular distribution, easterly events possible.
Wairarapa Coast	**Temperature:**	Above average. Increased chance of heat waves, but not as hot as 2017-2018.
	Rainfall:	Below average, but severe El Niño induced drought unlikely for now. Irregular distribution, easterly events possible.

4.3.3 Dune vegetation mapping using drones

Our Senior Terrestrial Ecologist is collaborating with Auckland University of Technology in trialling the use of drone imagery to map dune vegetation. Aerial imagery of the dunes at Queen Elizabeth Park was captured recently using a drone. The next step will be to determine how to classify the vegetation from the data gathered using this technique.

Aerial imagery of Queen Elizabeth Park using a drone. (Photo credit Ashray Doshi).

4.3.4 Wetland bird surveys

An exciting find of spotless crake has been made at the Parangarahu Lakes in East Harbour Regional Park. Wetland bird surveys are being completed at selected sites as part of Environmental Science's Wetland Health Monitoring Programme. Surveyors use bird calls and recording devices to detect the presence of secretive wetland birds. Nine spotless crake were recorded around Lake Kohangapiripiri and 10 around Lake Kohangatera. This information feeds into management actions at this key native ecosystem site.

Spotless crake spotted at Parangarahu Lakes, East Harbour Regional Park. (Photo credit Tony Whitehead).

4.3.5 Groundwater quality results

Our annual SOE data report for groundwater quality in the Wellington region has been published recently. *E.coli* was detected on one or more occasions in 30% of the wells tested. All wells that had positive *E.coli* results during the 2017/2018 monitoring period have tested positive for bacteriological contamination historically and are located in unconfined aquifers. Three sites in the region that continue to show the most elevated levels of nitrate in groundwater are located in the upper Wairarapa Valley (2 wells) and on the Kapiti Coast near Otaki (1 well). High nitrate levels have been recorded at these sites for many years.

4.3.6 Ruamāhanga River comes out on top

There has been unprecedented interest in results from this year's River Water Quality and Ecology 2017/18 annual report, in particular the water quality index (WQI). The WQI is used to compare river/stream water quality across the Wellington region. It is based on physico-chemical (clarity, oxygen, nutrients) and microbiological (*E. coli*) data (but excludes ecological measures such as fish and macroinvertebrates) collected monthly from our network of 44 river and stream sites.

The number one spot goes to … the Ruamahanga River at McLays. Not surprising given the river is currently ranked number three nationally, and recently scooped the New Zealand River Award for improving water quality. Second equal were the Hutt River at Te Marua Intake and Whakatikei River at Riverstone. At the other end of the spectrum were Mangaone Stream at Sims Road Bridge and Mangapouri Stream at Bennetts Road. Overall, 13 sites ranked excellent, nine good, 13 fair and nine poor.

Ruāmahanga River. (Credit: Masterton District Council)

4.3.7 It's a bit fishy out there

(a) Spotlighting urban streams

Staff have been out spotlighting urban streams around Wellington City with fantastic results. The urban stream biodiversity monitoring project is being undertaken in partnership with Wellington City Council. It aims to identify and monitor the biodiversity values of Wellington City's urban streams, both piped and free-flowing. The work is being done to inform the design of long-term monitoring program to assess ecosystem health in urban streams.

Left: Shyam Morar and Evan Harrison spotlighting. Centre: find the fish (top) and Ashley Alberto nets a fish (bottom). Right: Banded kokopu from Maupuia, koura from Farnham Street (centre) and koaro in Kumutoto Stream (bottom).

(b) Wetland fishing

Our Wetland Health State of the Environment monitoring programme is in its third year of a five year programme. Thirty wetlands are surveyed annually, with a whaitua-based approach taken. Surveys of wetlands in Te Awarua-o-Porirua and Wellington/Hutt Valley whaitua have just been completed for this year. The most recent survey of Ohariu-Makara wetland found lots of shortfin eels, inanga and southern bell frogs (aka growling grass frogs).

Left: Southern bell frog (left).Top right: Shyam Morar checks a trap at Ohariu-Makara wetland. Bottom right: shortfin eels

(c) Fishing with our Citizen Scientists

Bryn Hickson-Rowden and Sheryl Miller recently went out to help Friends of Waiwhetu with their second fish survey this year. The fish survey is part of a citizen science project aimed at quantifying the ecological benefits of community-led restoration projects in the Waiwhetu catchment. Long-fin eels, inanga and kokopu made an appearance, although not in as many numbers as the last survey. The next survey will be held in February of the New Year.

4.3.8 Envirolink Grants

(a) Passive Sampling

Claire Conwell's rain dance worked a treat recently with a decent downpour occurring - enough for the trial storm-water passive sampling bottles and diffusive gradients in thin film (DGT) units to do their thing. Claire is working with NIWA, funded by an Envirolink Tools development grant, to set up low cost storm-water monitoring methods to use in small streams. This will help us to get around the problem of expensive and technical logistics of using auto-samplers, and to see what contaminants are in the 'first flush' rain event, that are notoriously hard to sample. These bottles were filled very early in the evening - so beats standing around in the rain taking grab samples in the dark.

Left: Trialing the passive sampling devices (right).

(b) Aerial survey system for cyanobacteria

A recently submitted Envirolinks tools proposal hopes to get funding to develop an aerial surveying system and software analysis tool to quantify the cover of toxic cyanobacteria. If funded, the collaboration between NIWA and GWRC will see a survey system designed that will provide data for the mandatory periphyton biomass attribute and the potential benthic cyanobacteria attribute (under development) of the National Policy Statement for Freshwater Management (NPS-FM). An associated software tool will be developed for analysis of aerial imagery and assessment of toxic cyanobacteria cover. The proposed aerial survey system and associated open source cyanobacteria aerial mapping software (C.A.M.S.) tool will offer regional and unitary council staff a more effective and robust way to quantify *Phormidium* cover and biomass in rivers commonly used for recreational purposes across New Zealand.

4.3.9 It's all about the training

(a) Electrofishing machines

The Aquatic Ecosystem team has two new Smith Root electrofishing machines! Ashley Alberto, Shyam Morar and Ashley Mitchell have just attended a two day electrofishing course run by Patrick Cooney, an electrofishing expert from the US, and Bruno David from Waikato Regional Council (WRC). The new machines have lots of unique features and settings unlike the typical NIWA electrofishers. This was a very valuable course, providing a better understanding of human safety, fish safety and meeting objectives. There is even a lamprey setting and we got heaps of baby lamprey on our course. Shyam also got to try out the Smith Root electric handling gloves which allowed him to pick up eels and other fish with ease.

(b) Periphyton training

Mark Heath provided a very useful training session for several environmental monitoring officers on identifying and measuring periphyton biomass. The training was held in the Wainuiomata River, and will help our field officers make consistent and reproducible observations over the upcoming field season.

(c) R training

Approximately 20 staff from ESci attended a two-day training workshop on R run by Madison Frank and Amy Lennard from Horizons Regional Council. R is a language and environment for statistical computing and graphics that provides a wide variety of statistical and graphical techniques that can be used to analyse environmental data stored within the numerous GWRC databases. The aim of using R within ESci is to make data analysis and reporting much quicker and efficient with high quality outputs for reporting or displaying on the GWRC website.

(d) Drone training

Jon Marks recently completed the Civil Aviation Authority part 2 training for unmanned aircraft (or drones). The course covered health and safety, rules and regulations when using drones as well as practical component. As the use of drones continues to grow at GWRC, it is important that staff know where, when and who to contact for permission. As the trainer said – 'drones are just flying blenders'!

It's all about the training. Left: Shyam Morar holds a rainbow trout using the electric handling gloves. Top and centre right; Mark Heath showing EMOs how to identify periphyton. Bottom right: a spot of R training.

4.3.10 Informed and informing

It's important for our staff to keep up-to-date with new technologies (e.g. drones), new information and new ways of doing things (e.g. Q&A via an app) as well as connecting with new (and old) colleagues. We also have a role to keep internal staff and external organisations, agencies and working groups informed of our work. ESci staff have been out and about at various conferences and workshops doing just that:

(a) Sustainable Seas National Science Challenge

Megan Oliver and Sheryl Miller attended the two-day Sustainable Seas annual conference in early November.

- Sci-art - terrific way for scientists and artists to collaborate to extend learnings and knowledge with a wider audience

(b) Australian Hydrographers Association

Jon Marks, Nick Boyens and Ethan Coulston headed to Canberra for the Australian Hydrographers Association conference. Ethan's attendance was sponsored by ENVCO and NZ Hydrological Society as a part of his prize for best young presenter at this year's NZHS Technical Workshop.

Ethan presented a paper about the Korokoro Stream flood warning network and Nick also presented on the review of our Flood Warning Service.

(c) Porirua Harbour Committee

Megan Oliver and Claire Conwell discussed the redesign of the recreational water quality programme, and how the recommendations emerging from the Whaitua process are linked to future science and monitoring with Te Awarua-o-Porirua Harbour and Catchment Joint Committee.

(d) Fonterra open gates day

Ashley Mitchell joined other GW staff at the Fonterra open gates day at Kaiwaiwai, Wairarapa. Kaiwaiwai Dairies uses a community-led approach with large wetland-management and green house emission projects underway. Over 500 people came for a look at the eels, wetlands and dung beetles, and to hear about land management.

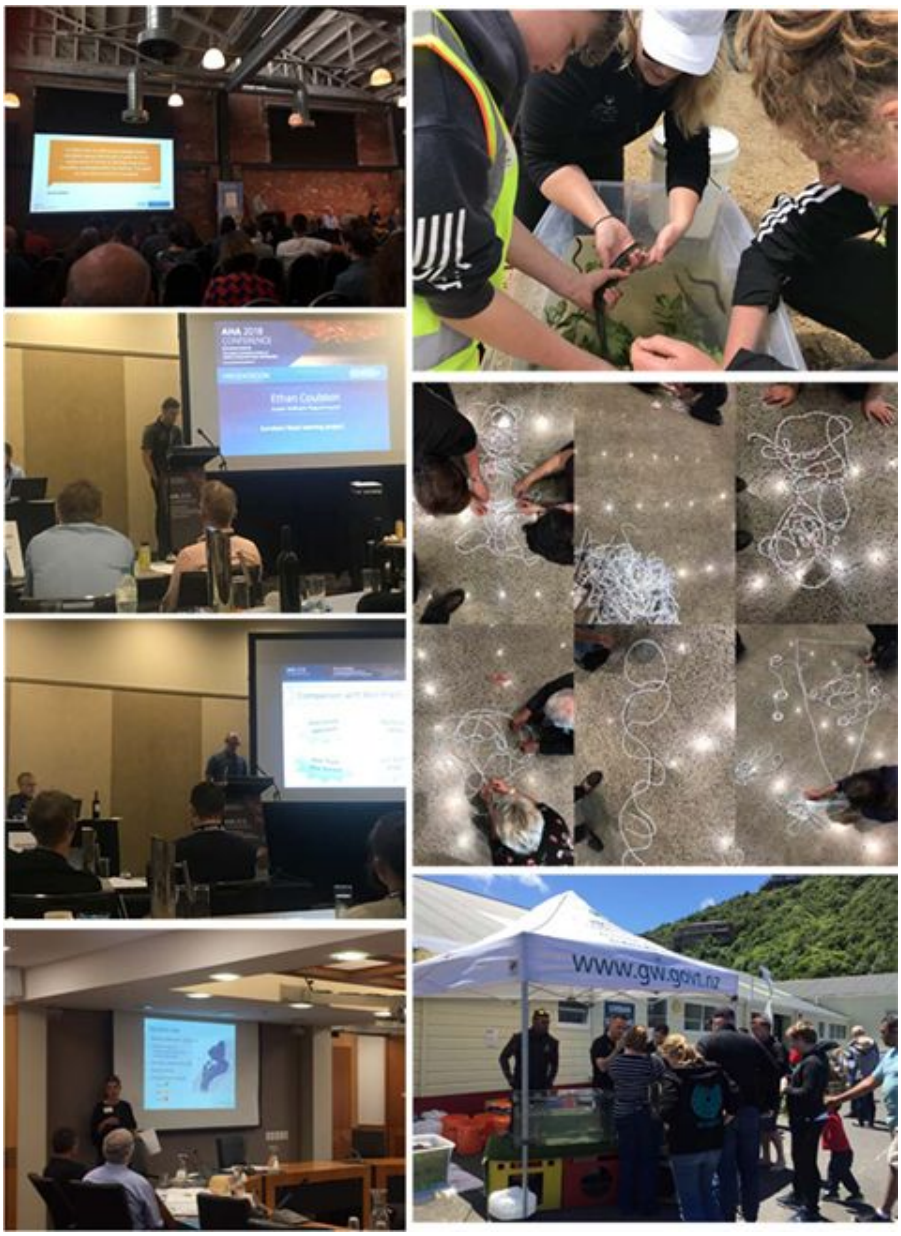
(e) Owhiro Bay School Fair

Shyam Morar and Ashley Alberto were part of a GW team that attended Owhiro Bay School Fair to showcase our urban streams and the native fish, eels and koura that live in them. A fantastic opportunity to highlight the connection between storm-water drains and streams with a super engaged public.

(f) NZ Coastal Society – Te Hunga Takutai o Aotearoa

Megan Oliver and Claire Conwell presented 'A tale of two harbours – Part I and II' which focussed on Te Awarua-o-Porirua

and Wellington harbours and the implications that the National Policy Statement for Freshwater Management will have on setting limits to protect the coast at the NZ Coastal Society Conference.



Informed and informing. Left (top to bottom): Q&A using pigeon hole at Sustainable Seas conference, Ethan Coulston and Nick Boyens present at Australian Hydrographers Association conference and Claire Conwell presents to Porirua Harbour Joint Committee. Right (top to bottom): Ashley Mitchell handles the eels at Fonterra open gates day, sci-art by Gabby O'Connor and talking to Owhiro Bay School fair goers about life in the local stream.

4.4 Environmental Policy

4.4.1 City and District Council plan changes and resource consents

Territorial Authority	Status of Document	Name of Document	Main topics commented on	Action
Wellington City Council	Proposed plan change	Proposed District Plan Change 83 – Kiwi Point Quarry	Effects of proposed quarry extension for gravel extraction activities on biodiversity	Hearing date set for 10 and 11 December Suitability of offsetting proposed for biodiversity loss
Wellington City Council	Notified resource consent	Waterfront site 9- Customhouse Quay	Construction, use, and maintenance of a new five level commercial waterfront building	No further action required
Hutt City Council	Draft plan change	Draft district plan change significant natural areas	Identification and protection of significant biodiversity provisions	Providing comment on draft. Due to be considered on 29th November by HCC.
Upper Hutt City Council	Proposed plan change	Proposed plan change 42 Mangaroa and Pinehaven Flood Hazard Extents	Flood hazard and policy provisions	Mediation in November was postponed to allow for expert conferencing
Porirua City Council	Preparation for Draft District Plan	District Plan Review	Alignment with policy and operational matters	Assessing the draft e-plan of objectives and policies for feedback by 30 November
Kāpiti Coast District Council	Decision version	Proposed District Plan Decisions version 2017	Joined as S274 party to appeals on matters in submission	Mediation on coastal matters principally successful. Finalising of other consent orders continuing

4.4.2 'At Risk Catchments' progress

GW officers attended a national workshop to work on narrowing down a list of 'At Risk Catchments'. This work follows on from the Land & Water Forum's recommendations to focus on key risk areas and part the government's approach to halt the decline in water quality.

Attendees at the workshop included iwi, regional councils, central government, environmental NGO's and academia. The group discussed the concept of risk, the definition of catchment and what catchments could be included. Inclusion could potentially open up opportunities for intervention – both regulatory and non-regulatory.

The Minister for the Environment is looking to finalise the first tranche early next year.

4.4.3 PNRP, WIP's and Variations

The Hearing Panel are continuing their deliberations now that hearings are complete. We expect a final decisions report between March and July next year.

Work is underway on reviewing the Ruamāhanga WIP, working with the whaitua team and liaising with the Ruamāhanga Whaitua Committee to develop a Plan Variation. Notification is expected towards the end of next year.

The Awarua-o-Porirua Whaitua Committee will be presenting to a joint workshop of Te Upoko Taiao and Environment Committee on the afternoon of 11 December. This will cover where the Committee is landing with their recommendations.

A meeting will be held with local representatives to discuss the driving on beaches issue at Castlepoint. This meeting will include GW, iwi, MDC and locals with a focus on practical implementation of the rules.

5. Parks

5.1 Parks Planning

An update about the Parks Network Plan review is provided in a separate report to the committee.

Parks Visitor feedback in the annual telephone survey has repeatedly reported low park visitor satisfaction with signage. To help address this issue, a parks sign standard is being developed with the assistance of a consultant. The standard will support park rangers in the development and installation of more consistent and clearer signage for visitors in parks.

Working with the other eight councils in the region, WREDA and DOC, GWRC has been leading coordination of trail maps GIS information and providing content for the new "Find Your Wild" website to be launched in late November. The initial stage of the launch will feature interactive maps and descriptions for around 200 trails and destinations around the Wellington region. A long awaited "one stop shop" for trails information, it is one of the key actions of the Regional Trails Framework and a real achievement for all agencies involved.

Parks staff are working with Land Management to release Dung Beetles at Battle Hill Farm Forest Park, Queen Elizabeth Park and Belmont Regional Park. These releases are planned for January – March 2019.

5.2 Queen Elizabeth Park

Weed releasing works are well underway on the winter planting sites, to control emergent gorse and blackberry. Early survival rates are encouraging with warm damp conditions prevailing. A frost in late October has some impact on manuka plantings in the Maclean Trust area; these will be monitored and if required plants will be replaced in the 2019 planting season. Plant stock is arriving into the park nursery and being grown on by the restoration volunteers for 2019.

Additional tributaries of the North Whareroa have had riparian margins fenced off and work is underway to control weeds ahead of planting getting underway in years to come. The majority of this fencing work is in the Kāpiti Pony Club licence area.

A new seat sponsored by a family has been installed on the Inland track in memory of a relative. The views towards the coast and of Mana Island are breath taking.

Notification of the aerial spray programme at QEP has been undertaken by public notification in the newspapers and by a visit to adjoining neighbours and park stakeholders. Some opposition from the Friends of QEP has been received. The work will proceed as the weather allows.

Work on preparing the draft coastal infrastructure retreat plan continues with presentations to Iwi, internal departments and the Paekakariki Community Board. Feedback is positive from all groups, with numerous comments that it is great to see the proactive approach being taken by GWRC.

The next steps are to hold drop in sessions for the local community in Paekakariki, park visitors and stakeholders. Once a final concept is produced this will be incorporated into the draft parks network plan consultation process.

The Bush Remnant track has been maintained to bring it up to walking track standard. The track surface improvements will help bring a wider range of visitors to enjoy this restoration site showcasing this treasured piece of lowland coastal forest.

Bush Remnant maintenance

The Whareroa Stream Track metalling is progressing well. The remainder of the track work will be completed in the New Year.

5.3 Battle Hill Farm Forest Park

Construction works on the Riding for the Disabled arena continues; the structure is looking impressive without being obtrusive. Completion is planned for early 2019 followed by an official opening.

RDA's Arena under construction

Camping numbers continue to increase, fine weekends drawing people out with Labour weekend being exceptionally busy. The number of international campers is gradually increasing.

The equestrian event season is underway with training days, pony club rallies and course maintenance works being undertaken. The first one day event is planned for 25 November with more than 100 horses entered.

Mana Lions continue to build a picnic shelter in the Dell Area. This project has been planned over the last 3 years with members fund raising and building the structure itself. When finished, it will house seating and an electric barbecue for visitors to enjoy.

The Parks crew teamed up with the Biosecurity team at Battle Hill to trial a drone for use in building and fence inspections. The photo below shows it in use over the Battle Hill Homestead. With safety being a primary consideration in getting roofs inspected, the drone has produced excellent results without having to climb up ladders.

Fences proved a bit of a mixed result with this type of drone; however we're looking into other models to see if there's a better alternative. Anything that reduces the kilometres walked over difficult hilly terrain as part of regular condition inspections on fences would be a huge advantage.

Drone being trialled as a safer alternative for building inspections

Dell Picnic Shelter construction

Culvert replacements on the on the north side of the Puketiro Loop track have been completed with planning underway for the replacement on the south side in 2019. Additional culvert replacements around the park are planned and will be worked around the equestrian and other park events to minimise impact.

5.4 Belmont Regional Park

Several park roads have had annual maintenance works and vegetation cutbacks ahead of the busy summer season.

An MOU has been signed with First Gas to cement the good working relationship that has been established. A large amount of First Gas infrastructure is located across the park and the parties felt a need to capture the operational procedures to ensure all H&S responsibilities were documented. In addition First Gas will pay an agreed sum per annum towards maintenance of park roads.

Work with TG staff continues around fencing of mitigation sites. The western side of the designation is 95% completed and planting has been undertaken over the last several months. A plan is now in place to get the eastern side of the designation fenced over the 2019 summer allowing site preparation works to be completed ahead of the 2019 planting season.

A combined Friends of Belmont/GWRC guided walk to view the Transmission Gully designation attracted around 70 people to come and have a look. This was a useful exercise for the Friends as they try and encourage new members.

5.5 Whitireia Park

Aerial Spraying of gorse, pampas and boneseed has been completed. Staff were approached during the operation by neighbours supportive of the work, noting the improvement in the parks appearance.

Aerial Spraying in progress

Dying gorse with native vegetation remaining

A vehicle gate has been installed on the road to Kaitawa Point, an outcome from the park management plan process in 2016. A sign socialising the imminent closure has been erected at the site, drawing a mixed reaction from park users. We have delayed the closure of the gate as we work through access arrangements with the diving community, with a solution close. Access for pedestrians and cyclists remains unaffected.

Construction of the Pou carpark and path to the Pou is planned to get underway on 3 December, now that all consents and archaeological authorities are in place. The earthworks will be monitored by the project archaeologist and an Iwi monitor. It is expected to have the carpark completed around a week before Xmas. A blessing by Ngati Toa will officially open the carpark for use.

5.6 Pakuratahi Forest

Martins #1 bridge has been replaced, with a concrete walking/ cycline bridge that was craned into place. Safety barriers are being installed, which will bring this structure up to current building code. The new bridge, located on the Station Drive section of the Remutaka Cycle Trail will be open shortly.

Martins #1 bridge – in construction

5.7 Plantation Forestry - Maymorn

Harvesting is continuing in Maymorn Forest and Parks is working closely with PF Olsen and the contractor to manage recreation after hours in this popular area. While there have been a number of incidents with members of the public entering the operational area during work hours, crews on site have responded quickly and GW have been proactive in social media and also through the Upper Hutt Leader to get the message out that access is not permitted while machinery is operating. PF Olsen also hosted a GW and RMS site visit to the harvesting operation in October, which was a great opportunity to discuss first-hand the challenges the crews are facing and see the harvesting in action.

5.8 East Harbour Regional Park

Work is underway with the assistance of an interpretation consultation to develop detailed designs for story telling in the Baring Head Power House building and implement works in one or two rooms. These works are being funded via a grant the Friends of Baring Head received from the Wellington Community Trust.

The Kaeaea Track is officially open. GWRC parks coordinated a small opening ceremony with the Eastbourne Community Board and members of the historical society who had done the research for the signs, to open the Track on Saturday 10th November.

New signs have been installed including this one at the summit – using the new corporate brand colours.

Kaeaea Track sign

Contractors are on-site installing the new replacement vehicle bridge at Baring Head. The expected timeframe for completion has shortened to before Christmas 2018. The photo below shows the old bridge on the left with the new concrete-decked bridge on the right.

Baring Head bridge construction

5.9 Remutaka Cycle Trail Experience workshop

Progress on taking the Remutaka Cycle Trail to the next level made a significant step forward on 20th November 2019 with an Experience Development Workshop for all trail partners. The workshop was facilitated by Craig Wilson from New Zealand Cycle Trails and sought to clarify an overall theme for the trail. The implications of this would be a consistent look and feel to signage through the trail and across council boundaries, as well as a plan to enhance the interpretation along the trail. It was excellent to also have several iwi partners at the workshop to provide their views.

6. Climate Change

6.1 Regional projects

Work on both of the collaborative regional climate change mitigation projects has begun, with the financial support of all councils in the Region. These are the Wellington Region 2050 Emissions Calculator and the Regional EV Support Strategy. The 2050 Calculator is likely to be operational before the end of 2018, and a communication and engagement programme around it will run through the first half of 2019 – there is potential is to use the 2050 calculator as a starting point of forming a regional greenhouse gas emissions strategy.

The EV Support Strategy is likely to be completed in draft form by the end of the 2018 also, but considerable work will be required to negotiate the final details of the actions contained within it and to obtain formal adoption by the partners.

Another joint regional project that is planned for 2019-20 is an update the greenhouse gas emissions inventory for the region. At present the last year for which a regional inventory has been produced is 2014-15. Gross emissions (not including forests and land-use change) reduced by 4% over the period from 2000-01 to 2014-15, abating after a peak in 2005-06. Net emissions increased by 39% over the same 15 year period, due to an increase in forest harvesting activities. Net emissions can be expected to reduce again as these areas of forests regrow. In the long term, changes to the mixture of land uses in the Region are a key determinant of trends in net emissions.

6.2 GW Corporate emissions

As was reported in the 2017-18 Annual Report, GWRC's corporate emissions (excluding CCOs and bus and rail contracts) have increased. The total increase is 23.3% in 2017-18 compared to the base year of 2014-15. The increase has stemmed from two areas in particular, fleet fuel use and staff commuting. The target for emissions in the Corporate Sustainability Action Plan is a reduction of 10%, so Council is presently not on course to achieve it. The Council's greenhouse gas inventory is assembled by consultants AECOM using standard methods, but is not third-party verified.

As a result of the workshop on carbon trading and emissions offsetting on 17 October, staff were asked to investigate carbon neutrality of the Council as an organisation, including major contracts and its CCOs. Furthermore at the Environment Committee on 31 October, staff were also asked to report back on options for greater disclosure in the Annual Report of climate change related risks to the organisation and what is being done to mitigate them.

Work had already begun reviewing options for improved measurement, verification, reporting and management of corporate greenhouse gas emissions, but this is not yet complete, and this does not include climate-related risks and adaptation responses. Council's approach to this risk assessment (i.e. the method, frequency and scale) requires consideration, as does which (if any) of the existing, internationally-recognised reporting frameworks to use.

7. Consideration of climate change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

8. The decision-making process and significance

No decision is being sought in this report.

9. Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

Report prepared by:	Report approved by:	Report approved by:
Matt Hickman Acting General Manager, Environment Management	**Wayne O'Donnell** General Manager, Catchment Management	**Luke Troy** General Manager, Strategy