WAIKATO REGIONAL PEST MANAGEMENT PLAN 2014-2024

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

Waikato Regional Council

Hamilton Office | 401 Grey Street | Hamilton East | Hamilton | 3216

Freephone: 0800 800 401 | Phone: 07 859 0999 | Fax: 07 859 0998

Web: www.waikatoregion.govt.nz

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Waikato Regional Council

WAIKATO REGIONAL PEST MANAGEMENT PLAN 2014-2024

The Waikato Regional Pest Management Plan 2014-2024 was prepared by the Waikato Regional Council in accordance with Part V of the Biosecurity Act 1993.

On the 28th day of August 2014 the Waikato Regional Council resolved to approve and make operative the Waikato Regional Pest Management Plan 2014-2024.

The Waikato Regional Pest Management Plan 2014-2024 will become operative on the 28th day of August 2014.

The Common Seal of the Waikato Regional Council was affixed to the Waikato Regional Pest Management Plan 2014-2024 in the presence of:

Vaughan Payne
Chief Executive Officer

Paula Southgate
Chairperson

WAIKATO REGIONAL COUNCIL 1842 THE COMMON SEAL OF

Dated at Hamilton this 28th day of August 2014.

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Chairperson's foreword

I am pleased to present Waikato Regional Council's latest Regional Pest Management Plan (RPMP), which describes why and how various plant and animal pests will be controlled in the Waikato region.

This RPMP is the fourth pest management plan the council has developed since 1996. Over that time, pest control technology has become much more sophisticated and reducing the harm done to our native biodiversity by pests is a much higher priority. New pests have also come along, but many of the pests important 17 years ago are still with us and need to be managed.

The last pest management review was done in 2007 and that document, which was adopted in 2008, remains the backbone of this plan. The major changes since then have been administrative and legislative, driven by changes the Government has made to the Biosecurity Act.

Changes to the Biosecurity Act

The Biosecurity Law Reform Act was passed into law on 17 September 2012, bringing a wide range of amendments to the Biosecurity Act. One of the most significant changes is that regional pest management plans must now comply with requirements in the national policy direction being developed by central government.

Our council has a good understanding of the intent of the national policy direction and this RPMP has been developed with that in mind. Our council is also assisting with the development of guidance material, which will help all regional councils implement the final national policy direction more effectively. However, as at the adoption of this plan in August 2014, the date for completion of the national policy direction was uncertain.

The council will follow the procedures in the Biosecurity Act and review alignment of this RPMP with the national policy direction once it is finalised.

The Act now requires all Crown agencies to comply with good neighbour rules. We believe this has the potential to make pest management in the region fairer and more effective. Waikato Regional Council has historically had a close, collaborative relationship with the Department of Conservation and has undertaken a number of joint operations that have delivered more than either agency working alone. We look forward to continuing that good working relationship.

Pest control integral part of restoring river health

The Waikato River settlement legislation and subsequent river legislation require the council to have particular regard to the Waikato River Authority's Vision and Strategy for restoring the health of the Waikato River when carrying out its functions under the Biosecurity Act, and other legislation. This has been done during the development of this plan as many pests undermine the objectives associated with restoring the river and its catchments.

What's new with pests?

We remain committed to managing pests that eat into the profits of primary industry, devastate our native biodiversity and exacerbate erosion and flooding problems. We will also do our best to maintain the gains made in previous years.

Given this, much of what you'll find in this RPMP is unchanged or very similar to our current strategy. However, there are some changes.

Plants

There is a change to the rules around controlling privet for health reasons. While these trees do have a highly scented flower, research shows it is not a strong allergen for most people. In other words, it's unlikely that privet is the cause of the allergy symptoms so many people suffer from. People who think they are allergic to privet may actually be allergic to something else like ryegrass, which is not as noticeable as privet.

The concern is that we may be spending significant time and money on controlling privet but not actually helping most people's allergies.

Under the new rule, a positive allergy test is needed before the regional council can require a privet tree to be removed on health grounds.

As a result of submissions, the council has retained the current 'total control' rules for nodding thistles. However, the council will reconsider this issue in two years, during which time more information will be collected on the cost and effectiveness of the total control rule.

Two changes to agricultural pests reflect the council's determination to protect the economic base of the Waikato region. Tutsan has been upgraded to a total control pest because of the serious risks it poses to productive farmland. The council will be focusing much more effort on tutsan during the life of this plan. Velvet leaf, one of the worst cropping weeds in the United States, has rules requiring total control, as well as restrictions on spreading it from a contaminated property.

Animals

The Canada goose is a new advisory animal in this RPMP. While geese are a notable game bird, legislation passed by the Government in 2011 means Fish & Game no longer manages geese as a hunting resource. As a result, the population levels are not being actively controlled and numbers are increasing in some areas of the Waikato, causing problems for landowners.

The effective control of Canada goose is technically complicated and any comprehensive programme would be expensive. Given this, we don't expect to carry out any large scale control of geese, but this plan does allow the council to work collaboratively with landowners, hunters and other agencies to control them in certain circumstances – a successful model we already apply to deer and pigs.

New Zealand is one of the few countries in the world that doesn't have an established population of red-eared slider turtles living in the wild. To help keep it that way, we have identified these turtles as pests if they are in the wild. We will encourage responsible pet ownership and raise public awareness about the threat they pose to our native species if released into the environment. If necessary, Waikato Regional Council will have the ability to control turtles in high value biodiversity areas.

Possum control is a top priority for our council and is most cost effective when done over large areas with boundaries that minimise reinvasion. We want to gradually extend these 'landscape scale' control areas and deliver more possum control for less money over the long term. One way of prioritising our spending would be to reassess areas that previously had possum control done by TBfree New Zealand (formerly known as the Animal Health Board).

Because of financial constraints, the council cannot commit to automatically funding continued possum control in all areas where TBfree New Zealand has concluded that bovine tuberculosis (TB) is no longer a threat. Doing so would have extremely large cost implications for ratepayers. Instead, we will include former TB areas in the same scoring prioritisation process as other areas in the region. These criteria include agricultural values, ecological components and catchment health considerations.

Koi carp and other pest fish have long been a serious problem in the lower Waikato River and nearby lakes. Unfortunately, effective control techniques have not been available. Our council, in partnership with the Waikato River Authority, Genesis Energy, Waikato-Tainui and the Waahi Whaanui Trust, successfully trialled a special fish trap and 'digester' for removing koi carp and turning them into nutrient-rich potting mix. During the trials, more than 10 tonnes of carp were removed from Lake Waikare in North Waikato, while native fish and eels passed through unharmed. The rules for koi carp in this plan would allow this technology to be deployed strategically around the Waikato River system. However, control on a large scale would require a partnership between multiple agencies and funders.

Pest control funding

The way we fund pest control has not changed under this plan.

Most of the work done as part of the RPMP predominantly benefits the whole region. What's more, the outcomes – improved biodiversity, healthy catchments, management of public health pests – are all 'public goods' rather than private benefits. Given this, the council will continue to fund pest control work through a region wide rate based on capital value. However, the cost of the region's pest management also includes work done privately by individual landowners.

In some cases landowners carry out their own pest control work to comply with RPMP rules. But more often than not they do this work because it benefits them personally, either through increased production on farms or because it enhances the quality of the environment around them. We are very aware of landowners' costs and how the work they do helps enhance the work we carry out. We have taken this into account in the development of this plan.

Submissions

We received 60 submissions on the proposed RPMP. There were a number of comments from government agencies related to the proposed national policy direction for pest management. The council has taken those comments into account wherever possible and will review the final RPMP when the national policy direction is ultimately adopted. In addition, council staff discussed good neighbour rules with Waikato Department of Conservation. Those discussions were very practical and the process for implementing good neighbour rules has been clarified as a result.

In its submission, Auckland Council asked to be the pest management agency for the area of the Hunua Ranges that was transferred to Waikato from the previous Auckland Regional Council. Auckland Council wants to actively control pigs, deer and goats in that area. Waikato Regional Council supports this arrangement because of the responsibilities Auckland Council has to manage its regional parks that are in that area. Both councils consulted with local landowners and there were no objections. Auckland Council will therefore be the management agency for that area of the Hunua Ranges and special rules will apply to animal pests there. You can read about those rules in the sections on each pest.

As a result of submissions, Japanese walnut has been included as a pest species, but only in high value biodiversity sites.

Thank you to everyone who took the time to make a submission. The council appreciates your feedback and your interest in pest management issues.

Paula Southgate

Chairperson

Waikato Regional Council

Part 1
Introduction and background

Introduction

1 INTRODUCTION

1.1 Title

This document will be known as the *Waikato Regional Pest Management Plan* (the plan or RPMP). It has been prepared in accordance with the Biosecurity Act 1993 (BSA or the Act) and the Biosecurity Law Reform Act 2012. The proposal to review the previous regional pest management plan was prepared by Waikato Regional Council in accordance with sections 68-78 of the Act, as directed by section 100D(6)(b).

1.2 Purpose

The purpose of the plan is to set out the strategic and statutory framework for the effective management of pest plants and pest animals in the Waikato region, so as to:

a. minimise the actual or potential adverse effects of pest plants and pest animals on the environment; and

b. maximise the effectiveness of individual pest plant and animal management action by way of a regionally coordinated approach.

Waikato Regional Council (regional council or the council) believes that pest management is best viewed as a tool that assists in achieving many of the council's wider objectives. These objectives include work traditionally related to pest control, such as supporting agricultural productivity. However, in addition to continuing recognition of this aspect of the council's work programme, this plan also outlines how pest management contributes to other council functions, such as maintaining and enhancing biodiversity and minimising flood risks through enhanced soil stability.

Objectives specific to each plant and animal pest are set out in specific sections dealing with plants and animals.

1.3 Commencement and duration

The plan shall become operative on the date on which Waikato Regional Council's seal is fixed to the plan. The plan will remain in force until such time as a review establishes that the plan be amended or revoked. The BSA requires that a review of the entire RPMP must be initiated at least every 10 years.

1.4 Effect of the 2012 Biosecurity Law Reform Act

The Biosecurity Law Reform Act was introduced to Parliament in November 2010 to update the Biosecurity Act 1993 and allow the biosecurity system to respond to an increasingly challenging environment. The bill was passed into law on 17 September 2012.

The amended BSA remains the primary piece of legislation for pest management in New Zealand. References in this document to the BSA refer to the current, amended version.

The Biosecurity Law Reform Act made a wide range of amendments to the BSA, along with related amendments to four other Acts. As a result, pest management strategies must now be called pest management plans and there are new requirements for the development and review of these plans. Other changes include:

- the development of new policy instruments, such as the national policy direction and pest pathway management plans
- a requirement for the Crown to comply with good neighbour rules.

Some of the changes are significant. For example, regional pest management plans and other pest management activities that occur under the BSA must now be not inconsistent with the national policy direction.

Although the national policy direction is only in proposal form at the adoption of this RPMP, the plan has been developed with the intent of the national policy direction in mind. Nothing in the amended Act or the draft policy direction changes the fundamental relationship between regional councils and pest management activities.

This RPMP has been developed through a review of the existing regional pest management strategy. Much of the document is unchanged or very similar to the 2008-2013 strategy because the underlying pest management situations have not changed. However, some changes were appropriate. For example, section 3 of this plan now references the proposed Waikato Regional Policy Statement and its implications for pest management.

1.5 Area of plan effect

The plan will, within its terms, have effect over the Waikato region as shown on SO Plan No 58086 deposited with the Chief Surveyor of the South Auckland Land District.

The region covers a land area of approximately 25,000 square kilometres (2.5 million hectares) in the central North Island. The boundaries of the Waikato Regional Council conform to those of water catchments that extend from the Bombay Hills and the Coromandel Peninsula in the north, south-west to Mokau, east to the Kaimai/Mamaku Ranges and south to the summit of the Desert Road (figure 1).

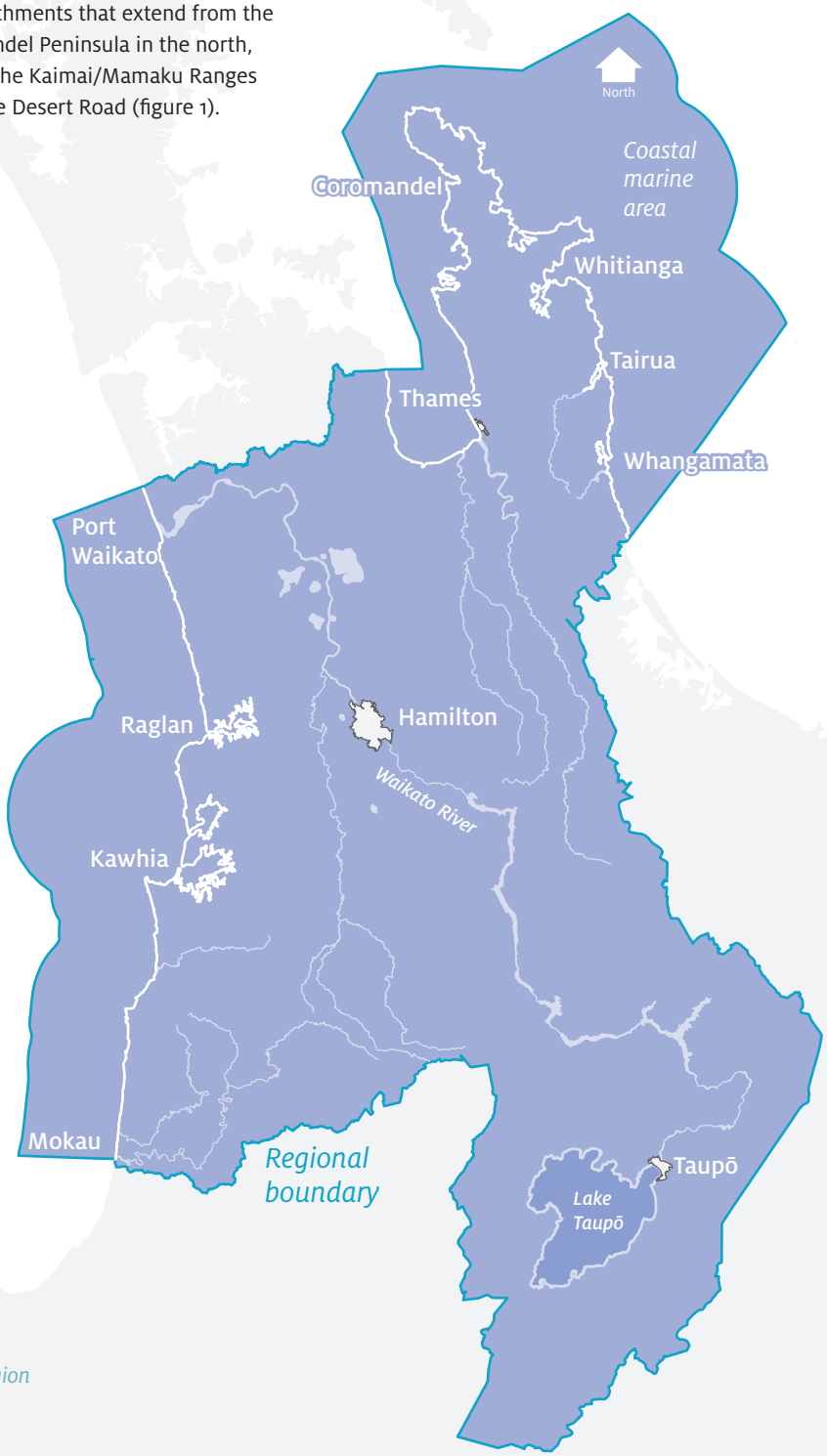


Figure 1: Area of the Waikato region

1.6 Document structure

The structure of this plan is based on the requirements for a regional pest management plan as set out in section 70(2) of the Biosecurity Act 1993. It also largely follows the *Template for a proposal for a pest management plan* developed by the Biosecurity Generic Guidelines Group – a group made up of regional council and Crown agency representatives. The 'proposal' for this review included this document, as well as supporting documents such as the detailed cost benefit analysis that is included on the CD-ROM or in printed copy on request.

Part 1 presents background information to facilitate the reader's understanding of the plan. It is divided into a number of sections.

- Section 1 contains the **introduction** to the plan and states the title, purpose, duration, area of effect and structure of the plan.
- Section 2 contains the **definition of terms** used in this plan.
- Section 3 outlines the **statutory and planning framework** relevant to the administration and implementation of the plan. In particular it explains Waikato Regional Council's catchment-based and biodiversity-based approach to pest control. Section 3 also explains the criteria used in the assessment of plant and animal pests and outlines the effects that the implementation of the plan might have.
- Section 4 identifies **responsibilities and obligations**.

Part 2 is divided into two sections – pest plants and pest animals.

For each pest, a management programme is set out that describes the plant or animal and why it is a pest, the long term goal for its management, the goal to be achieved during the plan's timeframe, the principal methods (including alternatives) to achieve the goals and any plan rules relating to that pest.

- Section 5 sets out management programmes pertaining to **pest plants**.
- Section 6 sets out management programmes pertaining to **pest animals**.
- Section 7 sets out **other relevant pest management responses** (such as transport corridor responsibilities).

Part 3 details Waikato Regional Council's administrative policies and procedures in implementing its responsibilities in areas where it is the management agency for this plan.

- Section 8 summarises the **powers conferred** on staff and contractors.
- Section 9 summarises the **operational plan**.
- Section 10 outlines how the plan will be **reviewed**.
- Section 11 sets out the **implementation methods**, including:
  - advice and information
  - monitoring
  - compliance and enforcement
  - exemptions
  - direct control methods
  - community initiatives
  - site-led initiatives
  - biological control
  - cross boundary issues.
- Section 12 outlines **funding** provisions.
- Section 13 summarises the **Hauraki Gulf** pest free initiatives.
- Section 14 summarises **marine biosecurity.**
- Section 15 summarises **pathway management of pest plants**.
- Section 16 summarises pest plant threats associated with **land development**.

Definition of terms

2. DEFINITION OF TERMS

This section provides the meaning of words used in this plan and in the Biosecurity Act 1993. When a word is followed by an asterisk (*), the meaning that follows is the meaning provided in section 2 (interpretation section) of the Act.

Advisory plants are not legally declared pest plants. Refers to widespread 'weedy' plants but there is no requirement for the landowner to control infestations and no expectation on council to fund control programmes. The objective is to raise awareness of their 'weedy' tendencies and encourage community driven control initiatives where relevant.

Advisory animals are not legally declared pest animals. Refers to animals and insects which exhibit invasive or nuisance characteristics. There is no requirement for the landowner to control infestations of these organisms and no expectation on council to fund control programmes. The objective is to raise awareness of their impacts and to encourage community-led control initiatives where relevant.

Agrichemicals means substances intended by the manufacturer, distributor, vendor or discharger to cause or promote or facilitate any of the following effects:

- the control of plant growth (other than primarily as a fertiliser or soil conditioner) by the use of substances such as but not restricted to categories of herbicides, algaecides, defoliants or fruit-setting hormones
- the control of bacteria, protozoa, fungi and viruses, by the use of substances such as but not restricted to the categories bactericides, fungicides or viricides
- the control of vertebrates and invertebrates, by the use of substances such as but not restricted to the categories nematocides, miticides, acaricides, arachnicides, molluscides, insecticides, vertebrate toxic agents such as cyanide, 1080 and brodifacoum or other pesticides.

Animal means any mammal, insect, bird or fish, including invertebrates, and any living organism except a plant or human.

Appropriate means determined to be appropriate by the council or its officers to be proper and suitable after the consideration of relevant factors.

Assessment survey refers to an assessment done to determine a site's ecological needs, including the need for pest management, on a site-specific basis. An assessment will include consideration of the:

- ecological values or catchment conditions (such as soil stability) associated with the site
- community values associated with the site, such as aesthetic, recreational and amenity values
- vulnerability of site values to particular types of pests
- presence or absence of pests
- numbers of pests present
- existing pest management (if any) and whether it is adequate
- practicality of other pest management options.

No on site assessment will be made without prior consultation with affected landowners.

Authorised person* means a person for the time being appointed an authorised person under section 103 of the Act.

Beneficiary means the receiver of benefits accruing as a result of the implementation of a pest management measure or this plan.

Biodiversity means the variety among living organisms from all habitats, including terrestrial, marine and other aquatic habitats and the ecological systems of which they are part. This includes diversity within and between species and ecosystems. However, the provisions of this plan recognise that the regional council's responsibilities relate specifically to indigenous biodiversity.

Biological control means the introduction and establishment of living organisms that will prey on or adversely affect a pest.

Biosecurity Law Reform Act means the Act enacted on 17 September 2012.

Boundary control means the standard adopted whereby occupiers are required to treat the plants in boundary situations. Plants will be treated by a recognised method at intervals that will ensure the pest plant is totally controlled for an 'appropriate' distance (defined for each pest plant).

Communicate as defined in sections 52 and 53 of the Act and includes meaning to propagate, offer for sale or sell, transport or in any way spread a pest.

Destroy means to kill, or manage each individual instance of the pest in a specified area so that it cannot reinvade the specified area.

Direct control means pest control undertaken by or funded by Waikato Regional Council.

District council means a territorial local authority as defined in accordance with the Local Government Act 2002.

Effect* includes any:

- positive or adverse effect
- temporary or permanent effect
- past, present or future effect
- cumulative effect which arises over time or in combination with other effects – regardless of the scale, intensity, duration or frequency of the effect
- potential effect of high probability
- potential effect of low probability which has a high potential impact.

Environment* includes:

- ecosystems and their constituent parts, including people and their communities
- all natural and physical resources
- amenity values
- the aesthetic, cultural, economic and social conditions that affect or are affected by any of the above.

Eradicate means total clearance.

Eradication pest means those pests that are to be managed under an eradication programme. Eradication pest plants are of limited distribution or density in the region or part of the region, for which the eventual goal is eradication at known sites in the region. In reality long term eradication from the region may not be practicable, as there are factors outside Waikato Regional Council's control that prevent complete eradication.

Exacerbator means a person, who by their activities or inaction, contributes to the creation, continuance or exacerbation of a pest management problem.

Exclusion programme is where the outcome for the programme is to prevent the establishment of the subject that is present but not yet established in New Zealand or the region.

Feral in relation to any wild animal defined in the Wild Animal Control Act 1977 means that animal as so defined, or in relation to any other animal means one that is living in a wild state and free-ranging.

Good neighbour rule* means a rule to which the following apply:

a. it applies to an occupier of land and to a pest or pest agent that is present on the land; and

b. it seeks to manage the spread of a pest that would cause costs to occupiers of land that is adjacent or nearby; and

c. it is identified in a regional pest management plan as a good neighbour rule; and

d. it complies with the directions in the national policy direction relating to the setting of good neighbour rules.

High value site refers to either a high value biodiversity site or a high value catchment site.

High value catchment site refers to a vegetated area within a catchment where Waikato Regional Council considers it prudent to control animal pests in order to:

- minimise risks of erosion, run off and downstream flooding; and/or
- optimise the health and biodiversity of the area as part of the overall catchment resource in a holistic manner, regardless of the scale of contribution to total catchment function.

The following catchments have been identified as priorities in the region:

- Coromandel Peninsula (Moehau and harbour catchments)
- Waihou catchment (Kaimai Ranges and catchments upstream of Manawaru)
- Lake Taupō catchment
- Upper Waipa (catchments above Ōtorohanga)
- Waitomo catchment
- Waikato River (catchments from Lake Karapiro/Arapuni upstream to Lake Aratiatia)
- west coast harbours
- Hunua Range catchment (due to high biodiversity values and pest control undertaken by Auckland Council).

These are not the only catchments or sub-catchments in which work might occur. However, they are priority areas for Waikato Regional Council and that is unlikely to change in the medium term.

Pest control will occur only in areas of these catchments where a site assessment has been completed. No on site assessment will be made without prior consultation with affected landowners.

High value biodiversity site refers to areas identified by Waikato Regional Council as containing indigenous vegetation or habitats of indigenous fauna that meet one or more of the criteria in section 11A of the proposed Waikato Regional Policy Statement.

No on site evaluations will be made without prior consultation with affected landowners.

Land development means any development of land which involves the clearing of vegetation, and/or soil disturbance, and/or altering the surface of the land for urban and peri-urban development.

Management agency* means the department, authority or body corporate specified in a pest management plan as the agency given the task of implementing the plan. For the purposes of this plan, Waikato Regional Council is the management agency responsible for the plan's implementation, except in the Hunua Ranges Pest Management Area, where Auckland Council is the management agency.

Means of achievement means the general management options, tactics or technical methods by which Waikato Regional Council or land occupiers will achieve an objective or objectives.

Mitigate means to reduce or moderate the severity of something.

Objective means a statement of a desired, specific environmental outcome.

Occupier*

- In relation to any place physically occupied by any person, means that person.
- In relation to any other place, means the owner of the place.
- In relation to any place, includes any agent, employee or other person acting or apparently acting in the general management or control of the place.

Occupied has a corresponding meaning to occupier.

Occupier obligations means the requirement in a plan rule for an occupier to undertake, or cause to be undertaken, control measures for pests.

On complaint refers to a valid complaint (as determined by an authorised person) made to Waikato Regional Council received from an occupier.

Operational plan means a plan prepared by the management agency under section 100B of the Act. Sets out how objectives in the RPMP will be achieved in any given financial year.

Organism*

a. Does not include a human being or a genetic structure derived from a human being.

b. Includes a micro-organism.

c. Subject to paragraph (a) of this definition, includes a genetic structure that is capable of replicating itself (whether that structure comprises all or only part of an entity, and whether it comprises all or only part of the total genetic structure of an entity).

d. Includes an entity (other than a human being) declared by the Governor General by Order in Council to be an organism for the purposes of the Act.

e. Includes a reproductive cell or developmental stage of an organism.

f. Includes any particle that is a prion.

Plant means any plant, tree, shrub, herb, flower, nursery stock, culture, vegetable or other vegetation. Also includes fruit, seed, spore and portion or product of any plant. Includes all aquatic plants.

Person* includes the Crown, a corporation sole and a body of persons (whether corporate or unincorporated).

Pest means an organism specified as a pest in the RPMP.

Policy means a specific statement that guides or directs decision making.

Progressive containment programme is where the outcome for the programme is to contain and reduce the geographic distribution of the subject to an area over time.

Quarry is deemed for this plan to be the areas at any given site where extraction, processing and storage take place. This includes areas where the following activities occur: vehicle movement, transfer of rock for processing, stockpiling of aggregate and loading of products to transport trucks.

A 50 metre boundary around the above areas will apply as part of the definition of 'a quarry' and any area proposed to be used for quarrying within the plan timeframe is included in this definition.

Areas outside of this definition, and owned by the quarry operator but not used for the purposes of quarrying, will be subject to the same RPMP rules as land used for other purposes.

Region, in relation to a regional council, means the region of the regional council as determined in accordance with the Local Government Act. See figure 1 for Waikato Regional Council's boundary.

Regional council* has the same meaning as in the Local Government Act, and includes the Chatham Islands District Council and any unitary authority.

Regional significance, in relation to a pest plant, means of widespread public concern or interest throughout the region, due to the plant's actual or potentially harmful and unintended effects on the environment.

River means a continually or intermittently flowing body of fresh water, and includes a stream and modified watercourse, but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation and farm drainage canal).

Road means all formed roads (including **road verges**) from the centre of the road to an abutting property boundary and includes all bridges, culverts and fords forming part of any road, but does not include unformed (paper) roads.

Rule* means a rule included in a pest management plan in accordance with section 73(5) of the Act.

Sale includes bartering, offering for sale, exposing, attempting to sell, having in possession for sale, sending or delivering for sale, causing or allowing to be sold, offered or displayed for sale, and includes any disposal, whether for valuable consideration or not.

Self-propagated means a plant established from a seed or fragment, and which was not intentionally established for the purpose of cultivation.

Sell has a corresponding meaning to 'sold'. See also definition of 'sale' above.

Site-led programme is where the outcome for the programme is to exclude, eradicate, contain, reduce or control the subject that is capable of causing damage to a place and its values.

Subdivision has the meaning set out in section 218 of the Resource Management Act 1991.

Sustained control programme is where the outcome for the programme is to provide for the sustained control of the subject in an area to a level where externality impacts are manageable.

Taonga raranga means plants which produce material highly prized for use in weaving (such as pīngao or harakeke).

Total control refers to pest plants in an area where land occupiers are required to treat the plant wherever it appears.

Transport corridor means local roads, state highways and railway lines as owned or occupied by district/city councils, NZ Transport Agency and KiwiRail. A local road is one that is not a state highway.

Unwanted organism* means any organism that a chief technical officer believes is capable or potentially capable of causing unwanted harm to any natural and/or physical resources or human health.

Urban means any built up area zoned residential in the Waikato region where houses or dwellings are grouped together and are all generally less than 50m from each other. Includes cities, towns and rural settlements but not rural/residential areas where some houses are less than 50m apart and some are not. Also includes land zoned as commercial or industrial.

Wāhi tapu means places or things which are sacred or spiritually endowed. These are defined locally by the hapū and iwi.

Water means freshwater, coastal water and geothermal water.

- Includes water in all its physical forms whether flowing or not and whether over or under ground.
- Does not include water in any form while in any pipe, tank or cistern.

Wild in relation to plants refers to pest plants growing outside the attention of home or other gardens.

Wilding, in relation to conifers and kiwifruit, means any vine/tree established by natural means, or any vine/tree that has not been purposefully planted.

Working day* means any day except:

- a Saturday, a Sunday, Good Friday, Easter Monday, ANZAC Day, Labour Day, the Sovereign's birthday and Waitangi Day
- the day observed in the region of a regional council as the anniversary day of the province of which the region forms part
- a day in the period commencing on the 20th day of December in any year and ending with the 15th day of January in the following year.

Zero density means control of all known infestations/ populations of the target pest, to the last individual (a more realistic term than eradication, because in the case of plants, seed banks can lay dormant for years, and eradication of wallabies is not possible while large populations are found in neighbouring regions). Also see eradicate.

Statutory and policy framework

3. STATUTORY AND POLICY FRAMEWORK

In preparing this plan, Waikato Regional Council is satisfied it has complied with the requirements of the Biosecurity Act and the Biosecurity Law Reform Act and is not inconsistent with other statutes, regulations and pest management strategies. In particular, the council is satisfied that, in identifying plants and animals to be pests, it has had proper regard to the matters identified in section 71 of the Biosecurity Act 1993 and that the overall effects of the plan's implementation are beneficial. Waikato Regional Council will adhere to the requirements of the Animal Welfare Act 1999 and maintain high standards of industry practice in the delivery of pest control. This plan allows for integrated pest management of plant and animal pests for the Waikato region.

The council has chosen to act prudently by including a wide range of pests in this plan. However, it is important to note that the council reserves its ability to annually determine the amount of expenditure that is available and appropriate for these pests on a case by case basis. Inclusion of any pest or management provision in this plan does not necessarily mean that council will be in a position to provide control at any specific point in time.

Set out below is a brief overview of the legislative framework in relation to pest plant and animal management.

3.1 Legislative framework

3.1.1 Biosecurity Act

Prior to 1989, pest plant management within the region was undertaken by nine district noxious plants authorities – each having quite distinct pest plant priorities, policies and resourcing. Following local government reorganisation in 1989, Waikato Regional Council assumed the powers, duties and functions specified for district noxious plants authorities under the Noxious Plants Act 1978.

The Biosecurity Act 1993 was enacted in order to "...restate and reform the law relating to the exclusion, eradication, and effective management of pests and unwanted organisms". In so doing it replaced the Noxious Plants Act and Agricultural Pests Destruction Act. Under the Act, Waikato Regional Council will manage pest plants and animals through this pest management plan. The plan will empower Waikato Regional Council to exercise the relevant service delivery, advisory, enforcement and funding provisions available under the Act.

Pest management strategies are planned and funded for pursuant to part 5 of the Act. Any harmful plant or animal can be declared a 'pest' for inclusion in a plan, but must first meet the 'tests' set out in the Act. Provisions of the Biosecurity Law Reform Act 2012 and subsequent amendments to the Biosecurity Act also are relevant, as is the national policy direction. The management of other harmful organisms may still be addressed through other avenues or under other legislation. For example, voluntary control, small-scale management programmes (as provided for under section 100V of the Act) or by other parties pursuant to the Biosecurity Act or other relevant legislation.

The original version of this pest management plan was first prepared in 1996, was reviewed in 2001, and then again in 2006/07. The 2012/13 review was done under sections 68-78 of the amended Biosecurity Act. Each review process involved the preparation of a proposed plan, and provided an opportunity for the regional community and other affected parties to have input into determining appropriate pest management programmes and funding levels for the life of the plan.

The plan sets out objectives, methods and rules that are specific to each of the plant and animal species declared to be 'pests'. Under the plan, land occupiers will be required to take responsibility for pests on their land and, for some pests, to carry out control measures pursuant to plan rules included in part 2 of the plan. Failure to comply with and meet the requirements of plan rules may give rise to enforcement action including prosecution.

This plan also identifies the projected costs and funding sources for administering and implementing this plan.

3.1.2 Biosecurity Law Reform Act

The Biosecurity Law Reform Act was enacted in September 2012 to make a wide range of improvements to the legislation that underpins New Zealand's biosecurity system. The legislation was designed to improve the effectiveness and efficiency of the biosecurity system. It also sought to ensure clarity around roles and responsibilities, and promote partnerships and collaboration, for example, binding the Crown to rules in regional pest management plans.

The review that resulted in this RPMP followed the requirements laid out in the Biosecurity Law Reform Act and the associated national policy direction.

3.1.3 *Co-management of the Waikato River*

Settlement and co-management legislation for the Waikato River was passed in 2010. The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act provided Waikato-Tainui, Ngati Tuwharetoa, Raukawa and Te Arawa River Iwi Trust with a co-management role in the Waikato River from the Huka Falls to Port Waikato, as well as its catchment area.

As the main tributary of the Waikato River, co-management legislation for the Waipa River was passed in 2012, which enabled Ngati Maniapoto to have a co-management role in the Waipa River and its catchment area.

A foundation of the co-management framework is the Vision and Strategy for the Waikato River. Directed under legislation, the Vision and Strategy was adopted into Waikato Regional Council's proposed Waikato Regional Policy Statement (RPS) in its entirety. In addition, the Waikato River settlement legislation and subsequent river legislation requires the council to have particular regard to the Vision and Strategy when carrying out its functions under the Biosecurity Act, and many other pieces of legislation. This has been done during the development of this RPMP.

The Vision and Strategy applies to activities in the catchments affecting the health and wellbeing of the Waikato River and its catchment, and there are multiple references to issues that are affected by pest management. For example, one objective is: "The protection and enhancement of significant sites, fisheries, flora and fauna."

Many pests undermine the objectives associated with restoring the river and its catchments. The Vision and Strategy anticipates the development of a pest management strategy to help achieve its objectives. Waikato Regional Council believes that the pests in this RPMP – including very serious pests such as alligator weed, yellow flag iris and koi carp – are a necessary part of that work.

The council also will continue to participate in national programmes, such as the Freshwater Pest Partnership programme, which aims to slow the spread of freshwater pests using the Check, Clean, Dry behaviour change campaign. Such collaborative partnership programmes can directly benefit the co-management objectives of the plan.

3.1.4 *Other statutes, regulations and pest management strategies*

In addition to the Biosecurity Act, there are other statutes, regulations and strategies that this plan must have regard to. Nothing in this plan should be interpreted so as to affect or derogate from other legislation, regulations or rules of law relating to pest animal management. These include, but are not restricted to, the Acts specified in section 7 (Relationships with other enactments) of the Biosecurity Act, particularly those listed below.

- **National policy direction**, which is being developed by Government as a result of amendments to the Biosecurity Act in late 2012. As at the adoption of this plan in August 2014, the date for completion of the national policy direction was uncertain.
- **Wild Animal Control Act 1977**, which deals with the control of a specified list of animals called 'wild animals' including their recreational and commercial status.
- **Conservation Act 1987**, which is the primary Act for the management of the conservation estate.
- **Reserves Act 1977**, which deals with the management of public reserves.
- **National Parks Act 1980**, which deals with the management of National Parks.
- **Health Act 1956**, which deals with the protection, promotion and conservation of public health.
- **Resource Management Act 1991**, which deals with the sustainable management of natural and physical resources.
- **Animal Welfare Act 1999**, which governs the welfare of animals in New Zealand. It applies specifically to vertebrate animals but the general principles should also be applied to other species of animals.
- **Hazardous Substances and New Organisms Act 1996**, which governs the permitted uses of a number of agrichemicals (herbicides and pesticides).
- **Agricultural Compounds and Veterinary Medicines Act**, which is designed to prevent or manage risks associated with the use of agricultural compounds.

Other legislation which persons acting under this plan will have regard to include the Local Government Act 2002 and the Health and Safety in Employment Act 1992, and regulations promulgated under those Acts.

The plan has been prepared taking into account related pest management strategies, policy statements and plans affecting or affected by pest management. Nothing in this RPMP is inconsistent with the RPS or regional plans prepared by Waikato Regional Council under the Resource Management Act.

Procedures addressing integrated management and cross-boundary issues are presented in section 11.8 of the plan.

This plan empowers Waikato Regional Council to exercise the appropriate enforcement and funding provisions of the Act.

3.2 Objectives and policies of the regional pest management plan

3.2.1 Introduction

During the review of this plan, the council considered six issues that continue to influence its involvement in pest management. The purpose of this section is to describe the issues, outline the objectives of the plan in relation to the issues and state the policies that will assist in guiding the direction of the plan. Information on methods that will be used to achieve these objectives can be found in part 2 of this document.

The six issues considered were:

- soil stability and river management
- biodiversity, and natural and cultural heritage
- primary production
- health and amenity
- surveillance and ready response
- roles and responsibilities.

These issues have not changed substantially since the current pest management strategy was adopted in 2008. They are fundamental issues and are likely to always be important elements of any pest management planning done by the council.

In addition to pest led management options, this plan provides for place-based activities aimed at assisting integrated catchment management and the maintenance and enhancement of biodiversity.

3.2.2 Soil stability and river management

One of the council's primary responsibilities is river management and the minimisation of accelerated erosion and flood hazards. Experience with several catchment control schemes, including the Peninsula Project, has shown that it is prudent to control animal pests to promote healthy forests because this may help to reduce risks of erosion, run off and downstream flooding. These considerations may also apply to other vegetated areas that improve the quality of water flow through a catchment, such as riparian areas and wetlands. For these reasons, and also to minimise health problems to downstream water users, council wishes to ensure that the health and biodiversity of all components of a catchment are optimised as part of the overall catchment resource in a holistic manner, regardless of the scale of contribution to overall catchment function.

Waikato Regional Council prioritises its work in catchments based on criteria that includes:

- risk to human life, assets and infrastructure
- maintaining the productive capability of land
- protection/enhancement of biodiversity and water quality
- proportion of risk lands in Land Use Capability (LUC) classes VI, VII and VIII, being the steepest land in the region with greatest risk of soil erosion.

These priorities will be considered in consultation with landowners during decision making on the location of pest management activities.

ISSUE STATEMENT

Some pests in catchments are contributing to:

- loss of soil productivity, capability and versatility
- destabilisation of river banks and river beds
- degradation of water quality
- other effects not yet fully understood, potentially including aquatic ecosystems and increased flooding potential
- downstream health problems (to humans and domestic animals).

Objective

A net reduction in the numbers of vertebrate animal pests in vegetated areas because this is likely to improve water quality, reduce sedimentation and lower flood risks in priority catchments.

Policy

For the purposes of sound catchment management, the council will promote pest control according to identified priorities. These priorities will be based on:

- risk to human life, assets and infrastructure
- presence of existing protection schemes (the objective being to preserve the gains already made)
- risk of deterioration of natural resources, which will generally result in a focus on land in LUC classes VI, VII and VIII (see above).

A number of species have been identified through this plan as contributors to adverse catchment effects. These include possums, wallabies, goats, deer and feral pigs. Areas for control of these species will be identified on an annual basis through Waikato Regional Council's annual planning process, following consideration of the criteria outlined in the objectives and policies of this section.

3.2.3 Biodiversity, and natural and cultural heritage

Biological diversity, or biodiversity for short, refers to the myriad of living things and their natural systems. The council is most concerned with those living things that are indigenous to New Zealand. Biodiversity is also important for natural ecosystem functioning. The council is committed to restoring and protecting biodiversity through a range of programmes. Many aspects of biodiversity also are celebrated by iwi and hapū as taonga. These are the things that are special to New Zealand.

In a wider sense, the council is also concerned with protecting and promoting the natural environment itself (our 'natural heritage'), to restore air, water and soil quality through ecological balance; preserve access to waterways and the coast; and to preserve and value heritage sites and landscapes of significance to whānau, hapū and iwi, and to the wider community. It is these things that comprise our natural and cultural heritage.

Exotic organisms can invade habitats and displace, interfere with or infect indigenous species or ecosystems. The result is disturbed and depleted ecosystems or possibly even local extinction of individual species. Habitat loss and destruction by introduced pests are the two main reasons for the continuing loss of native biodiversity in New Zealand.

There are two principal components to the maintenance of indigenous biodiversity in the Waikato region:

- habitat quantity – the Waikato region has lost most of the original habitat used by native species
- habitat quality – almost all of the limited remaining habitat is badly degraded by weeds, animal pests and changes such as drainage or excessive nutrients.

Specific issues in the Waikato region are:

- introduced pests have become established in all of our mainland forests
- wetland systems continue to be modified by invading pests
- the spawning of native fish in river mouths and estuaries is compromised by stock access and weed invasion
- access to the region's waterways, wetlands and lakes is under threat due to pest invasion along their boundaries
- many lakes have lost their indigenous submerged plant communities to aggressive invasive species, and in most of the region's shallow lakes the exotic species have since collapsed, contributing to a decline in water quality
- land cultivation has allowed invasion by pines, blackberry and other weeds to the detriment of the natural geothermal vegetation.

The proposed RPS introduced a region wide approach to the management of indigenous biodiversity generally (through policy 11.1) and specifically to significant natural areas (SNAs) (through policy 11.2). In the RPS there is more specific recognition of coastal and marine biodiversity (through policy 11.4) to give effect to the New Zealand Coastal Policy Statement, and policy 11.3 on collaborative management recognises the importance of engagement with others to address biodiversity issues.

The RPS also requires the RPMP and the prioritisation of pest management activities to have regard to indigenous biodiversity values including SNAs, and any local indigenous biodiversity strategies (through method 11.1.8).

In line with this direction, the implementation of the RPMP will give greater emphasis to pest management in SNAs. For example, traditional possum control operations will, where feasible, include more intensive and multi-species control in SNAs that are within an operational area .

Pest control assistance also may be offered to landowners with high priority SNAs on their property. As always, this assistance is subject to the council's financial constraints.

A number of pests have been identified through this plan as contributing to the loss of biodiversity values within the region. These pests are identified as environmental threats in the plan. To these must be added all harmful exotic organisms that are not declared to be 'pests', but which may be addressed under section 11.6. However, no list can ever be fully complete, and the catalogue of harmful organisms can be expected to grow.

ISSUE STATEMENT

Indigenous biodiversity is reduced by the invasion of pest plants and animals.

Objective

The effective management of pests assists with the maintenance of indigenous biodiversity and enhances the health and functioning of ecosystems.

Policy 1: Identification of sites

Areas that would benefit from pest control to enhance or maintain biodiversity values at high value sites will be identified in consultation with landowners.

Policy 2: Prioritisation of areas for pest control

Areas that have been identified as benefiting from pest control to enhance or maintain biodiversity values at high value sites will be prioritised.

3.2.4 Primary production

Pest plants and animals can adversely affect the health and yield of production animals, plantation forests and/or crops. The consequential decrease in production may result in reduced income for the primary sector and in certain circumstances may affect New Zealand's international trade and reputation. Long term management of pests of this nature is needed to ensure that these pests do not adversely affect the economic base of the region.

Much of the plan is devoted to controlling production threats, either through direct control by the council or by individual landowners. TBfree New Zealand also plays a large role in protecting economic productivity by controlling possums and other animals that can spread bovine TB. A gradual decline in TBfree New Zealand spending in the Waikato region is anticipated as TBfree New Zealand moves closer to achieving TB eradication. It is unlikely that Waikato Regional Council will be able to fund continued pest control in all areas after TBfree New Zealand withdraws.

ISSUE STATEMENT

Pest plants and animals can have negative impacts on the performance and perception of the primary production sector.

Objective

The exclusion, eradication or effective management of risks posed by pest plants and animals to primary production.

Policy 1: Maintaining progress

The council recognises the value of maintaining low possum numbers in areas where a significant investment has already been made. However, it also has limited resources and needs to prioritise across a number of regional priorities. Given this, all areas coming off TBfree New Zealand funded possum control will be evaluated to see if they meet the criteria for ongoing, regionally funded pest management. The criteria include agricultural values, ecological components and catchment health considerations.

Waikato Regional Council will enforce rules that require landowners to control specific production pests to a prescribed standard. In situations where this standard is not maintained, the council will intervene to ensure standards are maintained and to minimise external effects of non-compliance on neighbouring properties.

Pests that have been identified through this plan as having potentially adverse effects on the region's primary production sector are listed and shown as presenting a production threat in tables 1 and 2.

3.2.5 Health and amenity

In general, the effects of pests on human health are managed by the Ministry of Health. The effects of pests on health and the amenity of the natural environment can include:

- the spread of disease
- effects on outdoor recreational pursuits
- effects on water quality
- physical impediments to access caused by species such as blackberry or gorse
- interference with the enjoyment of water bodies, caused by aquatic weeds preventing swimming, boating or fishing.

While these effects are primarily managed by the Ministry of Health, it is also recognised that Waikato Regional Council may have a role to play in the direct control of certain pests and landowner education and advice.

A second component to this category is pests that affect the way communities enjoy the environment. Long term management responses are necessary to help reduce the adverse effects of certain pests such as wasps, magpies and ants. Waikato Regional Council's primary role in the management of these pests is to provide advice and information on managing, controlling and (where appropriate) coping with pests of this nature. However, in SNAs the council may assist landowners to control certain pests or it may control them directly.

ISSUE STATEMENT

Pest plants and animals can negatively impact on health and wellbeing and reduce the quality of life experienced by communities.

Objective

To reduce the impact of pest plants and animals on the quality of life of the region's communities.

Policy 1: Added value

Waikato Regional Council will become involved in the management of pests for the enhancement of health and amenity, where value can be added to the actions or programmes of others.

Pests and harmful organisms that have been identified through this plan as adversely affecting public health and the enjoyment of the environment by the regional community are listed and shown as presenting a public threat in tables 1 and 2.

3.2.6 Surveillance and ready response

There are a number of species with the potential to become serious pests in the region, and a regional need to manage the risks they pose. Pests of this nature could include those:

- not yet found within the region, but likely to enter
- known at low densities in isolated parts of the region but with the potential to translocate to new sites
- known to be present across the whole region (in varying densities) but with effects that are not fully understood.

Surveillance programmes are important to detect the presence of these pests so that Waikato Regional Council can respond quickly and effectively with direct control measures. Early intervention is considered the most effective management option for pests of this type.

ISSUE STATEMENT

New pest plant or animal species may become established or significant in the region if they are not detected, evaluated and controlled at an early stage.

Objective

To prevent new pest plants and animals from becoming established or dispersing further within the region.

Policy 1: Risk minimisation

Minimise the risk of the introduction or dispersal of new pest species.

Policy 2: Intervention

Where surveillance programmes detect new incursions of pests, Waikato Regional Council will intervene to ensure that the incursion does not become established, or where already established does not become widespread.

Policy 3: Partnerships

Waikato Regional Council will work in partnership with other organisations such as the Department of Conservation (DOC), Ministry for Primary Industries (MPI) and neighbouring regional councils to design and implement surveillance programmes to a national standard.

While by their nature all potential pests may not be identified in this plan, pests that have been identified as having the potential to establish or spread more widely within the region are shown as presenting a potential threat in tables 1 and 2.

3.2.7 Roles and responsibilities

It is important that pest management is accompanied by increased integration and communication between stakeholders, so that the purpose and goals of this plan will be achieved in the most efficient and effective manner.

In the first instance pest management is an individual land occupier's responsibility. This applies to both private landowners and land owned or managed by public agencies. However, in certain circumstances defined in this plan, pest control in identified high priority areas will be mandatory and will be undertaken through direct control by council contractors.

The plan identifies 'good neighbour' rules that Waikato Regional Council will employ to ensure the Crown meets its pest management obligations.

Waikato Regional Council is of the opinion that certain pest incursion responses need to be led and managed by a central government agency. In other situations it may be appropriate for the council to partner with MPI to achieve coordinated pest control outcomes.

ISSUE STATEMENT

Ad hoc decision making or confusion in roles and/or responsibilities can lead to the inefficient and/or ineffective management of pest plants and animals.

Objective

Promote inter-agency integration and the clear identification of roles and responsibilities by all stakeholders in the management of pest plants and animals.

Policy 1: Landowner responsibility

In the first instance, the management of most pest plants and animals is the responsibility of individual land occupiers. This includes the Crown where good neighbour rules have been identified.

Policy 2: Marine pest management

Explore feasible and cost effective options for addressing regional marine biosecurity.

Waikato Regional Council is concerned about the potential cost to ratepayers and our ability to do an effective job in this extremely specialised field.

Marine biosecurity is costly and the implications of invasive organisms have national consequences, making it difficult to justify and fund regional intervention without an agreed national approach between the regional council and central government.

The council wants to ensure that an overall framework based on commonly agreed principles for regional marine biosecurity is agreed to by all regions and central government ministries before it undertakes any major work in marine biosecurity in the immediate future. We will continue our discussions with the Crown and interested stakeholders. When there is improved clarity around the most feasible and cost effective options for this region (within agreed broader inter-regional and national frameworks), the RPMP can be amended to further clarify roles and responsibilities in marine biosecurity.

Policy 3: Advocacy

Waikato Regional Council will advocate for all relevant agencies to clearly define their responsibilities and promote inter-agency integration in the management of biosecurity issues. The council will liaise as appropriate with MPI over pest management issues which are best dealt with or coordinated at the national level.

3.2.8 Pest plants to be managed

Any decision to declare a particular harmful plant a 'pest' involves a degree of subjectivity when ranking, weighting and assessing the regional impacts of particular harmful plants, and necessarily requires an element of professional and political judgement. In making that decision, Waikato Regional Council has had regard to what it can most effectively and efficiently achieve given finite resources.

In the preparation of this plan, Waikato Regional Council undertook a 'screening process' for a large number of potentially harmful plants to determine what (if any) regional intervention would be appropriate. The screening process was based upon those matters specified in section 71 of the Act. As a result of this process, the council is of the opinion that:

a. The plants are capable of causing serious adverse and unintended effects in relation to the Waikato region. With respect to the consideration of these effects and the level of regional intervention considered applicable, the council has also had regard to the following criteria:

   i. **Adverse impacts:** Refers to the severity of a plant's external, uncompensated, actual or potential effects on the environment (includes agricultural production, indigenous biodiversity and amenity values, public health threats) and Māori culture and traditions. The regional impacts of a plant have to be ranked medium to high to warrant being declared a 'pest'.

   ii. **The biological characteristics of the plant:** Refers to the ability of a plant to occupy a habitat. The plants of most concern are those able to establish, reproduce and spread in a range of habitats. Contributing to this success are versatility, maturation, seeding ability, dispersal and establishment, cloning ability, ability to recover from adversities, and competitive ability.

iii. **The distribution of the plant:** Refers to whether the plant is limited, restricted or widespread in its distribution with respect to potentially suitable habitats. Distribution will have a bearing on the type and level of regional intervention considered appropriate by the council. The less widespread the plant, the more cost effective it is to manage or eradicate.

b. The benefits of having this plan outweigh the costs (this includes taking into account the likely consequences of inaction or alternative courses of action).

c. The net benefits of regional intervention exceed the net benefits which would accrue from an individual's intervention.

d. For those persons required to contribute to the costs of administering and implementing this plan, the benefits that accrue to those persons as a group will exceed the costs, or, those persons contribute to the creation, continuance or exacerbation of the problems proposed to be resolved by the plan.

3.2.9 *Pest types and designations for plants*

Each pest plant is associated with one or more of the following threats:

- production threat
- public threat
- environmental threat.

To effectively manage these threats Waikato Regional Council has adopted a management plan that consists of a hierarchy of five pest designations:

- exclusion
- eradication
- progressive containment
- sustained control
- site-led.

Explanations for these designations can be found in section 2 of this document. The management categories reflect the objectives for each pest plant in terms of what can realistically be achieved.

All pest plants are identified by their threat and by their management category in table 1.

3.2.10 *Pest plant species*

After having regard to section 71 of the Act, the plant species in table 1 are declared to be 'pests' under this plan. The management of these pest plants is set out in section 5 of the plan and the implementation methods in section 11. Monitoring the achievement of the plan objectives is outlined in section 11.2.

Table 1: Pest plants to be managed under this plan

Pest plant	Production threat	Environmental threat	Public threat	Reference in the plan
Exclusion pest plants				
Bat-wing passion flower		✓		5.7
Broom corn millet	✓			5.10
Freshwater eel grass	✓	✓		5.21
Fringed water lily		✓		5.22
Horsetail	✓	✓		5.26
Hydrilla		✓		5.27
Kudzu vine	✓	✓		5.31
Marshwort		✓		5.34
Eradication pest plants				
African feather grass	✓	✓		5.2
Cathedral bells		✓		5.12
Chilean flame creeper	✓	✓		5.14
Evergreen buckthorn		✓		5.20
Horse nettle	✓			5.25
Lantana	✓	✓	✓	5.32
Knotweed: Chinese		✓		5.29
Knotweed: Japanese and giant knotweed	✓	✓		5.30
Manchurian wild rice		✓		5.33
Mile-a-minute		✓		5.38
Nassella tussock, fine stemmed needle grass, Chilean needle grass	✓	✓		5.41
Noogoora bur	✓			5.42
Purple loosestrife		✓		5.46
Rhododendron ponticum		✓		5.50
Sagittaria		✓		5.52
Sea spurge		✓		5.54
Senegal tea		✓		5.55
Spartina		✓		5.56
Thistle: variegated	✓			5.59
Water poppy		✓		5.62
White bryony		✓		5.63
Progressive containment pest plants				
Alligator weed	✓	✓		5.3
Banana passionfruit		✓		5.6
Boneseed		✓		5.8
Chocolate vine		✓		5.15
Climbing asparagus		✓		5.16
Climbing spindleberry	✓	✓		5.17
Contorta pine	✓	✓		5.18
Darwin's barberry	✓	✓		5.19

Giant gunnera		✓		5.23
Mexican devil	✓	✓		5.35
Mignonette vine		✓		5.37
Mistflower		✓		5.39
Moth plant		✓	✓	5.40
Old man's beard		✓		5.43
Pampas	✓	✓		5.44
Tutsan	✓	✓		5.60
Velvet leaf	✓			5.61
Wild ginger (kahili and yellow)		✓		5.64
Woolly nightshade	✓	✓	✓	5.68
Yellow flag iris	✓	✓		5.69
Sustained control pest plants				
Australian sedge	✓			5.5
Broom	✓	✓		5.9
Gorse	✓	✓		5.24
Privet		✓	✓	5.45
Purple nutsedge/nutgrass	✓			5.47
Ragwort	✓			5.48
Thistle: nodding and plumeless	✓			5.58
Site-led pest plants				
Asparagus: bushy and fern		✓		5.4
Californian bulrush		✓		5.11
Cherry: Japanese and rum		✓		5.13
Japanese walnut		✓		5.28
Mexican water lily		✓		5.36
Reed sweetgrass		✓		5.49
Royal fern		✓		5.51
Saltwater paspalum		✓		5.53
Strawberry dogwood		✓		5.57
Wild kiwifruit	✓	✓		5.65
Wilding conifers	✓	✓		5.66
Willow: grey and crack		✓		5.67

3.2.11 Other management responses for pest plants

Not all harmful plants are addressed in this plan. For many harmful plants it is not appropriate, necessary or reasonable to include them in the plan. Notwithstanding that, other management responses may apply, including:

- on an as needed basis, Waikato Regional Council undertaking small-scale management programmes for 'unwanted organisms' under section 100V of the Act for harmful plants not yet found in the Waikato region but which may arrive during the plan period
- the council participating in the National Pest Plant Accord, which involves regional councils collectively enforcing a national ban on the sale, propagation and distribution of a list of recognised harmful plants, which have been declared 'unwanted organisms'
- MPI undertaking national pest management programmes for harmful plants for which national intervention is considered appropriate through national or regional pest management strategies prepared and implemented by other parties such as crown agencies and industry groups

- Waikato Regional Council assisting or collaborating with landowners of significant natural areas
- voluntary actions by individuals and other interested parties.

Waikato Regional Council may also provide advice and education or undertake monitoring and surveillance of harmful or potentially harmful plants under section 13 of the Act. In other circumstances, for example, to protect regionally significant indigenous biodiversity or catchment functional values, the council may with the permission of the land occupier, undertake or participate in control operations that target a variety of harmful plant species within the limits of available funding. This action will be pursuant to powers contained in the Local Government Act and the Resource Management Act.

3.2.12 Animals to be managed

Each animal is identified by one or more of the following threats:

- production threat
- public threat
- environmental threat.

Any decision to declare a particular harmful animal a 'pest' involves a degree of subjectivity when ranking, weighting and assessing the regional impacts of particular harmful animals, and necessarily requires an element of political judgement. In making that decision, Waikato Regional Council has had regard to what it can most effectively and efficiently achieve given finite resources.

In the preparation of this plan, Waikato Regional Council undertook a 'screening process' for a large number of potentially harmful animals to determine what (if any) regional intervention would be appropriate. The screening process was based upon those matters specified in section 71 of the Act. As a result of this process, the council is of the opinion that:

a. The animals are capable of causing serious adverse and unintended effects in relation to the Waikato region. With respect to the consideration of these effects and the level of regional intervention considered applicable, the council has also had regard to the following criteria:

   i. **Adverse impacts:** Refers to the severity of an animal's external, uncompensated, actual or potential effects on the environment (includes agricultural production, indigenous biodiversity and amenity values) and Māori culture and traditions. The regional impacts of an animal have to be ranked medium to high to warrant being declared a 'pest'.

   ii. **The biological characteristics of an animal:** Refers to the features and characteristics that make an animal a pest. The animals of most concern are those animals able to establish and spread in a range of habitats and which are difficult to control.

   iii. **The population dynamics of an animal:** Refers to whether an animal is limited, restricted or widespread in its distribution and with respect to potentially suitable habitat(s) it can potentially occupy. Population dynamics will have a bearing on the type and level of regional intervention considered appropriate by the council. The less widespread the animal, the more cost effective it is to manage or eradicate.

b. The benefits of having this plan outweigh the costs (this includes taking into account the likely consequences of inaction or alternative courses of action).

c. The net benefits of regional intervention exceed the net benefits which would accrue from an individual's intervention.

d. For those persons required to contribute to the costs of administering and implementing this plan, the benefits that accrue to those persons as a group will exceed the costs, or, those persons contribute to the creation, continuance or exacerbation of the problems proposed to be resolved by the plan.

After having regard to section 71 of the Act, some animal species are considered to have 'pest' characteristics of regional significance and are declared to be 'pests' under this plan. Other animal species have not been given that status, but Waikato Regional Council has determined to give them some treatment within the plan. Animal species of all types are included in table 2.

In the *2008-2013 Regional Pest Management Strategy* (RPMS), Waikato Regional Council noted that feral pigs and wild deer met the criteria for control as pests under the Biosecurity Act. However, some stakeholders disagreed, and the council agreed to not designate these organisms as Biosecurity Act pests. Instead, the council decided that should they need to be controlled, it would follow the provisions of the Wild Animal Control Act. These provisions have worked well and will be maintained for the majority of the region. However, feral pigs and wild deer will be pests within the Hunua Ranges Pest Management Area, where Auckland Council will be the management agency.

The council notes that possums and wallabies were removed from the Wild Animal Control Act by the Biosecurity Law Reform Act.

Table 2: Animal species to be managed under this plan

Animal	Pest (y/n)	Production threat	Environmental threat	Public threat	Reference in the plan
Argentine ant	n		✓	✓	6.2.1
Asian paper wasp	y	✓	✓	✓	6.18.1
Australian paper wasp	y	✓	✓	✓	6.18.1
Brown bullhead catfish	y		✓		6.9.1
Canada goose	n	✓	✓		6.4
Common wasp	y	✓	✓	✓	6.18.2
*Darwin's ant	n		✓	✓	6.2.2
Feral cat	y		✓		6.6
Feral goat	y	✓	✓		6.7
Feral pig	y**	✓	✓		6.8
Gambusia	y		✓		6.9.3
German wasp	y	✓	✓	✓	6.18.2
Hedgehog (European)	y		✓		6.5
Koi carp	y		✓		6.9.2
Lesser banded hornet	n		✓	✓	6.19.1
*Little fire ant	n	✓	✓	✓	6.3.1
Magpie	y		✓	✓	6.10
Median wasp	n		✓	✓	6.19.2
Mustelids: ferret, stoat, weasel	y	✓	✓		6.11
Perch	n		✓		6.9.5
Possum	y	✓	✓		6.12
Rabbit	y	✓	✓		6.13
Rainbow lorikeet	y		✓		6.14
Rats	y		✓	✓	6.15
Red imported fire ant	n	✓	✓	✓	6.3.2
Rook	y	✓			6.16
Rudd	n		✓		6.9.7
Tench	n		✓		6.9.6
*Tropical fire ant	n	✓	✓	✓	6.3.3
Wallaby	y	✓	✓		6.17
Wild deer	y**	✓	✓		6.20
Wild goldfish	y		✓		6.9.4
Wild red-eared slider turtle	y		✓		6.21
*Yellow crazy ant	n	✓	✓	✓	6.3.4
Yellow flower wasp	n		✓	✓	6.19.3

Although these ant species are not yet in the Waikato region, they are harmful animals that could have considerable negative impacts on the region's biodiversity.
****Only within the Hunua Ranges Pest Management Area.**

3.2.13 *Other management responses*

Not all harmful animals are addressed in this plan. For many harmful animals it is not appropriate, necessary or reasonable to include them in the plan. Notwithstanding that, management responses may apply including:

- voluntary control actions undertaken by individuals such as land occupiers and recreational and professional hunters
- control operations undertaken by government departments using part VI powers available under the Biosecurity Act, the Wild Animal Control Act or under other legislation
- small-scale management programmes undertaken by Waikato Regional Council for 'unwanted organisms' under section 100V of the Act, these programmes are targeted against harmful animals not yet found in a region but which may arrive during the plan period
- through national or regional pest management strategies prepared and implemented by other parties such as Crown agencies and industry groups.

Waikato Regional Council may also provide advice and education or undertake monitoring and surveillance of harmful or potentially harmful animals under section 13 of the Act. In other circumstances, for example, to protect regionally significant indigenous biodiversity or catchment functional values, the council may with the permission of the land occupier, undertake or participate in control operations that target a variety of harmful animal species within the limits of available funding.

Section 6 of the plan categorises animals according to the different levels of regional intervention considered appropriate. A description of the specific adverse and unintended effects being avoided or mitigated is also included in this section of the plan. Section 11 outlines the implementation methods, and monitoring the achievement of plan objectives is outlined in section 11.2.2.

3.3 Effects of the plan's implementation

The plan's implementation imposes costs on individual land occupiers and the regional community, particularly when controlling pests in order to comply with rules set out in the plan. However, given its experiences under previous strategies, Waikato Regional Council is satisfied that the overall effects of implementing this plan will be beneficial and will outweigh the costs of implementation. The failure of land occupiers in the past to address flowering or seeding plants, or to address the spread of infestation from their property to neighbouring property, has also demonstrated to the council that regionally coordinated pest programmes are more appropriate and cost effective than relying upon the voluntary actions of individuals.

Voluntary pest management is by its nature inconsistent. Some landowners will do an excellent job of controlling pests over the long term while others will control them only sporadically or not at all. However, successfully achieving the regional goals described in the plan requires reliable, long term, consistent pest control. The mix of rules and direct control outlined in this plan can achieve that consistency with a certainty that relying on voluntary efforts cannot.

The successful implementation of the plan will contribute to the long term management of pest plants and animals in the Waikato region. This will be achieved by containing or reducing the spread of pests and/or by reducing their density to a level that avoids or minimises adverse and unintended effects on the environment. In some cases the emphasis will be on achieving the eradication of pests. However, in most cases, the emphasis will be on managing pest plants and animals at acceptably low levels of infestations and preventing external impacts on neighbouring properties.

3.3.1 *Effects on Māori values*

The plan's implementation is anticipated overall to have positive effects on Māori culture and traditions. Specifically, the plan should avoid or reduce plant and animal pests invading and possibly degrading wāhi tapu and taonga raranga sites. For example, the plan should reduce pampas infesting riparian margins and displacing flax species, and reduce aquatic species such as Senegal tea or Manchurian wild rice displacing harakeke and access to waterways. The plan should also contribute to the protection of native vegetative cover and soil cover.

Like other segments of the community, iwi have expressed concerns about the application of toxins to land and water, the possibility that contamination of soils or water might arise, and effects on non-target (native) species. However, the risk of adverse effects on the environment is considered small in comparison to the benefits gained. For example, control work to keep possum, rat and mustelid numbers low is vital to the ability of our native bird species to reproduce. Many of the pesticides and herbicides currently in use in the region are biodegradable and, if used in the prescribed manner, will not have significant environmental effects.

As mentioned in section 3.1.3, Waikato Regional Council believes this plan helps give effect to the Waikato River Authority's Vision and Strategy for restoring the health of the Waikato River, as provided for in the treaty settlement

legislation covering the river. Future legislation is anticipated to settle Hauraki iwi claims, which may result in partnership arrangements between iwi and local government for the oversight of the Waihou and Piako rivers and the Coromandel. The RPMP will be an important tool to deliver on these agreements as well.

3.3.2 *Effects on the environment*

The plan's implementation is expected to have positive effects on the environment. Specifically, the plan's promotion of efficient and effective pest management will avoid or reduce incidents of pests invading and having adverse and unintended effects on privately owned and Crown land, especially areas of high conservation or ecological value.

By avoiding or minimising the adverse and unintended effects of pests, the plan aims to enhance soil conservation (for example, goats create erosion in rivers by grazing on river banks), agricultural production (for example, possums eat grass), intrinsic values, indigenous biodiversity values and recreational and aesthetic values in the Waikato region (such as access to waterways through clearance of pests).

This plan may lead to the use, or increase the use of herbicides and pesticides to control pests. The council acknowledges that if these substances are used inappropriately there can be unintended negative effects. For example, spray drift can occur, non-target animals can be killed or water used for drinking or other purposes can be compromised. However, the Environmental Protection Authority and the Resource Management Act both regulate the use of herbicides and pesticides specifically to minimise these risks. Overall, the council believes the advantages of using herbicides and pesticides appropriately outweigh the disadvantages. Further to this, non-target risks will be minimised during the planning and implementation of pest management programmes carried out over the duration of this plan.

Waikato Regional Council is actively involved in a nationwide biological control programme for pest plant management which involves using natural (host specific) insect and fungal organisms to help control pest problems. The council is also involved in an innovative trial of a special trap to remove the pest fish koi carp from certain lakes.

3.3.3 *Effects on the overseas marketing of New Zealand products*

This plan is expected to have a positive effect on the overseas marketing of New Zealand products. In particular, the control of pest plants should, in some cases, facilitate increased agricultural production while pest control work in the conservation estate should increase the recreational and aesthetic values of these areas. As a result, there may also be positive implications for tourism.

There are recognised concerns from international markets and consumers regarding the use of agrichemicals and the risk of residues. However, export products are subject to a broad range of specific industry and government quality assurance standards, regulations and laws. This, combined with appropriate handling and application of agrichemicals, means the risks can be minimised.

Plan responsibilities and obligations

4. PLAN RESPONSIBILITIES AND OBLIGATIONS

4.1 Waikato Regional Council

Waikato Regional Council is responsible for the implementation and administration of the plan. The council will, as the management agency, develop and undertake those programmes identified in part 2 of the plan, including:

- advice, education and information
- monitoring and enforcement
- general surveillance
- direct control (including small-scale control under section 100V of the Act)
- community initiatives
- biological control
- research.

Waikato Regional Council will, as the management agency, develop and implement administrative systems and programmes associated with funding the plan, monitor its implementation and effectiveness and ensure that the plan's implementation is undertaken in a manner consistent with the Act and any other statutory provisions.

Waikato Regional Council, in determining that it shall be the management agency, has taken into account the requirements of section 100(2) of the Act:

- the need for accountability to those providing the funds to implement the plan
- its acceptability as a management agency to those who will fund the plan or who will be required to comply with the rules in the plan
- the management capacity, competency and expertise to implement and administer the plan.

In the Hunua Ranges Pest Management Area, Waikato Regional Council has taken into account the requirements of section 100(2) of the Act and has appointed Auckland Council as the management agency.

4.2 Stakeholders

Stakeholders are those persons that are either beneficiaries of this plan's implementation, or exacerbators of/contributors to particular pest problems, and, accordingly, will be bound by the provisions of the plan and will contribute to the funding of the plan.

4.2.1 Private land occupiers

Private land occupiers, which for the purposes of this plan includes Crown entities and state-owned enterprises not considered the Crown for purposes of the Biosecurity Act, are required to control pests, or allow the council and its agents to control pests, on the land that they occupy as set out in plan rules prescribed in part 2 of this plan.

Developers and private land occupiers may attract obligations in respect of plant threats associated with soil disturbance or land development, under section 16 of the plan.

Private land occupiers will further contribute to funding the implementation and administration of this plan in accordance with the funding provisions set out in section 12 of the plan.

Waikato Regional Council considers that the NZ Transport Agency (NZTA) is not part of the Crown for the purposes of the Act, in light of the decision of the Environment Court in Mehrtens v NZ Transport Agency (EnvC C165/2000), and therefore falls within the definition of 'occupier' for the purposes of obligations for pest control on road reserves or verges in terms of the Act (see also section 7.2.2 of the plan). Accordingly, NZTA has the same obligations as any other land occupier.

Additionally, KiwiRail is also deemed not to be the Crown for the purposes of the Act and comes within the definition of an occupier of that land under the Act. Accordingly, it has obligations and responsibilities for pest management on the land that it occupies equal to those of other land occupiers. KiwiRail and the council have signed a Memorandum of Understanding (MOU) to describe their mutual obligations and expectations.

NOTE

Private land occupiers are required to control pests on land that they occupy as prescribed in part 2 of the plan. This includes land development and soil disturbance – section 16.

4.2.2 *Territorial authorities*

Section 73(3)(k) of the Biosecurity Act requires that a RPMP must specify "the actions that local authorities ...may take to implement the plan...".

There are 10 district councils and one city council within the Waikato region. These are the: Waikato, Hauraki, Thames-Coromandel, Matamata-Piako, Waipa, Ōtorohanga, South Waikato, Rotorua (part), Waitomo (part) and Taupō (part) district councils and Hamilton City Council.

District/city councils occupy land (such as parks and reserves) and are a road controlling authority in their locality. With regard to roadside verges under this plan, district/city authorities in the Waikato region are responsible for approximately 8,511 kilometres of local roads (urban and rural).

District/city councils are required to control pest plants on land that they occupy, including roadside verges for which that authority is responsible for, as set out in any plan rules prescribed in part 2 of the plan, and as detailed in section 7.2. Animal pest problems in roadside verge situations are better dealt with on a case by case basis due to an animal pest's ability to move rapidly, but would also be the responsibility of district/city councils, where appropriate.

For the purposes of this plan, roadside responsibilities for pest plant management only apply to 'formed' roads and do not apply to 'unformed' (paper) roads occupied by another person. Pest plant control on unformed roads remains the responsibility of the person physically occupying that land. In individual circumstances, Waikato Regional Council may, in accordance with section 11.3.2 of the plan, exempt a territorial authority from any requirement included in a plan rule.

Many district councils also take pest management actions that are unrelated to RPMP rules but that benefit their communities in a variety of ways.

4.2.3 *The Crown and regional pest management plans*

4.2.3.1 Previous Crown obligations

Prior to the passing of the Biosecurity Law Reform Act, the Crown did not have to comply with regional pest management requirements that affected all other landowners. This was a significant ongoing frustration to regional councils throughout New Zealand, even though many councils had excellent operational relationships with Crown agencies at the local level. For example, Waikato Regional Council has always valued the excellent collaboration and coordination that occurs with Waikato Department of Conservation (DOC). Further to this, DOC and Land Information NZ have, in the Waikato, generally tried to comply with the provisions of the plan and have made some contribution towards its funding, in addition to undertaking pest control on lands they manage. These good faith efforts have always been greatly appreciated.

4.2.3.2 Changes from the Future of Pest Management project

Regional councils participated in the Future of Pest Management project with the Ministry for Primary Industries (MPI), partly to ensure that the Crown would meet its pest management obligations at a regional level.

The amendments to the Biosecurity Act have substantially altered the position of the Crown in relation to regional pest management plans through the introduction of good neighbour rules. Under the amended Act, a good neighbour rule may cause the Crown to become liable to meet obligations or costs. This is a significant improvement. However, while good neighbour rules can be applied to private land there are still rules that apply to other landowners, but not the Crown. Overall, the council continues to believe that the Crown is fundamentally no different from other land occupiers.

The good neighbour rules will apply when a pest is to be managed by the land occupier. However, some very serious pests are controlled directly by Waikato Regional Council because they are technically difficult to manage or because the methods of control are limited. In these cases, all landowners – except the Crown – contribute to the cost of control through their rates. The Crown does not pay rates, and so in these cases it is difficult for the council to recover the costs that it may impose on others as an exacerbator, or to reflect when the Crown is a beneficiary of direct control carried out under this plan.

However, it is also true that pest control done by the Crown outside the RPMP makes important contributions to the region. For example, the Crown carries out a range of weed and animal pest control on land it administers. It also provides leadership and financial support to programmes such as Weedbusters and other community initiatives.

4.2.3.3 Implementation of good neighbour rules

The draft national policy direction states that good neighbour rules should focus on managing an externality (that is, a cost caused by the spread of pests) imposed by one property on to a neighbouring property. However, in practice, the council has to adopt good neighbour rules at a broad regional scale without prior knowledge of property-

by-property situations. In taking this approach, the council acknowledges that in some instances other methods, such as MOUs or site specific strategies, may be more appropriate ways of achieving the desired outcome, rather than enforcement of good neighbour rules.

In contrast to the approach used to adopt good neighbour rules, their implementation requires individual evaluation of specific site-by-site issues. This aligns with the draft national policy direction requirement that the regional council consider "whether the costs of compliance with the rule are reasonable relative to the costs that such an occupier would incur, from the pest spreading, in the absence of a rule". This analysis of costs and benefits between the Crown and an adjoining landowner can be done meaningfully only once the details of a specific situation are known.

Waikato Regional Council intends to take a pragmatic approach to the implementation of good neighbour rules. Our intent is to ensure that a strict interpretation of good neighbour principles does not result in unintended negative consequences or nonsensical situations. For example, in a remote location access to a DOC site for pest control might be very difficult or non-existent. This would be considered in an evaluation of what action was 'reasonable' to expect in this situation.

Implementation process

The implementation of good neighbour rules will adhere to the following process.

- A complaint is received from an affected party about a pest spreading from adjacent or nearby land.
- An authorised person from the council evaluates the specifics of the situation, including but not limited to:
  - the requirements of the national policy direction
  - the availability of reasonable access
  - considerations such as relative costs to affected parties, topography and best control methods.
- After discussion with the affected parties, the authorised person makes a recommendation for a response (including consideration of alternative solutions to the control requirement specified by the good neighbour rule and the possibility of no action).
- The council works with all parties to assess options and implement appropriate action.

Over time, Waikato Regional Council expects that certain ongoing good neighbour situations will be accepted by all parties and that the Crown and occupiers adjacent to Crown land will carry out the necessary pest control without waiting for a complaint.

Waikato Regional Council also may use the existing exemption provisions in the Biosecurity Act to address ongoing issues in a particular situation. For all RPMP rules, the exemption process can offer pragmatic solutions to land occupiers faced with difficult pest management choices.

Finally, the council notes that private land occupiers also have a responsibility to adhere to RPMP rules designed to limit the spread of pests. The Crown may notify the council when its land is being impacted by pests spreading from nearby land.

At the national level, Waikato Regional Council believes it would be very beneficial to consider a standardised approach to good neighbour rules. At the very least, regional councils and the Crown should be able to agree on the characteristics of pests that influence their spread, and therefore what rules are needed to control them. Waikato Regional Council will encourage this national discussion to occur and would ultimately consider amending its own good neighbour rules if a national approach were adopted. While this is the preferred approach, it is recognised that it may not be possible to standardise rules in all instances.

4.2.3.4 Long term collaboration for better pest management

Waikato Regional Council recognises that pest management at a regional scale can be more effective and efficient if it is coordinated among relevant parties. In many cases, this is already happening. For example, the council and DOC regularly collaborate on the timing and extent of possum control operations. By doing so, we achieve more than either party could separately. Similarly, Waikato Regional Council works with district councils to achieve better outcomes. In Hamilton city, gully restoration efforts are more effective because the two councils coordinate their efforts. Community groups also deliver a tremendous amount of pest control around the region, which leads to biodiversity gains that benefit the whole community. Both DOC and Waikato Regional Council regularly assist and collaborate with those groups.

To improve collaboration and cooperation even further, Waikato Regional Council will explore memoranda of understanding with DOC and other Crown agencies that wish to participate. The MOUs should address the desired

outcomes and priorities of each agency in terms of pest control, as well as processes to align those priorities where possible. Parties also could identify effective shared service and delivery options.

Pest-based or larger site-based specific strategies and approaches also could be more effective at managing pests than applying good neighbour rules in multiple individual situations. Specific projects and programmes for agreed specific pest management outcomes (for example, boneseed at Raglan) should be explored where they can provide best value and chances of success for landowners.

Resources are limited for both the regional council and the Crown. DOC recently adopted a business model that will rely much more heavily on partnerships. Both of these factors suggest that a formal collaborative relationship is the best way to deliver outcomes that the community expects and effectively use resources that are available.

4.2.3.5 More information about good neighbour rules

An analysis of each good neighbour rule is included in appendix 4 of the RPMP. The appendices are on the CD-ROM that accompanies the printed RPMP, and are also available on the Waikato Regional Council website.

4.3 Hunua Ranges Pest Management Area

In November 2010 the boundary between the Auckland and Waikato regions was amended by the Local Government (Auckland Boundaries) Determination 2010. Consequently, 62 per cent of the Hunua Ranges Regional Park, all of the adjoining Waharau and Whakatiwai regional parks, and two of Auckland's most important municipal water supply dams – the Mangatangi and Mangatawhiri dams – are now located in the Waikato region. However, under the Local Government Act 2002, Auckland Council continues to own and manage the land and assets in the regional parks.

To protect the significant values of the parks, Auckland Council carries out extensive pest management within the parks and in a buffer zone on adjoining public and private land. Animal pests are generally controlled to lower levels than that required by the pest management programmes applied elsewhere in the Waikato. Auckland Council works closely with Watercare (Auckland's water company) to ensure that pest management programmes do not impact on the quality of the water sources used for municipal supply.

In order to provide for the pest management carried out by Auckland Council, this plan identifies the Hunua Ranges Pest Management Area (see figure 2) within which Auckland Council is the pest management agency. As the pest management agency, Auckland Council's responsibilities include:

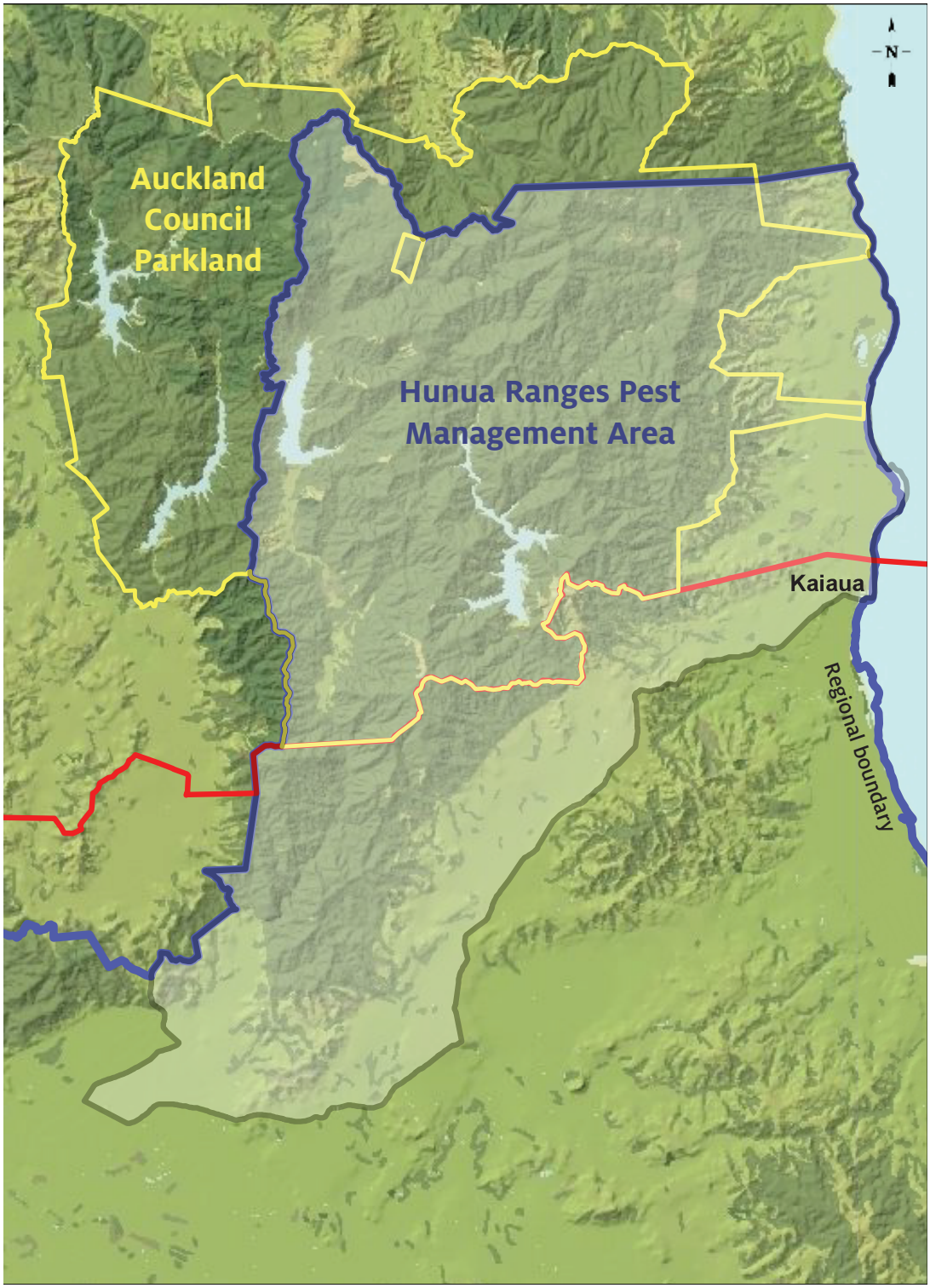
- the administration and implementation of integrated pest management programmes
- responses to all new pest or 'unwanted organism' incursions in the area
- responses to biosecurity enquires and complaints relating to the area.

In the Hunua Ranges Pest Management Area, the pest management programmes for wild deer, feral goats, feral pigs and possums are consistent with the Auckland Regional Pest Management Strategy 2007 to 2012.

In addition, the organism which causes kauri dieback – *Phytophthora* taxon Agathis (also known as PTA) – is identified as a pest only within the Hunua Ranges Pest Management Area.

Waikato Regional Council will continue to collect targeted rates for biosecurity in the Hunua Ranges Pest Management Area, but will transfer the funds to Auckland Council. Auckland Council is responsible for funding the additional costs required by the pest management programmes in the Auckland Regional Pest Management Plan.

Figure 2: Map of the Hunua Ranges Pest Management Area



Part 2
Pest management programmes

Plants

5. PLANTS

5.1 Introduction

This section of the plan details the management programmes associated with each plant to which the plan applies.

Each management programme includes:

- a description of the plant
- management category
- why it is a pest
- a long term objective
- an objective to be achieved by Waikato Regional Council during the time period this plan covers
- a description of how this achievement will be measured
- measures by which Waikato Regional Council intends to achieve the objective, including:
  - plan rules and statutory obligations
  - surveillance, monitoring and enforcement
  - good neighbour rule
  - information and advice
  - direct control measures that allow Waikato Regional Council to consider direct control of some plants in certain circumstances
  - community initiatives.

NOTE

A breach of any rule prescribed in section 5 of the plan will create an offence under section 154N(19) of the Biosecurity Act, or may result in default work under section 128 and section 129 of the Act, or both.

5.2 African feather grass *(Cenchrus macrourus)*

Photos: Philip Mabin

Description

African feather grass is a robust perennial grass which forms large clumps up to 2m high, resembling pampas grass. It is a native of South Africa and invades poor pasture areas, roadside verges, reserves and forest margins.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

African feather grass can completely suppress other low growing plants. Its dense clumps can totally inhibit the movement of animals, people and machinery, and will block drains and impair visibility along roads. Dense patches provide habitat for rabbits and are also fire hazards. There are a limited number of known sites in the Waikato region, principally around Taupō, Te Kauwhata and Taupiri.

Our long term objective

Eradicate African feather grass from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of African feather grass in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of African feather grass undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed African feather grass. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor the distribution of African feather grass in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of African feather grass to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of African feather grass in accordance with section 11.4 of the plan.

5.3 Alligator weed *(Alternanthera philoxeroides)*

Description

Alligator weed is a perennial aquatic plant and forms extensive floating mats that extend out from the banks of rivers or drains and effectively cover the water surface.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Alligator weed is the most expensive and difficult to control pest plant within the Waikato region due to its ability to invade a range of terrestrial and wetland sites. In waterways it restricts water flow, increases sedimentation, aggravates flooding and has the potential to spread to high value conservation areas. Access for recreational purposes (boating/fishing) can be blocked and plants may affect whitebait breeding areas. It is also a pasture pest, displacing other more favourable plants, and can be harmful to animals. It is well established in areas north of Auckland and in the lower Waikato River, where it was first discovered in 1991. It is also present in Waipa district.

A control programme managed by Waikato Regional Council has been in place since 1994. Measures to control risks posed by this species (and others) during subdivision and land development are contained in section 16 of this plan.

Our long term objective

Achieve zero density of alligator weed in the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known infestations (as at 1 July 2014) of alligator weed in the Waikato region and, as practicable, reduce towards zero density any further infestations that are identified over the duration of the plan.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of alligator weed.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed alligator weed. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rule	
5.3.1	No person shall move or allow to be moved cultivating/harvesting machinery, any organism, risk goods or other goods into or out of restricted places, as determined under section 130 of the Act, that may be contaminated with alligator weed, without the permission of an authorised person. A breach of this rule will create an offence under section 154O(14) of the Act and may incur penalties under section 157(1) of the Act. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor alligator weed in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of alligator weed to water users, affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of alligator weed, in consultation with lower Waikato iwi, Waipa iwi and other land/water users, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of alligator weed in accordance with section 11.7 of the plan.

5.4 Asparagus: bushy *(Asparagus aethiopicus)* and ferny *(A. setaceus)* excluding foxtail cultivar

Photo: Trevor James

Description

Bushy asparagus is a many-branched, scrambling perennial herb with tuberous roots, thin wiry stems, thin leaves, tiny pinkish flowers and bright red berries.

Ferny asparagus, despite the common name, is not actually a fern but a scrambling or climbing evergreen fern-like perennial. Feathery flattened stems (cladodes) look like leaves, and are arranged in bunches of 7-20 from each stem node.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

These weedy asparagus species grow quickly to form thick smothering masses supported by a mat of tuberous roots that block and suppress other desirable species.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the establishment and spread of bushy asparagus and ferny asparagus at high value biodiversity sites. As practicable, reduce towards zero density infestations that are identified at specific high value biodiversity sites over the duration of the plan.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed bushy asparagus or ferny asparagus. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.4.1	The occupier shall, unless otherwise agreed between the parties, destroy all bushy asparagus or ferny asparagus located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor bushy asparagus and ferny asparagus in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of bushy asparagus and ferny asparagus to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of bushy asparagus and ferny asparagus in accordance with section 11.4 of the plan in order to reduce the risks of widespread establishment at an early stage.

5.5 Australian sedge *(Carex longebrachiata)*

Photo: Auckland Council

Description

Australian sedge forms strong, harsh, dense tussocks 30-90cm high. Leaves are strongly keeled and Y-shaped in cross-section, appearing yellowish towards the tips. New leaves emerge from a leaf sheath. The seed head is a drooping panicle, with green to pale brown seeds hanging from the ends of long, thin, cotton-like filaments.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Once established, Australian sedge is a difficult plant to control and it can occupy large areas to the exclusion of pasture species. Unpalatable to stock, infestations of Australian sedge reduce pasture production, thereby reducing the carrying capacity of agricultural land. The consequential need to control the plant then imposes added farm production costs.

Our long term objective

Contain the spread of Australian sedge between neighbouring properties within the Waikato region.

Our objective for this plan

Boundary control of Australian sedge for the duration of the plan.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control for Australian sedge.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Australian sedge. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.5.1	The occupiers of quarries and transport corridors throughout the region shall destroy all Australian sedge in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.5.2	The occupier shall destroy, on complaint from an adjoining landowner, all Australian sedge located 20m or less from the boundary of land occupied. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.5.3	The occupier shall destroy all Australian sedge located 20m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor Australian sedge in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Australian sedge to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Except on farmed properties, Waikato Regional Council may undertake direct control of Australian sedge, as appropriate, in accordance with section 11.4 of the plan.

5.6 Banana passionfruit *(Passiflora tripartita* formerly known as *P. mixta)*

Photo: Trevor James

Description

Banana passionfruit is a large evergreen perennial vine. It has large, pink flowers up to 7cm in diameter that ripen to long, thin yellow fruits. Typical habitats are hedges, trees, plantations, forest margins and waste places.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Banana passionfruit is a vigorous, scrambling, smothering plant that climbs up to 10m high by means of its tendrils. It effectively out-competes other plants. The vines grow for 15 to 20 years, and can mature after 1 year. It produces large sweet fruit containing many seeds that are dispersed by a variety of native and introduced birds, as well as possums, rats and pigs.

Our long term objective

Containment of the range and density of banana passionfruit in the Waikato region.

Our objective for this plan

Reduce the infestations of banana passionfruit in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of banana passionfruit.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed banana passionfruit. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.6.1	The occupier shall destroy all banana passionfruit on land occupied. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.6.2	The occupier shall destroy all banana passionfruit located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor banana passionfruit in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of banana passionfruit to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of banana passionfruit, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of banana passionfruit in accordance with section 11.7 of the plan.

5.7 Bat-wing passion flower *(Passiflora apetala)*

Photos: Northland Regional Council

Description

Bat-wing passion flower is native to Costa Rica and Panama and is shade tolerant. Its characteristic leaves have two large lobes (making it look like a bat's wing), and some have pale green stripes along the midribs. It has small yellow/light green flowers (7-12mm diameter) and produces small black berries roughly the size of a small grape (7-15mm diameter). The berries are inedible and non-toxic to humans, but are very attractive to birds and spread by them.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Bat-wing passion flower is very invasive, with the ability to smother, shade and strangle its host plants. It is a threat to New Zealand's environment and has the potential to impact on economic and biodiversity values.

This plant has so far been located in the Northland and Auckland regions. In Northland it has been found in regenerating native forests and scrub, in home gardens and amongst hedges and fence lines. Seedlings are usually found under places where birds perch.

Our long term objective

Prevent the establishment of bat-wing passion flower in the Waikato region.

Our objective for this plan

Immediate control leading to the eradication of new occurrences of bat-wing passion flower in the region. Control of bat-wing passion flower to zero density.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of bat-wing passion flower undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed bat-wing passion flower. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Surveillance and monitoring	
	Waikato Regional Council will fund surveillance and monitoring of bat-wing passion flower in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of bat-wing passion flower to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of bat-wing passion flower in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.8 Boneseed
(Chrysanthemoides monilifera ssp. monilifera)

Photos: Trevor James

Description

Boneseed is a fast growing, bushy shrub that grows 2-3m high. It has yellow daisy-like flowers and leathery, paddle-shaped leaves with toothed edges and a powdery surface. It has clusters of small fruit that turn from green to black when mature. Seeds are bone-like in colour and extremely hard. Boneseed grows best in dry and sunny conditions in coastal areas, cliffs, sand dunes and wasteland, and doesn't like heavy shade or wet soils.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Boneseed threatens low coastal vegetation, where it can rapidly replace native plants. It can shade out seedling trees (such as pohutukawa) and dense growth can prevent access to and use of beach areas. Distribution of boneseed in the region is currently limited mainly to coastal areas around Whiritoa, Waihi and Raglan, with one large infestation identified behind Thames township.

Our long term objective

To contain and reduce the range and density of boneseed within the Waikato region.

Our objective for this plan

Reduce the risk of spread and, where practicable, reduce infestations of boneseed in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of boneseed.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed boneseed. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.8.1	The occupier shall destroy all boneseed on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.8.2	The occupier shall destroy all boneseed located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor boneseed in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of boneseed to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of boneseed, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of boneseed in accordance with section 11.7 of the plan.

5.9 Broom *(Cytisus scoparius)*

Photos: Trevor James

Description

Broom is a deciduous shrub that grows up to 2.5m tall. It has large yellow flowers, which occur in October and November. The seeds are explosively ejected from their seed pods out to 10m.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Broom is principally a problem on pasture where it forms thickets which may exclude stock. It shades grasses, which affects livestock production. It is also capable of invading and subsequently modifying semi-open indigenous ecosystems, such as river flats. Broom is generally confined to the south of Tokoroa, with most infestations occurring on waste areas, forestry margins, roadsides, riparian margins or poorly grazed pasture.

Our long term objective

Prevent the spread of broom to neighbouring properties and to high value biodiversity sites.

Our objective for this plan

Reduce the adverse effects of broom on properties with neighbouring infestations in the Waikato region, and provide control at sites (particularly outlier sites) where biodiversity values are threatened.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control for broom.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed broom. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.9.1	The occupiers of quarries and transport corridors throughout the region shall destroy all broom in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.9.2	The landowner/occupier upon complaint from an adjacent landowner/occupier shall destroy all broom located 20m or less from the boundary of land occupied. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.9.3	The occupier shall destroy, on complaint from an adjoining landowner, all broom located 20m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor broom in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of broom to affected land occupiers and interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of broom, as appropriate, where biodiversity values are threatened at outlier sites (generally only in Taupō and Rotorua districts), in accordance with section 11.4 of the plan.

5.10 Broom corn millet *(Panicum miliaceum)*

Photos: Trevor James

Description

Broom corn millet originated in tropical and temperate regions of East Asia and Europe and has been grown as a domestic crop for at least 2000 years. It is a widely grown crop for human consumption and birdseed in the northern hemisphere. In 1970, a wild biotype with black seeds emerged and quickly became weedy, producing more dry matter, reaching a greater height and producing twice as much seed.

It competes with maize and sweet corn for water and nutrients early on in its life cycle, and eventually can shade other plants, because it can grow to over 2m high.

It can be identified by its very broad leaves, large drooping seed head and large black seeds.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Broom corn millet reduces crop yields via competition and interferes with harvest by clogging machinery. It may reduce crop yield by 13-22 per cent when present at a density of 10 plants/m^2.

Our long term objective

Prevent the establishment of broom corn millet in the Waikato region.

Our objective for this plan

Immediate control leading to the eradication of new occurrences of broom corn millet in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of broom corn millet undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed broom corn millet. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Surveillance and monitoring	
	Waikato Regional Council will fund surveillance and monitoring of broom corn millet in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of broom corn millet to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of broom corn millet in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.11 California bulrush *(Schoenoplectus californicus)*

Photos: Trevor James

Description

California bulrush is a tall riparian sedge that grows up to 4m in height. It has a hanging cluster of nut-like seeds at stem tip.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

California bulrush may displace native sedges by out-competing and suppressing growth. Within the Waikato region, it is currently confined to the Waikato River delta area.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the establishment and spread of California bulrush at high value biodiversity sites. As practicable, reduce towards zero density infestations that are identified at specific high value biodiversity sites over the duration of the plan.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed California bulrush. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.11.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all California bulrush in the area that has been identified as the source of the impact on an adjacent or nearby high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor California bulrush in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of California bulrush to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of infestations of California bulrush in accordance with section 11.4 of the plan in order to reduce the risks of widespread establishment at an early stage. Control at high value biodiversity sites within the Waikato River delta may also be undertaken in accordance with section 11.6 of the plan.

5.12 Cathedral bells *(Cobaea scandens)*

Photo: Weedbusters

Photo: Trevor James

Description

Cathedral bells is a vigorous, fast growing, perennial climber with stems up to 10m long. Its characteristic purple bell-shaped flowers are followed by green oval fruit. These produce winged seeds that are carried by wind or water.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

The vines of cathedral bells can grow over trees and shrubs forming a dense canopy, smothering native plants. It is largely restricted to a few sites adjacent to Waikato River, at Karapiro, Kawhia, Ngāruawāhia and Hamilton.

Our long term objective

Eradicate cathedral bells from the Waikato region.

Our objective for this plan

To reduce to zero density by 2024 all known and new infestations of cathedral bells in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of cathedral bells undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed cathedral bells. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor cathedral bells in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of cathedral bells to water users, affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of cathedral bells in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage.

5.13 Cherry: Japanese *(Prunus serrulata)* and rum *(Prunus serotina)*

Photos: Trevor James

Description

These deciduous trees grow to about 8m in height, producing dense, spreading branches. Japanese cherry has white to pink clusters of flowers. The fruits are small cherries that ripen to black. Rum cherry has clusters of small whitish flowers, and the fruits are smaller. In both species the leaves turn bronze in autumn, and flowers appear in profusion before the leaves emerge in early spring.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

These are among the worst of the invasive cherries. Both species are spreading invasively around Taupō, but the extent of their invasiveness in other parts of the region has not yet been determined.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the establishment and spread of Japanese cherry and rum cherry at high value biodiversity sites. As practicable, reduce towards zero density infestations that are identified at specific high value biodiversity sites over the duration of the plan.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Japanese cherry and rum cherry. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.13.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all Japanese cherry and rum cherry located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor Japanese cherry and rum cherry in the region, in accordance with section 11.2.1 of the plan. Waikato Regional Council will survey Japanese cherry and rum cherry infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Japanese cherry and rum cherry to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of Japanese cherry and rum cherry populations within the Taupō district and self-propagated wild populations elsewhere in the region, where there are threats to biodiversity values, in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage.

5.14 Chilean flame creeper *(Tropaeolum speciosum)*

Photo: John Dogson

Photo: Trevor James

Description

Chilean flame creeper is a perennial climber with blue/green five fingered leaves up to about 15mm across. It can grow to at least 10m tall.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Chilean flame creeper can suppress and replace native species by shading and smothering them. The Department of Conservation has been undertaking control of this species in recent years and this plan will aid its efforts.

Chilean flame creeper is spread by birds, but it also has the ability to replicate through its tuberous root system. Consequently it is difficult to control. There are a limited number of sites in the Waikato region. These seem to be confined to the northern King Country, but this species has shown serious invasive potential in other regions.

Our long term objective

Eradicate Chilean flame creeper from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of Chilean flame creeper in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of Chilean flame creeper undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Chilean flame creeper. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Chilean flame creeper in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Chilean flame creeper to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of Chilean flame creeper in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.15 Chocolate vine *(Akebia quinata)*

Photos: Weedbusters

Description

Chocolate vine is a twining vine or vigorous groundcover. It has slender, rounded stems that are green when young and brown at maturity. The leaves alternate along the stem and are divided into five, or sometimes fewer, leaflets that are generally long oval in shape and up to 10cm long with a purplish tinge that becomes blue-green at maturity. Its fragrant flowers are coloured chocolate-purple, and the fruits are purple flattened pods.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Chocolate vine grows quickly to cover, out-compete and kill existing ground level herbs and seedlings, understorey shrubs and young trees. Once established, its dense growth prevents seed germination and establishment of native plants.

Our long term objective

Containment of infestations of chocolate vine in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of chocolate vine and, where practicable, reduce infestations of chocolate vine in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of chocolate vine.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed chocolate vine. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rule	
5.15.1	The occupier shall destroy all chocolate vine on the land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.15.2	The occupier shall destroy all chocolate vine located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will survey chocolate vine infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of chocolate vine to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of infestations of chocolate vine, in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage.
Biological control	
	Waikato Regional Council may undertake biological control of chocolate vine in accordance with section 11.7 of the plan.

5.16 Climbing asparagus *(Asparagus scandens)*

Photos: Trevor James

Description

Climbing asparagus is a slender perennial vine that climbs to approximately 6m. It forms mats of tubers in bush margins, tree fall gaps, hedges and wasteland areas.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Climbing asparagus grows very strongly, smothering seedlings and saplings and shading out larger trees. It can also ring bark trees. Large amounts of viable seed are formed, which birds disperse. Tubers are sometimes moved in soil. Climbing asparagus has a scattered distribution within the region in many native forest areas.

Our long term objective

Containment of range and density of climbing asparagus in the Waikato region.

Our objective for this plan

Reduce the risk of spread of climbing asparagus and, where practicable, reduce current infestations the Waikato region.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of climbing asparagus.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed climbing asparagus. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.16.1	The occupier shall destroy all climbing asparagus on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.16.2	The occupier shall destroy all climbing asparagus located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor climbing asparagus in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of climbing asparagus to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of climbing asparagus, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of climbing asparagus in accordance with section 11.7 of the plan.

5.17 Climbing spindleberry *(Celastrus orbiculatus)*

Photos: Trevor James

Description

Climbing spindleberry is a deciduous climber that can grow up to 12m high and form stems up to 20cm in diameter. It is aggressively invasive and seedlings are shade-tolerant. Leaves turn to a characteristic bright yellow before falling in autumn. Flowers are inconspicuous and green and appear from October to December. Conspicuous yellow fruits open to expose a scarlet centre which is evident in early winter.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Climbing spindleberry has the potential to invade a wide range of terrestrial habitats from scrub to forest, adversely affecting native species by smothering or displacing them. It is also a threat to production forestry with its demonstrated potential to strangle pines.

Our long term objective

Achieve zero density of climbing spindleberry in the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known infestations (as at 1 July 2014) of climbing spindleberry in the Waikato region and, as practicable, reduce towards zero density any further infestations identified over the duration of the plan.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of climbing spindleberry.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed climbing spindleberry. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	No good neighbour rule applies.
Monitoring	
	Waikato Regional Council will monitor climbing spindleberry in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of climbing spindleberry to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of climbing spindleberry, as appropriate, in accordance with section 11.4 of the plan, alone or in conjunction with the Department of Conservation.
Biological control	
	Waikato Regional Council may undertake biological control of climbing spindleberry in accordance with section 11.7 of the plan.

5.18 Contorta pine *(Pinus contorta)*

Photos: Trevor James

Description

Contorta pine is a small to medium sized pine tree, usually with twisted branches and short paired needles. Trees are usually found grouped very densely in alpine and sub-alpine areas, but also grow in all habitats ranging from cultivated land to scree slopes.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Contorta pine was introduced into New Zealand in the late 1920s for production forestry purposes. It is an aggressive coloniser, particularly when planted at higher altitudes where it is usually more competitive than native alpine vegetation.
It is considered to be the most invasive wilding conifer in the Waikato. It can completely modify habitats, increase fire risks and obstruct farm operations and stock.

Our long term objective

Contain and reduce the range and density of contorta pine in the Waikato region.

Our objective for this plan

Reduce the spread and, where practicable, reduce infestations of contorta pine in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of contorta pine.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed contorta pine. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.18.1	The occupier shall destroy all contorta pine on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.18.2	The occupier shall destroy all contorta pine located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor contorta pine in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of contorta pine to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of contorta pine, as appropriate, in accordance with section 11.4 of the plan, and may do so in conjunction with the Department of Conservation or any other party.

5.19 Darwin's barberry *(Berberis darwinii)*

Photo: Trevor James

Description

Darwin's barberry is a woody evergreen shrub that grows to a height of 4-5m. It has shiny dark-green spiny leaves that are smaller than holly, and drooping flower clusters of characteristic deep orange flowers. Darwin's barberry is very invasive in forests, riparian areas and degraded pasture.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Darwin's barberry is a shade tolerant species that is considered a threat to forestry and native species and ecosystems. It produces copious quantities of fruit, earlier in the summer than many other species (both native and exotic). Birds are attracted to the fruit and they disperse large numbers of seeds many hundreds of metres from the parent plants. Seeds germinate in high numbers.

Darwin's barberry is poised to become a serious forestry pest. It will move into farmland and areas of indigenous forest within this region unless it is controlled. There are dense infestations in the vicinity of Rainbow Mountain, and these extend continuously into exotic forests in the Bay of Plenty region and threaten the entire Kaingaroa Forest. There is also a significant recruitment population adjacent to the Waikato region located in the Manawatu-Whanganui region, south-west of Pureora.

Our long term objective

Containment of range and density of Darwin's barberry in the Waikato region.

Our objective for this plan

Reduce the risk of spread of Darwin's barberry and, where practicable, reduce existing infestations in the Waikato region.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of Darwin's barberry.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Darwin's barberry. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.19.1	The occupier shall destroy all Darwin's barberry on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.19.2	The occupier shall destroy all Darwin's barberry located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor Darwin's barberry in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Darwin's barberry to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of Darwin's barberry, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of Darwin's barberry in accordance with section 11.7 of the plan.

5.20 Evergreen buckthorn *(Rhamnus alaternus)*

Description

Evergreen buckthorn is an evergreen shrub that grows to 10m. There are separate male and female plants, which may account for its slow spread to date. It may also grow from suckers. It flowers from May to November. The flowers are small and green. It forms berries that are up to 7mm long, broad, oval, glossy red, becoming black with stone.

Photo: Auckland Council

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Evergreen buckthorn poses a serious threat to coastal vegetation. It competes strongly with native coastal species and can restrict access to recreational areas.

Evergreen buckthorn has the ability to colonise stream and forest margins and disturbed forests. Because this plant can form dense colonies, it can alter the structure of native forest ecosystems in a very short period of time. Waikato Regional Council is seeking to destroy known infestations while it is still of low incidence.

Photo: Trevor James

Our long term objective

Eradicate evergreen buckthorn from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 any existing or new populations of evergreen buckthorn in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of evergreen buckthorn.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed evergreen buckthorn. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	No good neighbour rule applies.
Monitoring	
	Waikato Regional Council will monitor evergreen buckthorn in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of evergreen buckthorn to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of evergreen buckthorn, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of evergreen buckthorn in accordance with section 11.7 of the plan.

5.21 Freshwater eel grass *(Vallisneria australis,* formerly known as *Vallisneria gigantea* and *V. spiralis)*

Photo: Trevor James

Description

Both species of freshwater eel grass are submerged, perennial aquatic plants that grow to 5.5m tall and have strap-like leaves arising from stout rhizomes. They root into muddy and sandy beds of streams, ditches, lakes and ponds forming dense beds of vegetation. The size of the plant depends on its habitat size, with large growths occurring in larger water bodies. Eel grass should not be confused with the native marine eel grass *(Zostera)* that is found in estuaries.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Freshwater eel grass forms dense beds of vegetation which displace native plants and can block dams, waterways and drainage. They can cause flooding, choke hydro-electric turbines and disrupt recreational activities.

Freshwater eel grass currently has a relatively restricted distribution largely because it does not spread easily into new water bodies. Spread to new sites is mainly by intentional planting, but once established eel grass spreads rapidly by sending out runners, producing new plants at frequent intervals. Current infestations are in the Auckland and Whanganui regions.

Our long term objective

Prevent the establishment of freshwater eel grass in the Waikato region.

Our objective for this plan

Immediate control leading to the eradication of new occurrences of freshwater eel grass in the region. Control of freshwater eel grass to zero density.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of freshwater eel grass undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed freshwater eel grass. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey freshwater eel grass infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of freshwater eel grass to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of freshwater eel grass in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.22 Fringed water lily *(Nymphoides peltata)*

Description

Fringed water lily is a perennial herb that occupies slow moving streams and ditches. It occurs in moderately cool areas. It has floating, heart-shaped leaves measuring up to 7cm across with distinctive scalloped edges. Although ducks can disperse its seeds, dispersal to new water bodies in New Zealand appears to be by intentional planting.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Although fringed water lily is of extremely limited distribution in New Zealand, it has the potential to spread and become a very serious problem. It forms dense vegetation blocks in waterways, impeding drainage and disrupting recreational activities. It reduces light penetration, out-competes native species and degrades water quality.

Our long term objective

Prevent the establishment of fringed water lily in the Waikato region.

Our objective for this plan

Immediate control leading to the eradication of new occurrences of fringed water lily in the region. Control of fringed water lily to zero density.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of fringed water lily undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed fringed water lily. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey fringed water lily infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of fringed water lily to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of fringed water lily in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.23 Giant gunnera *(Gunnera tinctoria* and *G. manicata)*

Photos: C.Lewis, Weedbusters

Description

Giant gunnera is a summer green herb (it dies back in winter) with short, stout, horizontal rhizomes and short reddish prickles. Its leaves measure up to 0.8m by 1.0m, have 5–7 lobes and are hairy underneath, especially on the veins. Giant gunnera occupies mainly damp coastal bluffs, riparian zones and areas that are disturbed. It produces abundant fruit, which are dispersed by birds, and forms dense patches that exclude virtually all other plants. It threatens the integrity of indigenous communities.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Self-propagated giant gunnera plants have been found at several places close to the Waikato River near Hamilton. Because of the plant's ability to become invasive, council has decided to be prudent and include it in the progressive containment programme for this region. It has been planted in various public and private gardens in and around Hamilton, and the ability to control garden escapees is required. Giant gunnera has spread down the Waikato River.

Giant gunnera has become aggressively invasive in the Taranaki region, forming dense stands and excluding indigenous species. It has spread to bluffs and wet cliffs and along several waterways in the Manawatu-Whanganui region.

Our long term objective

Containment of infestations of giant gunnera in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of giant gunnera and, where practicable, reduce infestations of it in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of giant gunnera undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed giant gunnera . A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.23.1	The occupier shall destroy all giant gunnera plants on the land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Crown good neighbour rule	
5.23.2	The occupier shall destroy all giant gunnera in the area that has been identified as the source of the impact on an adjacent or nearby property. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will survey infestations of giant gunnera wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of giant gunnera to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of infestations of giant gunnera, in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage.
Biological control	
	Waikato Regional Council may undertake biological control of giant gunnera in accordance with section 11.7 of the plan.

5.24 Gorse *(Ulex europaeus)*

Photos: Trevor James

Description

Gorse is a deep-rooted, woody perennial shrub with sharp spines. It may grow up to 4m in height. The seeds are explosively ejected from their seed pods out to 10m. Gorse's ability to fix nitrogen in the soil can lead to adverse effects on water quality.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Gorse forms dense thickets capable of totally suppressing pasture or restricting stock grazing in affected areas. It can be a serious problem over large areas, including pasture, roadside verges, scrub land, forest margins and coastal habitats. Gorse is widespread throughout the Waikato region.

Our long term objective

Containment of range and density of gorse in the Waikato region.

Our objective for this plan

Reduce adverse effects of gorse on properties with neighbouring infestations in the Waikato region.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control of gorse.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed gorse. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.24.1	The occupiers of quarries and transport corridors throughout the region shall destroy all gorse in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.24.2	The landowner/occupier on complaint from an adjacent landowner/occupier shall destroy all gorse located 20m or less from the boundary of land occupied. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.24.3	The occupier shall destroy, on complaint from an adjoining landowner, all gorse located 20m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule is an offence under section 69(5) and under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor gorse in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of gorse to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.

5.25 Horse nettle *(Solanum carolinense)*

Photo: Auckland Council

Photo: Trevor James

Description

Horse nettle is a prickly, herbaceous shrub that grows up to 1m tall. It grows in pasture and can tolerate a wide range of soil types. The plant characteristically regenerates readily from root fragments spread by cultivation.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Horse nettle spreads rapidly, reducing pastoral potential. The berries are poisonous to livestock and humans. Its rhizomatous roots can remain dormant for several years before re-sprouting. It has historically been known to occur at five sites in the Waikato region, and is found in the neighbouring Bay of Plenty region.

Our long term objective

Eradicate horse nettle from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 any existing or new populations of horse nettle in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of horse nettle undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed horse nettle. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey infestations of horse nettle wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of horse nettle to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of horse nettle in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage.

5.26 Horsetail (*Equisetum* species)

Description

Horsetail is a perennial fern ally that grows preferentially on damp open ground. It has a thick underground root system and asparagus-like fertile stems with whorls of needle-like leaves. The extensive underground rhizomes will penetrate great depths around rivers and lake margins. Dense colonies establish on riverbanks, obliterating other vegetation.

Equisetum arvense av

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Horsetail is not yet known in the Waikato region, but is present at a few sites along the Whanganui River in the Taranaki and Manawatu-Whanganui regions. All horsetails are extremely difficult to eradicate once established. The plant is toxic to livestock, especially horses. If it enters this region it could quickly become widely distributed on river and stream banks and in wet paddocks and natural areas.

Equisetum hyemale
Photos: Trevor James

Our long term objective

Prevent the establishment of horsetail in the Waikato region.

Our objective for this plan

Immediate control, leading to the eradication of all new occurrences of horsetail in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of horsetail undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed horsetail. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey horsetail infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of horsetail to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of horsetail in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.27 Hydrilla *(Hydrilla verticillata)*

Description

Hydrilla is a submerged perennial aquatic plant with whorled leaves. It produces a particularly dense surface canopy which prevents light penetration. It spreads primarily via stem fragments, but also through tubers, turions and underground rhizomes.

Management category

Exclusion (MPI-led)	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Hydrilla is a troublesome lake weed that can grow to 6m tall in still water. It currently grows only in the Hawkes Bay region at lakes Tutira, Waikapiro, Opouahi and Elands.

It is important to prevent the spread of hydrilla into Waikato water bodies because once established it is virtually impossible to eradicate.

This plant is easily transported to other waterways by machinery, boats, trailers or nets. The species is subject to a national programme for eradication being carried out by the Ministry for Primary Industries (MPI). Hydrilla has not been found in the Waikato region, and council wishes to retain a residual ability to assist with control and monitoring if considered appropriate.

Our long term objective

To prevent hydrilla from entering the Waikato region, in conjunction with MPI as lead agency.

Our objective for this plan

Reduce towards zero density any infestations of hydrilla that are identified in the region over the duration of the plan.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites for hydrilla.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed hydrilla. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey hydrilla infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of hydrilla to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	MPI is the lead agency under the National Interest Pest Responses (NIPR).

5.28 Japanese walnut *(Juglans ailantifolia)*

Description

Japanese walnut is a species of walnut native to Japan and Sakhalin (an island in Russia). It is a tree that can grow to about 15m in height. It produces fruit (2.5-4cm long) that are walnut-like in appearance, with a green husk surrounding the nut. The leaves are large with up to 17 stalkless leaflets. Japanese walnut produces long, hanging male catkins and upright purple-pink female catkins between October and November.

Management category

Exclusion (MPI-led)	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Japanese walnut is a long-lived canopy tree that forms dense stands preventing recruitment of other plant species. Many seedlings can occur close to the parent tree, out-competing other vegetation. Japanese walnut invades disturbed forests, shrubland and the edges of water courses.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the establishment and spread of Japanese walnut at high value biodiversity sites. As practicable, reduce towards zero density infestations that are identified at specific high value biodiversity sites over the duration of the plan.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Japanese walnut. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.28.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all Japanese walnut in the area that has been identified as the source of the impact on an adjacent or nearby high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor Japanese walnut in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Japanese walnut to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of Japanese walnut in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.29 Knotweed: Chinese *(Persicaria chinensis)*

Description

Chinese knotweed is a perennial herbaceous vine which quickly spreads and covers any available surfaces. When not climbing over other plants or structures, plants grow to 70-100cm tall. Stems are pinkish in colour and leaves are generally soft textured, serrated edged and 4-16cm long.

Chinese knotweed flowers in autumn. Flowers are cream/pink and grow in clusters at the end of leafed stems. Plants grow from rhizomes (or tubers) and stem fragments. Rhizomes are irregular in shape and generally 6-15cm long and 4-12cm in diameter. The tubers are reddish brown in colour. Dried rhizomes are used in herbal medicines.

Management category

Exclusion	**Eradication (MPI-led)**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Chinese knotweed is a highly invasive plant that quickly smothers available surfaces including other plants and trees. It could overrun native plants and forests, particularly along forest fringes. It has the potential to affect forestry, orchard and nursery operations and could become a nuisance plant in home gardens and lifestyle properties. It can tolerate a wide range of environmental conditions including shade, high temperatures, high salinity and drought. It is suited to growth in the Waikato region.

It is thought this plant will be easily spread as plant cuttings or roots. It can be moved with garden rubbish and on contaminated gardening tools, including lawnmowers. At present it is not known if the plant can fruit in New Zealand conditions.

Our long term objective

In conjunction with the Ministry for Primary Industries (MPI) as lead agency, eradicate Chinese knotweed from the Waikato region.

Our objective for this plan

In conjunction with MPI as lead agency, reduce to zero density by 2024 all known and new infestations of Chinese knotweed in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites for Chinese knotweed.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Chinese knotweed. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Chinese knotweed in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Chinese knotweed to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	MPI is the lead agency.

5.30 Knotweed: Japanese *(Fallopia japonica)* and giant *(Fallopia sachalinensis)*

Description

Japanese knotweed and giant knotweed are rhizomatous herbs that grow to a height of 2-3m. Japanese knotweed has flecked bamboo-like stems and white flowers. It spreads locally through an extensive rhizome system and to new locations from shoots and roots transported by water or people.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Once established, Japanese knotweed and giant knotweed spread very invasively and quickly form monocultural stands. The rhizome system can be up to 3m deep and can extend up to 7m from the parent plant, pre-empting the germination and establishment of other plants. It grows principally in disturbed areas, roadsides and river banks. Japanese knotweed and giant knotweed occur at small sites across the region.

Our long term objective

Eradicate Japanese knotweed and giant knotweed from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of Japanese and giant knotweed in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of Japanese knotweed and giant knotweed undertaken.

Giant knotweed
Photo: Trevor James

Japanese knotweed
Photo: Trevor James

Japanese knotweed
Photo: Weedbusters

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Japanese knotweed or giant knotweed. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Japanese knotweed and giant knotweed in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Japanese knotweed and giant knotweed to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of Japanese knotweed and giant knotweed, as appropriate, in accordance with section 11.4 of the plan.

5.31 Kudzu vine *(Pueraria montana)*

Photos: Auckland Council

Description

Kudzu vine is a twining and trailing semi-woody vine reaching 10-30m in length. It has very large, semi-woody tuberous roots that reach a soil depth of 1-5m. Leaves are 8-18cm long and 6-20cm wide and usually slightly lobed. Flowers are reddish-purple and the fruit is a brown, hairy, flattened legume that splits to release few seeds.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Kudzu vine is an extremely vigorous, aggressive vine capable of smothering large areas of shrubs and trees that may be up to 20m in height. It grows up to 2m a week. It has spread out of control to cover 2.5 million hectares in the United States. Kudzu grows in urban areas, agricultural areas, disturbed areas, forests, riparian zones and shrublands. It has been discovered and destroyed at sites in the neighbouring Bay of Plenty region.

Our long term objective

Prevent the establishment of kudzu vine in the Waikato region.

Our objective for this plan

Immediate control leading to the eradication of new occurrences of kudzu vine in the region. Control of kudzu vine to zero density.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of kudzu vine undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed kudzu vine. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey kudzu vine infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of kudzu vine to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of kudzu vine in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.32 Lantana *(Lantana camara)*

Photos: Weedbusters

Description

Lantana is typically a low, erect or scrambling shrub with backwards pointing prickles and a strong root system. Its leaves are strong smelling when crushed, wrinkly and more or less oval with dense, often prickly hairs on the upper surface. Its small flowers can be many colours and the fruit is poisonous.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

Lantana can be found in urban areas, where it is grown as an ornamental plant, and it grows wild at Waikaretu and on the Coromandel Peninsula. Lantana is a prolific seeder that is spread by birds and vegetative fragments. It is very competitive in disturbed and high light conditions.

Lantana impacts severely on agriculture as well as on natural ecosystems. The plants can grow individually in clumps or as dense thickets, crowding out more desirable species. In disturbed native forests it can become the dominant understorey species, disrupting succession and decreasing biodiversity. It releases chemicals that can reduce the vigour of nearby plants and reduce productivity in orchards.

Lantana is a serious problem in Northland and Auckland regions, where it forms dense thickets that invade a wide variety of areas, from native and exotic forests to domestic gardens, roadsides, sand dunes, quarries and wasteland. Lantana has the potential to do the same in the Waikato region and has formed self-sustaining populations on the Coromandel Peninsula.

Our long term objective

Eradicate lantana from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 any existing or new populations of lantana in the Waikato region.

What we will measure

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of lantana.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed lantana. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor lantana in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of lantana to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of lantana, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of lantana in accordance with section 11.7 of the plan.

5.33 Manchurian wild rice *(Zizania latifolia)*

Description

Manchurian wild rice is a wetland grass, which grows up to 4m tall and has spreading rhizomes. It is relatively hardy and can grow in both fresh and brackish water.

Management category

Exclusion	**Eradication (MPI-led)**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Manchurian wild rice forms dense colonies in swampy areas. It displaces other species by its dense growth. It also impacts on farmland by blocking drainage and access to water, and by increasing the chance of flooding. Rhizomes can also break up stopbanks. It is found in the Waikato region in the Piako and Waihou river areas, where control work has been previously carried out on a limited basis. It has recently been found near Karapiro and Cambridge.

This species is now subject to a national programme for eradication being carried out by the Ministry for Primary Industries (MPI), but council wishes to retain a residual ability to assist with control and monitoring if considered appropriate.

Our long term objective

In conjunction with MPI as lead agency, eradicate Manchurian wild rice from the Waikato region.

Our objective for this plan

In conjunction with MPI as lead agency, reduce to zero density by 2024 all known and new infestations of Manchurian wild rice in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites for Manchurian wild rice.

Photos: Trevor James

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Manchurian wild rice. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Manchurian wild rice in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Manchurian wild rice to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	MPI is the lead agency under the National Interest Pest Responses (NIPR).

5.34 Marshwort *(Nymphoides geminata)*

Description

Marshwort is a water lily-like perennial aquatic plant which spreads across the margins of lakes just beneath the water surface. The leaves are broadly oval to round and 30-80mm long. It is spread by creeping stem growth, fragmentation and deliberate planting.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Marshwort forms dense floating mats that exclude native species. It is confined to several small historic sites in the Waikato region.

Our long term objective

Prevent the establishment of marshwort in the Waikato region.

Our objective for this plan

Immediate control leading to eradication of all new occurrences of marshwort in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of marshwort undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed marshwort. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey marshwort infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of marshwort to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of marshwort in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.35 Mexican devil *(Ageratina adenophora)*

Photo: Trevor James

Photo: Weedbusters

Description

Mexican devil is an erect shrub with reddish stems, triangular leaves with sticky hairs and white flowers. Seeds are wind-dispersed and produced in large numbers (100,000 per plant). It also disperses through root fragments. Mexican devil occurs in a variety of habitats including shrubland, disturbed sites, stream sides and poorly managed pasture.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mexican devil has the capacity to infest a large range of plant communities, where it forms dense thickets that displace and suppress desirable species. It has a bad reputation in Australia, where in the past it became suddenly invasive on a vast scale during successive drought years, driving farmers off their land. It is also fatally toxic to horses, especially stallions, so its spread to stud stock areas in central Waikato must be prevented.

Mexican devil cannot be contained in the Thames-Coromandel district because it is too widespread. Therefore, it is categorised as a progressive containment pest throughout the region, except for the Thames-Coromandel district.

Mexican devil also occurs on coastal dunes, including those in Thames-Coromandel district. In this instance, Mexican devil is categorised as a pest in the site-led programme posing an environmental threat, on coastal dunes anywhere in the region.

Our long term objective

Containment of Mexican devil in the Waikato region, except in the Thames-Coromandel district.

Our objective for this plan

Reduce the spread of Mexican devil in the Waikato region, except Thames-Coromandel district, for the duration of the plan.

Reduce to zero density by 2024 all known populations (as at 1 July 2014) of Mexican devil on coastal dunes in the Waikato region and, as practicable, reduce towards zero density any further infestations that are identified over the duration of the plan.

What we will measure

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of Mexican devil.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Mexican devil. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Mexican devil, outside Thames-Coromandel district, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Mexican devil to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of Mexican devil in accordance with section 11.4 of the plan where that furthers the attainment of the above objectives.
Biological control	
	Waikato Regional Council may undertake biological control of Mexican devil in accordance with section 11.7 of the plan.

5.36 Mexican water lily *(Nymphaea mexicana)*

Photos: Trevor James

Description

Mexican water lily is recognisable by its large floating spotted leaves with yellow flowers. It is spread by rhizomes, tubers, seeds and deliberate planting.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mexican water lily occupies the surfaces of lakes. It displaces native species by restricting light penetration to sub-surface species and by out-competing surface species. Mexican water lily is known at one site in the region, Lake Ohakuri.

Our long term objective

Ecological integrity of lake and wetland ecosystems at high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of Mexican water lily populations on lake and wetland habitats at high value biodiversity sites, targeting zero density.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Mexican water lily. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.36.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all Mexican water lily in the area that has been identified as the source of the impact on an adjacent or nearby high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will survey Mexican water lily infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Mexican water lily to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of Mexican water lily in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.37 Mignonette vine *(Anredera cordifolia)*

Photo: Trevor James

Description

Mignonette vine, also known as madeira vine, is a perennial climber arising from a fleshy rhizome. It may grow up to 7m high. It has thick, shiny, slightly heart-shaped leaves, wart-like tubers on stems and characteristic racemes of fragrant cream flowers from late summer to early autumn.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mignonette vine represents a particular threat to indigenous biodiversity. It can compete with and replace indigenous plants in disturbed or low forest, forest and riparian margins and coastal areas.

Once established, the plant may affect the succession or regeneration of indigenous flora. Mignonette vine also has the ability to topple and kill small trees due to the weight of its growth and poses a problem in urban reserves and gardens, where it can become the dominant species. The current distribution of mignonette vine is scattered in localised, generally small infestations throughout the region. The number and size of these is increasing.

Our long term objective

Containment of mignonette vine in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of mignonette vine and, where practicable, reduce existing infestations in the Waikato region.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of mignonette vine.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed mignonette vine. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.37.1	The occupier shall destroy all mignonette vine on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.37.2	The occupier shall destroy all mignonette vine located 20m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor mignonette vine in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of mignonette vine to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of mignonette vine as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of mignonette vine in accordance with section 11.7 of the plan.

5.38 Mile-a-minute *(Dipogon lignosus)*

Photo: Trevor James

Photo: Weedbusters

Description

Mile-a-minute has delta-shaped leaves. Its flowers may be pink, white, lavender and white or reddish purple. It occurs at forest margins, open scrubland and roadsides and spreads via water and birds.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mile-a-minute is a vigorously growing climbing plant that threatens native habitats by smothering ground plants, shrubs and regenerating trees. It eventually takes over completely by shading out the plants underneath.

Our long term objective

Eradicate mile-a-minute from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of mile-a-minute in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of mile-a-minute undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed mile-a-minute. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor mile-a-minute in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of mile-a-minute to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of mile-a-minute, as appropriate, in accordance with section 11.4 of the plan.

5.39 Mistflower *(Ageratina riparia)*

Photos: Trevor James

Description

Mistflower is a sprawling perennial herb or small shrub, which grows to approximately 1m high. Its oval leaves are about 7cm long and 2cm wide and are serrated on the upper edges. It has white flowers that grow in small clusters off long stems. Mistflower seeds are dark brown to black with fine white hairs on the tips. Each plant can produce 10,000 to 100,000 seeds that are dispersed by wind or water.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mistflower is a major environmental weed in the Auckland and Northland regions and in the Thames-Coromandel district. It inhabits forest margins, clearings, wastelands, damp banks, wetlands, damp forests and especially stream sides. Small slips on river and stream edges are especially vulnerable to it.

Mistflower has the ability to invade forest floors and form total ground cover masses, even in unmodified forests. Mistflower prevents seedlings of most other species establishing, especially in riparian areas.

A regional strategy based around a collective biological control programme is seen as the most effective means of controlling the infestation levels in Northland, Auckland and Waikato regions. There are known sites of mistflower on the northern end of the Coromandel Peninsula, the border area of the Coromandel, the Kaimai Ranges and in the Hauraki district.

Our long term goals

Containment of mistflower in the Waikato region, except in the Thames-Coromandel district.

Our objective for this plan

Reduce the spread of mistflower in the Waikato region, except Thames-Coromandel district, for the duration of the plan.

Reduce to zero density by 2024 all known populations (as at 1 July 2014) of mistflower on coastal dunes in the Waikato region and, as practicable, reduce towards zero density any further infestations that are identified over the duration of the plan.

What we will measure

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of mistflower.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed mistflower. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor mistflower in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of mistflower to affected land occupiers and other interested parties in accordance with section 11.1 of the plan. Occupiers are asked to report infestations of mistflower to Waikato Regional Council to enable the biological control agents to be released at new sites.
Direct control	
	Waikato Regional Council will undertake direct control of mistflower as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council will undertake biological control of mistflower in accordance with section 11.7 of the plan.

5.40 Moth plant
(Araujia hortorum also known as *A. sericifera)*

Description

Moth plant is a fast-growing climber with choko-like fruit that exude milky sap when broken.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

Moth plant can smother and replace native species in disturbed or low-canopy forest, and in open lands. It is a serious weed in the neighbouring Auckland region, and the potential spread south along State Highway 1 into the Waikato region is a major concern. The milky, white sap causes skin irritation in susceptible people and the seeds are poisonous. Moth plant still has a limited distribution in the Waikato region but has the potential to become one of the region's most serious environmental weeds.

Our long term objective

Containment of moth plant in the Waikato region.

Our objective for this plan

Reduce the risk of spread of moth plant in the Waikato region and, where practicable, reduce existing infestations.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of moth plant.

Photo: Trevor James

Photo: Trevor James

Photo: John Barran

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed moth plant. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.40.1	The occupier shall destroy all moth plant on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.40.2	The occupier shall destroy all moth plant located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor moth plant in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of moth plant to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of moth plant as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of moth plant in accordance with section 11.7 of the plan.

5.41 Nassella tussock *(Nassella trichotoma)*, fine stemmed needle grass *(N. tenuissima* also known as Mexican feather grass) and Chilean needle grass *(N. neesiana)*

Nassella tenuissima
Photos: Trevor James

Description

Nassella tussock, fine stemmed needle grass and Chilean needle grass are vigorous perennial grasses with numerous fine and wiry leaves. Plants grow up to 1m high and across.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Nassella tussock, fine stemmed needle grass and Chilean needle grass are tolerant of many environmental conditions. They can all form a complete ground cover in pasture if left uncontrolled.

Our long term objective

Eradicate nassella tussock, fine stemmed needle grass and Chilean needle grass from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of nassella tussock, fine stemmed needle grass and Chilean needle grass in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of nassella tussock, fine stemmed needle grass and Chilean needle grass undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed nassella tussock, fine stemmed needle grass and Chilean needle grass. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor nassella tussock, fine stemmed needle grass and Chilean needle grass in the region, in accordance with section 11.2.1 of the strategy.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of nassella tussock, fine stemmed needle grass and Chilean needle grass to affected land occupiers and other interested parties in accordance with section 11.1 of the strategy.
Direct control	
	Waikato Regional Council will undertake direct control of nassella tussock, fine stemmed needle grass and Chilean needle grass as appropriate, in accordance with section 11.4 of the strategy.

5.42 Noogoora bur *(Xanthium strumarium)*

Description

Noogoora bur is an erect summer annual growing 1.5-3m high with a deep taproot and extensive root system. It prefers warm situations in temperate regions on highly fertile and disturbed soils. Several germinations occur after late spring and summer rain, or after irrigation. Noogoora bur is more aggressive and has a more extensive root system than its relative Bathurst bur *(Xanthium spinosum)*.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Noogoora bur seeds and seedlings are poisonous to all livestock (especially pigs and cattle), horses and poultry. Dry burs may cause discomfort and injury, particularly to sheep, and damage wool.

Noogoora bur occurs in the Waikato region in the Matamata-Piako and South Waikato districts. Infestations have been discovered in the Bay of Plenty region and this may have implications for the Waikato region.

Our long term objective

Eradicate noogoora bur from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of noogoora bur in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of noogoora bur undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed noogoora bur. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.42.1	No person shall move or allow to be moved any machinery or stock feed likely to be contaminated by noogoora bur.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor noogoora bur in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of noogoora bur to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of noogoora bur, as appropriate, in accordance with section 11.4 of the plan.

5.43 Old man's beard *(Clematis vitalba)*

Photo: Trevor James

Description

Old man's beard is a deciduous, woody, perennial climber that may reach 25m in height. Old man's beard has five leaflets per leaf and should not be confused with any native species of clematis, which usually have only three leaflets per leaf. It produces small greenish-white flowers from December to February followed by fluffy cream, pompom-shaped seed heads from March to September.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Old man's beard is generally now recognised as the most damaging alien climber in New Zealand. The plant is particularly troublesome in secondary growth or damaged indigenous forests where it will outgrow and eventually destroy supporting plant life. One plant can blanket an area up to 180m^2. There are infestations recorded across the region, mainly in the King Country, Hamilton and scattered sites in Waikato and Hauraki districts.

Our long term objective

Achieve zero density and prevent the spread of old man's beard in the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known infestations (as at 1 July 2014) of old man's beard in the Waikato region and, as practicable, reduce towards zero density any further infestations that are identified over the duration of the plan.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of old man's beard.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed old man's beard. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor old man's beard in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of old man's beard to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of old man's beard, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council will undertake biological control of old man's beard in accordance with section 11.7 of the plan.

5.44 Pampas: common pampas (*C. selloana*), purple pampas *(Cortaderia jubata)* and cultivars

Photos: Trevor James

Description

Common and purple pampas are both erect, tall, tussock-forming perennial grasses with razor-sharp leaf margins (hence the term 'cutty grass'). Pampas is often confused with native toetoe species. However, in general, toetoe flowers droop significantly, are creamy-yellow and emerge from October to January, whereas those of pampas emerge later, from February to April. The sheaths of toetoe (from which the leaves emerge in bunches at the base of the plant) are covered in a pure white wax, which is absent in pampas. Unlike in toetoe, the leaves of pampas are easily bent and torn, making it palatable to livestock.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Both pampas species (and cultivars) are very invasive, forming dense impenetrable stands. The ability of their seeds to reach distant open places quickly and blanket such areas with very rapid exclusive growth makes these plants a particular problem on road and rail sides and on any disturbed land (such as quarries, eroded hillsides and in young or regenerating forests), wetlands and coastal dune areas. Pampas inhibits the regeneration of native plant species. However, a science study undertaken with the support of Waikato Regional Council has shown that regional intervention in controlling pampas cannot be justified outside a specific eco-climatic zone, which excludes warmer coastal areas.

Our long term objective

Containment of pampas in less favourable growing (climatic) areas within the Waikato region.

Our objective for this plan

Reduce the risk of the spread of pampas in the Waikato region and, where practicable, reduce infestations within the red area shown in figure 3.

What we will measure

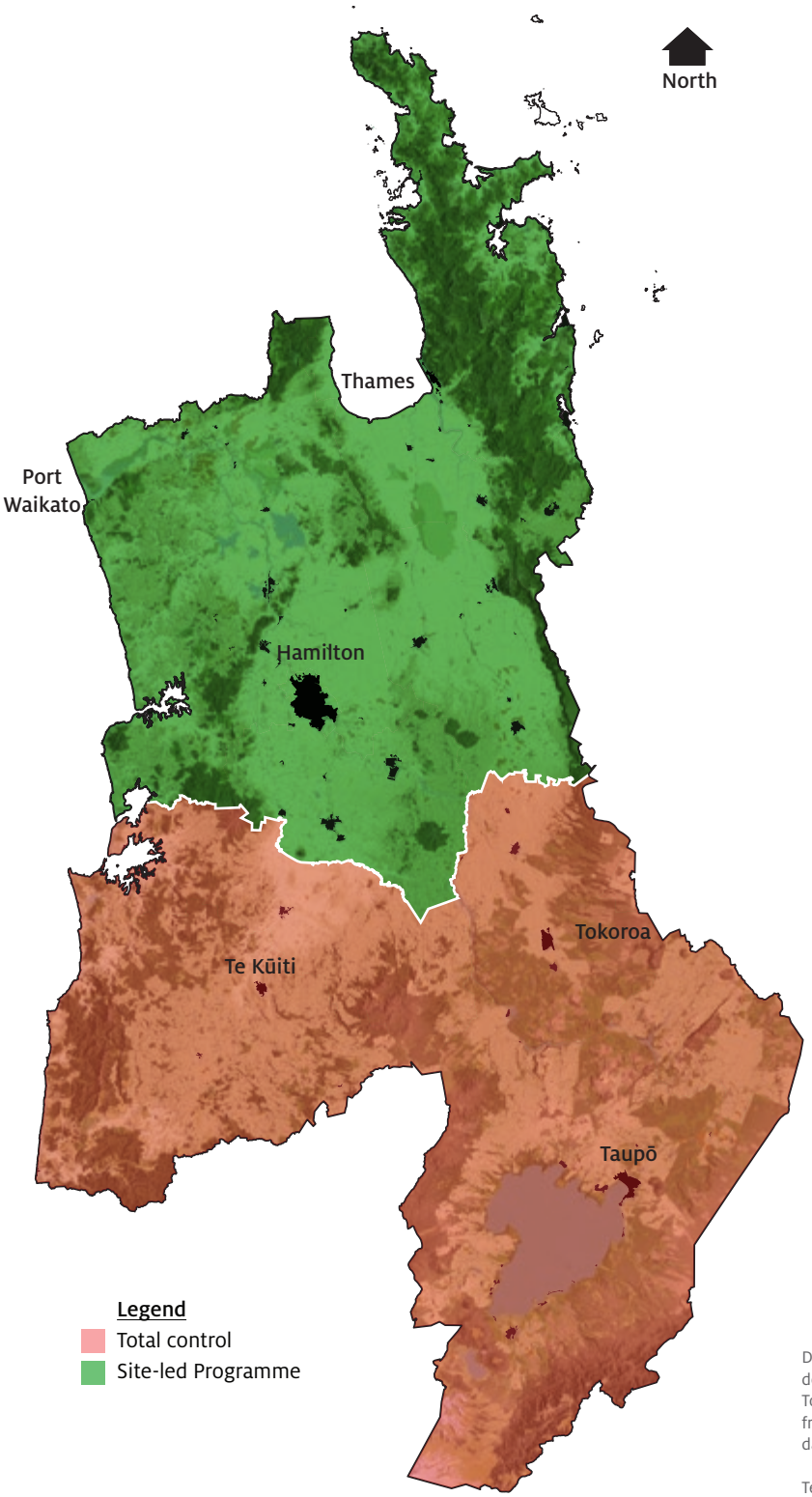
Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of pampas.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed any pampas species. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.44.1	The occupiers of quarries and transport corridors throughout the region shall destroy all pampas in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.44.2	The occupier of land within the coloured area shown in figure 3 below shall destroy all pampas on the land occupied. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.44.3	The occupier shall destroy all pampas located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor pampas in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of pampas to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of pampas, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of pampas in accordance with section 11.7 of the plan.

Figure 3: Map showing total control areas for pampas



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5.45 Privet *(Ligustrum species)*

Description

Privet is an evergreen shrub or tree with at least four species found in New Zealand. These include tree privet *(Ligustrum lucidum)*, Chinese privet *(Ligustrum sinense)*, Californian privet *(Ligustrum ovalifolium)* and common privet *(Ligustrum vulgare)*.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

The pollen and scent of privet is believed to contribute to respiratory disorders such as asthma. A complainants' survey carried out by Waikato Regional Council provided the basis for categorising privet as a public threat. However, research shows privet is not a strong allergen for most people. Given this, a positive allergy test is needed under this RPMP before the regional council can require a privet tree to be removed on health grounds.

Privet is also an environmental pest, but its short-lived seed bank (1-2 years) makes it relatively easy to control.

Chinese privet

Photos: Trevor James

Our long term objective

Reduce the adverse effects of privet in the Waikato region.

Our objective for this plan

For the duration of the plan:

- reduce adverse health effects to:
  - residents or work-place occupants affected by privet growing on neighbouring land
  - persons affected by privet growing in public places
- reduce the adverse effects of privet growing in environmentally important places.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control of privet.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed privet. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.45.1	The occupiers of quarries and transport corridors throughout the region shall destroy all privet in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.45.2	The occupier shall, if directed by an authorised person, destroy all privet on land occupied. Waikato Regional Council will only enforce rule 5.45.2 if the complaint is health-related (confirmation of a positive allergy test for privet from an approved medical laboratory will be required) and made in respect of: • an occupier residing in a dwelling, or a person required to work in a fixed workplace, in all cases less than 50m from the offending privet plant or plants • any person claiming to be affected by privet in public amenity areas (such as parks, reserves and playgrounds) including frequently used thoroughfares (such as alleyways). Where control is required under this enforcement policy, occupiers may prune and maintain privet hedges to prevent flowering, rather than remove the whole hedge. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
5.45.3	The occupier shall, if directed by an authorised person, destroy all privet on land occupied, except for hedges that are trimmed to prevent flowering, in the following circumstances: • within the areas comprised in the existing community initiatives at Tuakau, Whatawhata, Ōtorohanga, Te Kūiti, Pirongia, Kihikihi, Orini, Mangatarata, Te Aroha, Waihi and Paeroa • within any additional area established as a community initiative approved by the council. Community initiatives shall be established in the following manner: • a community representative shall first produce evidence to satisfy council that occupiers in a defined area have been consulted to establish majority agreement with the establishment of a community initiative • the council decides whether to approve the initiative.
Good neighbour rule	
5.45.4	The occupier shall destroy all privet as per plan rules 5.45.2 and 5.45.3 on land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule is an offence under section 69(5) and section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor privet control carried out pursuant to this plan in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of privet to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of privet in accordance with sections 11.4 of the plan where that is necessary to enhance areas of environmental significance.

5.46 Purple loosestrife *(Lythrum salicaria)*

Photos: Weedbusters

Description

Purple loosestrife is a perennial wetland herb that grows up to 2m in height then dies back to crowns in winter. It has pink-purple coloured flowers in dense terminal spikes. The stems are square in cross section. Leaves are arranged in opposite pairs and are lance shaped with rounded or heart shaped bases.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Purple loosestrife has been discovered in the South Waikato and near Hamilton, and is known in the neighbouring Manawatu-Whanganui region. It is one of the worst wetland invaders due to its capacity to displace all other plants in lowland wetlands.

Our long term objective

Eradicate purple loosestrife from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of purple loosestrife in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of purple loosestrife undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed purple loosestrife. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey purple loosestrife infestations wherever they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of purple loosestrife to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of purple loosestrife in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.47 Purple nutsedge/nutgrass *(Cyperus rotundus)*

Photos: Trevor James

Description

Purple nutsedge is an erect, perennial herb, which grows 20-50cm high. It has a deep extensive system of roots, tubers (nuts) and basal bulbs.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Purple nutsedge aggressively invades and competes with agricultural crops. More than 500 plants per square metre and 40 tonnes of rhizomes and tubers per hectare have been recorded in dense colonies. At these densities this pest can smother crops and all other plants and remove large amounts of moisture and nutrients from the soil. Dispersal occurs when tubers attach to cultivation equipment and are deposited elsewhere.

Our long term objective

Containment of infestations of purple nutsedge in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of infestations of purple nutsedge by agricultural machinery to uninfested areas in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may record compliance with the plan rule 5.47.2 for purple nutsedge.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed purple nutsedge. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.47.1 *5.47.2*	The occupier shall contain in situ or destroy purple nutsedge where it grows on the land occupied. No person shall move, or allow to be moved, cultivating/harvesting machinery, any organism, risk goods or other goods into or out of restricted places, as determined under section 130 of the Act, that may be contaminated with purple nutsedge, without the permission of an authorised person. A breach of these rules will create an offence under section 154O(14) of the Act and may incur penalties under section 157(1) of the Act. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.47.3	No person shall move, or allow to be moved, cultivating/harvesting machinery, any organism, risk goods or other goods into or out of a restricted place, as determined under section 130 of the Act, that may be contaminated with purple nutsedge, without the permission of an authorised person. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule is an offence under section 69(5) and under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor purple nutsedge in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of purple nutsedge to affected land occupiers and other interested parties in accordance with section 11.1 of the plan. Identification of the plant and education of agricultural contractors in the role their machinery might play in its unintentional distribution are features of this activity.

5.48 Ragwort
(Jacobaea vulgaris formerly known as *Senecio jacobaea)*

Photos: Trevor James

Description

Ragwort is an erect biennial or perennial daisy with characteristic masses of yellow flowers. It reproduces from crowns, roots and wind-borne seeds and commonly grows 45-60cm high.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Ragwort is an invasive pasture weed, although it is also commonly found in waste places, riparian margins, open forests and swamps. Once established, the plant can spread rapidly and invade clean pasture areas. Heavy infestations of ragwort will reduce pasture production, thereby reducing the carrying capacity of farmland. The consequential need to control the plant then imposes added farm production costs on the occupier. Ragwort is more apparent on dairying and drystock properties where it is unpalatable and harmful to cattle.

Our long term objective

Prevent the flowering and spread of ragwort in intensively farmed areas in the Waikato region.

Our objective for this plan

Reduce the adverse effects of ragwort on neighbouring properties in extensively farmed areas in the Waikato region by containing infestations for the duration of the plan.

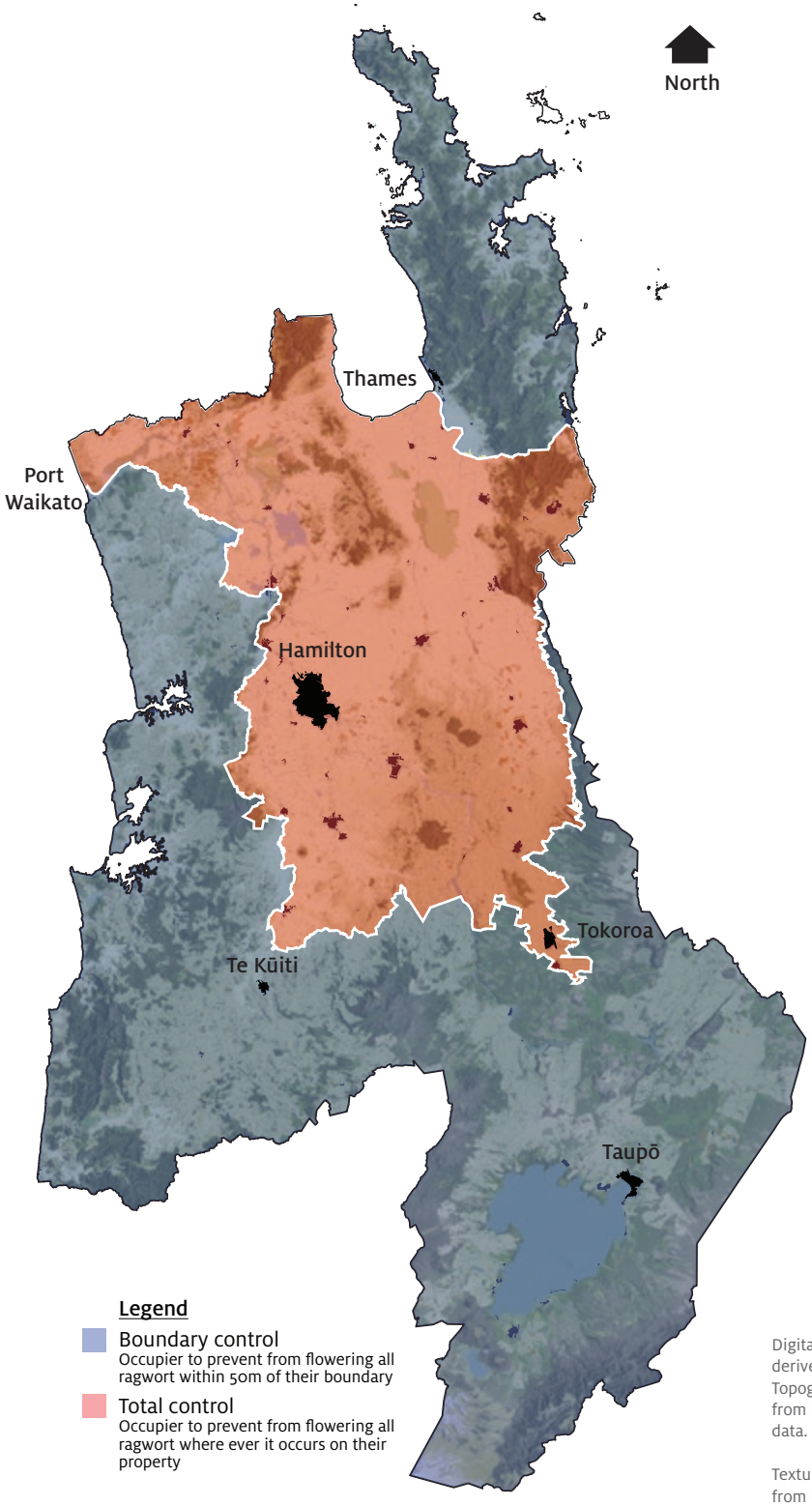
What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control for ragwort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed ragwort. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.48.1	The occupiers of quarries and transport corridors throughout the region shall prevent from flowering all ragwort in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.48.2	The occupier shall prevent from flowering all ragwort on land occupied, in areas, identified as 'total control' in figure 4.
5.48.3	On complaint from an adjoining landowner, the occupier on direction from an authorised person shall prevent from flowering of all ragwort within 50m of the property boundary on land occupied, in areas, identified as 'boundary control' in figure 4. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.48.4	The occupier land adjacent to a dairy farm or arable land shall, on direction from an authorised person, prevent from flowering, on complaint from an adjoining landowner, all ragwort within 50m of the property boundary on land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule is an offence under section 69(5) and under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor ragwort in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of ragwort to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.

Figure 4: Map showing total control and boundary control areas for ragwort



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5.49 Reed sweetgrass *(Glyceria maxima)*

Description

Reed sweetgrass is a large perennial grass with erect, broad, bright green leaves 30-40cm long and large open seed heads. It grows from rhizomes (underground stems) along the edges of both flowing and still water. The plants reproduce by seed or stem, or by rhizome fragments.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Reed sweetgrass is an aggressive wetland species that can form densely impenetrable stands continuously over large areas within wetlands and adjacent rivers and lakes. It is widespread in local populations throughout the Waikato region. It is largely absent from Lake Taupō, apart from small infestations at Turangi and Kinloch, which together occupy less than 1 hectare. This species has been included in the plan at the request of the Department of Conservation so that Waikato Regional Council can assist in preventing its spread through the Lake Taupō wetlands.

Photo: Trevor James

Photo: Auckland Council

Our long term objective

Ecological integrity of high value biodiversity sites, particularly around the edge of Lake Taupō, is maintained and enhanced.

Our objective for this plan

Reduce the adverse impacts of reed sweetgrass in wetlands around the edge of Lake Taupō and in rivers and streams leading to but not from the lake, targeting zero density.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed reed sweetgrass. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor reed sweetgrass in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of reed sweetgrass in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of reed sweetgrass in wetlands around the edge of, and in rivers and streams leading to, Lake Taupō, in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage, but only while the total area of all infestations present in those areas remains below 1 hectare.

5.50 Rhododendron ponticum *(Rhododendron ponticum)*

Photos: Trevor James

Description

Rhododendron ponticum is an invasive woody shrub of woodland environments. It will out-compete most native plants through rapid growth and the development of a thick canopy. Although there are many species of rhododendron, it is only rhododendron ponticum that appears to be a pest species. It is one of Britain's worst invasive woody weeds.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

There is one infestation of this species in the Waikato region. It occurs in Taupō and is currently controlled in conjunction with the Department of Conservation. In the British Isles this species is responsible for the widespread destruction of native habitats and animals. The leaves and roots are toxic to humans and animals, and it produces toxic soil that can only be restored by removal.

Our long term objective

Eradicate all wild populations of rhododendron ponticum from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of rhododendron ponticum in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of rhododendron ponticum undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed rhododendron ponticum. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey infestations of rhododendron ponticum where they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of rhododendron ponticum to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of rhododendron ponticum in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.51 Royal fern *(Osmunda regalis)*

Photos: Weedbusters

Description

Royal fern is a deciduous fern with rhizomes that form a short woody trunk up to 1.5m high, bearing large fronds up to 3m long and 75cm wide. The fronds are feather-like, subdivided twice, yellow-green and tough. Its spores are produced on brown fertile fronds resembling tiny bunches of grapes. They may have green leaflets towards their bases. Plants die back to the woody trunk in winter.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Royal fern can naturalise and form dense colonies in a range of wetland types and is well established in northern parts of the Waikato. It prefers disturbed areas and sites under the shade of willows and/or manuka. It displaces other small-stature native wetland plants.

Our long term objective

Ecological integrity of wetland ecosystems at high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of royal fern populations on wetland habitats at high value biodiversity sites, targeting zero density.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed royal fern. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.51.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all royal fern located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor royal fern in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of royal fern to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of royal fern in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.52 Sagittaria (all *Sagittaria* species except *S. subulata* in Lake Waahi only)

Description

These sagittaria species are emergent aquatic or wetland herbs which may grow to 1m tall. They are very fast growing, mature quickly and produce widely-dispersed, frost-hardy seeds within six months.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Sagittaria species generally displace native species. They may also impede water flow, block waterways and contribute to flooding and siltation. They typically occur in flowing or still shallow water, marshes, swamps and streams. Seeds are spread by water flow and possibly waterfowl. Sagittaria escapes from ponds in flood. It is also spread through intentional planting and by contaminated diggers and livestock.

Sagittaria platyphylla occurs at Waikawau and Colville on the Coromandel Peninsula. An infestation at Whenuakite is either *S. sagittifolia*, or *latifolia*. *Sagittaria subulata* is widespread in Lake Waahi, but is smaller and has less impact, so is excluded from this plan.

Our long term objective

Eradicate sagittaria species (except *S. subulata* in Lake Waahi only) from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of sagittaria in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of sagittaria undertaken.

Sagittaria platyphylla
Photo: Trevor James

Sagittaria platyphylla
Photo: Trevor James

Sagittaria montevidensis
Photo: Auckland Council

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed any sagittaria species. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will survey infestations of sagittaria species (except S. *subulata* in Lake Waahi only) where they occur in the region to gather information on their effects and distribution, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of sagittaria species to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of sagittaria species (except S. *subulata* in Lake Waahi only) in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.53 Saltwater paspalum *(Paspalum vaginatum)*

Photos: Trevor James

Description

Saltwater paspalum is a perennial grass that forms dense mats along the margins of tidal flats or on sandy or gravel beaches. It is also known to spread into adjacent pasture and coastal dunes, but is unlikely to out-compete other plants outside of a saline environment. *Paspalum vaginatum* should not be mistaken for the two native grasses *Zoysia minima* and *Z. pauciflora*, which are also found in coastal situations and which have a similar morphology.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

In New Zealand estuaries saltwater paspalum invades and changes the composition and structure of native ecosystems. As a result, it can reduce or exclude feeding and roosting sites for birds, and may alter fish spawning and feeding grounds. It can also change estuarine hydrology by accumulating sediment. In the Waikato region, saltwater paspalum is well established along the Coromandel Peninsula, in the northern Waikato, on outlying islands and in the Raglan harbour. There are smaller infestations in Kawhia and Aotea harbours.

Our long term objective

Ecological integrity of estuarine and wetland habitats at high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Prevent the spread and minimise the adverse impacts of saltwater paspalum at high value biodiversity sites throughout the Waikato region.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed saltwater paspalum. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.53.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all saltwater paspalum in the area that has been identified as the source of the impact on an adjacent or nearby high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor saltwater paspalum in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of saltwater paspalum to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of saltwater paspalum in accordance with section 11.4 of the plan.

5.54 Sea spurge *(Euphorbia paralias)*

Photos: Trevor James

Description

Sea spurge is a hardy European shrub that thrives in sand dunes. It has multiple stems that are often reddish at the base, and its spiky, tightly-packed blue/green leaves are 4-20mm long and 1-16mm wide. Green flowers bloom at the stem tips from September to May and the flower stems die off each year. The milky sap that oozes from broken stems is toxic to humans and animals. The plants grow to about 1m tall in dense clusters.

Management category

Exclusion	**Eradication (MPI-led)**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Sea spurge is a beach weed that has been found at a beach near Aotea Harbour in the Waikato. It may also be at other beaches. This invasive weed would seriously impact on our coastal environments if it became established.

Sea spurge infestations have caused major environmental problems at many Australian beaches by displacing native plants and changing natural patterns of sand movement. It is likely to have arrived on ocean currents from Australia.

Sea spurge at the Aotea site is now the subject of an eradication programme being carried out by the Ministry for Primary Industries (MPI) and Waikato Regional Council.

Our long term objective

In conjunction with MPI as lead agency, eradicate sea spurge from the Waikato region.

Our objective for this plan

In conjunction with MPI as lead agency, reduce to zero density by 2024 all known and new infestations of sea spurge in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites for sea spurge.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed sea spurge. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor sea spurge in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of sea spurge to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	MPI and/or Waikato Regional Council will undertake direct control as necessary.

5.55 Senegal tea *(Gymnocoronis spilanthoides)*

Photos: Trevor James

Description

Senegal tea is a semi-aquatic perennial herb which grows to 1.5m. It has dark green leaves with serrated margins which are arranged in opposite pairs. As stems mature they become hollow and six-sided. Whitish flowers with many florets, resembling 'pom poms', are produced over summer.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Senegal tea is an extremely aggressive freshwater weed that inhabits wetlands, ponds and streams. It forms dense floating mats, which can quickly cover waterways or wetland areas causing a number of serious adverse effects. It has the ability to exclude submerged native plants. By modifying habitats and smothering other useful species, Senegal tea may displace traditional food sources of value to Māori. It may also impede water flow and interfere with water use including navigation and recreational activities.

Our long term objective

Eradicate Senegal tea from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of Senegal tea in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of Senegal tea undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed Senegal tea. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor Senegal tea in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Senegal tea to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of Senegal tea, as appropriate, in accordance with section 11.4 of the plan.

5.56 Spartina (all *Spartina* species and hybrids)

Photos: Trevor James

Description

Spartina is a robust erect grass that grows to 1m tall. It has massive root systems with short fleshy rhizomes. Alternate leaves are wide and ribbed. Flowers are produced in a head of short flattened spikelets. Two species of spartina are present in the Waikato region, *S. alterniflora* and *S. anglica*.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Spartina is capable of taking over large areas of estuarine habitat. The resultant loss of natural habitat (for wading birds and fish spawning sites), recreational fisheries and seafood sources for Māori would have serious consequences for the region, although these have not been quantified. Excessive growth can cause navigation problems.

Under section 70(2)(k) of the Act, the Department of Conservation (DOC) is the lead management agency for the control of spartina. The majority of spartina infestations occur on public conservation land in the coastal marine area, with some small infestations on rateable land.

Our long term objective

Eradicate spartina from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of spartina in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of spartina undertaken.

Means of achievement

Statutory obligation	
5.56.1	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed spartina species or hybrids. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	DOC will monitor spartina in the region, in accordance with section 11.2.1 of the strategy.
Information and advice	
	DOC and Waikato Regional Council will jointly provide advice and information on the threats of spartina to affected land occupiers, in accordance with section 11.1 of the strategy.
Direct control	
	DOC will undertake direct control of spartina , as agreed in subsequent operational plans. Waikato Regional Council will negotiate an annual contribution towards the control costs for any given year. Waikato Regional Council will also consider undertaking direct control of spartina, as appropriate, in accordance with section 11.4 of the strategy.

5.57 Strawberry dogwood, also known as Himalayan dogwood *(Cornus capitata)*

Photos: Weedbusters

Description

Strawberry dogwood is a bushy evergreen tree that can grow up to 6m tall. It has oval grey-green leaves that taper to a long point, are paler underneath, and densely covered in fine hairs. The pale yellow flowers develop from January to February and then ripen into red, strawberry-like bird-dispersed fruit in March to April.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Strawberry dogwood grows rapidly, matures quickly and can produce a large number of seeds that are widely dispersed by birds. It tolerates harsh conditions, such as drought and shade, and creates dense thickets through a system of underground stems (e.g. suckering).

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of strawberry dogwood at high value biodiversity sites, targeting zero density.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed strawberry dogwood. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.57.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all strawberry dogwood located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor strawberry dogwood in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of strawberry dogwood to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of strawberry dogwood in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.58 Thistle: nodding *(Carduus nutans)* and plumeless *(C. acanthoides)*

Description

Nodding and plumeless thistles are biennial plants. Nodding thistle has a large purple flower head which droops or 'nods' when mature. Plumeless thistle is similar but grows taller than nodding thistle (up to 2m) and has smaller flower heads.

Management category

Exclusion	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Both thistles are extremely invasive pasture plants which, if not controlled, form dense stands that obstruct livestock movement and inhibit and suppress the growth of desirable pasture species.

Our long term objective

Prevent the flowering and spread of nodding and plumeless thistles in intensively farmed areas in the Waikato region.

Our objective for this plan

Reduce the adverse effects of nodding and plumeless thistles on neighbouring properties in extensively farmed areas in the Waikato region by containing infestations for the duration of the plan.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received and number of sites programmed for control of nodding and plumeless thistles.

The council intends to reconsider the options for managing thistles in two years. During this time more information will be collected on the cost and effectiveness of the total control rule.

Plumeless thistle

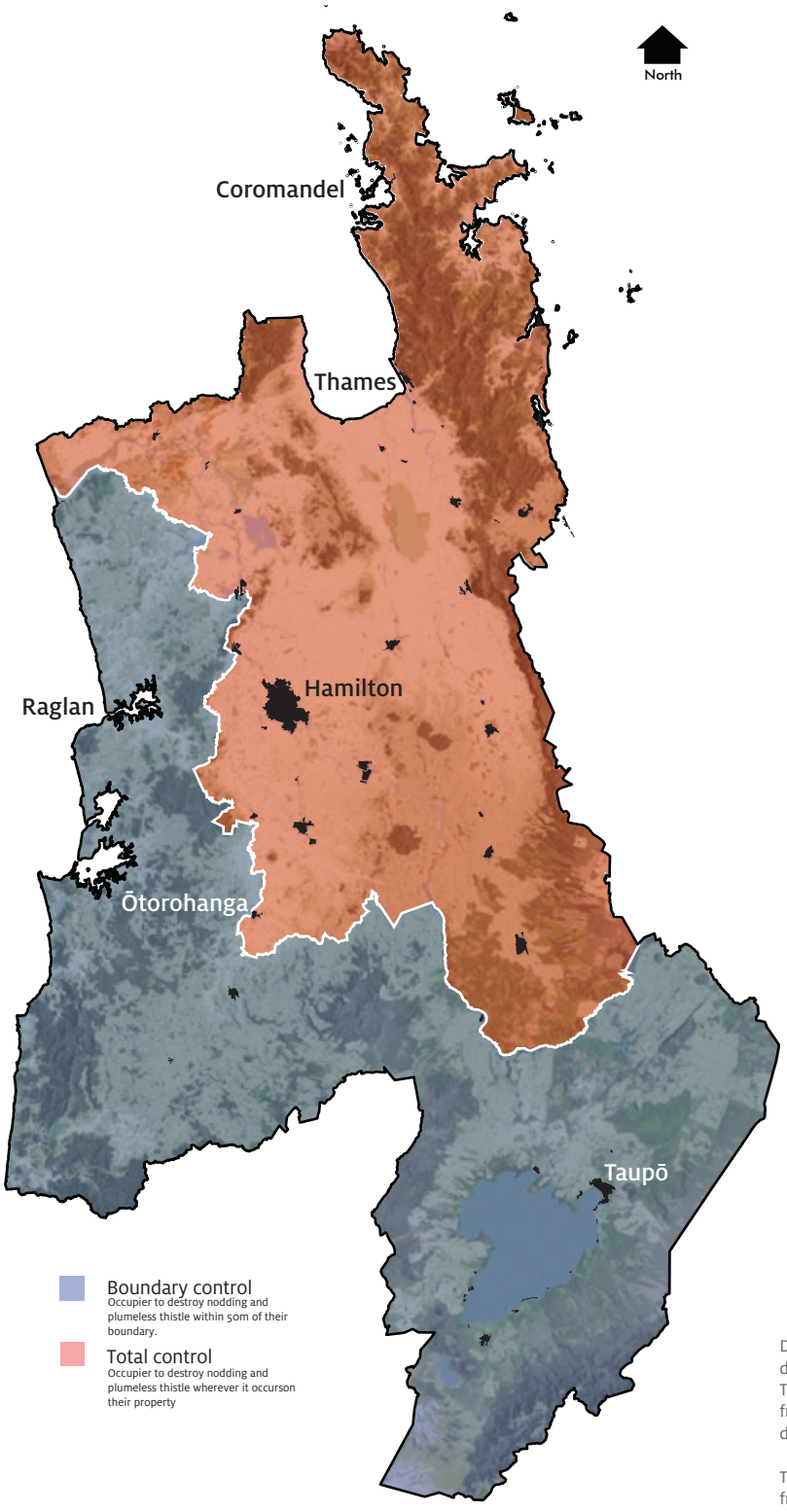
Plumeless thistle

Nodding thistle
Photos: Trevor James

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed nodding and plumeless thistle. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.58.1	The occupiers of quarries and transport corridors throughout the region shall prevent from flowering all nodding and plumeless thistle in quarries and on transport corridors on land occupied. For property that is part of the national rail corridor, this rule is subject to the process requirements summarised in section 7.2.1.
5.58.2	The occupier shall prevent from flowering all nodding and plumeless thistle on land occupied, in areas, identified as 'total control' in figure 5. On complaint from an adjoining landowner, the occupier, on direction from an authorised person, shall prevent from flowering all nodding and plumeless thistle within 50m of the property boundary on land occupied, in areas, identified as 'boundary control' in figure 5. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.58.3	The occupier shall prevent from flowering, on complaint from an adjoining landowner, all nodding and plumeless thistle located 50m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule is an offence under section 69(5) and under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor nodding and plumeless thistle in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of nodding and plumeless thistle to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Biological control	
	Waikato Regional Council will undertake biological control of nodding and plumeless thistle in accordance with section 11.7 of the plan.

Figure 5: Map showing total control and boundary control areas for nodding and plumeless thistle



5.59 Thistle: variegated *(Silybum marianum)*

Photo: Trevor James

Description

Variegated thistle is a very conspicuous spiny biennial. It is easily recognised by cream marks on its leaves, which give it a variegated or 'blotchy' appearance. This plant may reach 2m in diameter.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Variegated thistle grows best on high fertility soils and may be found in pastures. It can be poisonous to cattle and, to a lesser extent, sheep. Its broad leaves also smother pasture to provide a favourable site for the next crop of thistles. This reduces the carrying capacity of agricultural land. The consequential need to control the plant imposes added farm production costs on the occupier. The historic infestations of variegated thistle are at Aria, Te Akau and Pairere.

Our long term objective

Eradicate variegated thistle from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of variegated thistle in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of variegated thistle undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed variegated thistle. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor variegated thistle in the region, in accordance with section 11.2.1 of the strategy.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of variegated thistle to affected land occupiers and other interested parties in accordance with section 11.1 of the strategy.
Direct control	
	Waikato Regional Council will undertake direct control of variegated thistle, as appropriate, in accordance with section 11.4 of the strategy.

5.60 Tutsan
(Hypericum androsaemum)

Photo: Weedbusters

Description

Tutsan is a small perennial, semi-evergreen shrub which grows to 1.5m high. Leaves are oval, up to 100mm long, without a stalk and usually opposite. Tutsan has pale yellow terminal flower bunches which appear from November to February. Round fruit are up to 10mm and are initially coloured red then become black. It is common on roadsides, banks and disturbed areas.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Tutsan has the capacity to form extensive patches exceeding 1 hectare in size. Its dense cover of branches and rotting leaves can smother existing low growing plant communities and seriously inhibit regeneration (a semi-matting effect). It suppresses plant regeneration and infests forest communities under light shade. Native plant species of rocklands and steep banks may be heavily impacted.

Tutsan is spread by birds as well as soil disturbance. It invades regenerating sites, disturbed land, tussock land, riparian areas, farmland and roadsides. In the Waikato region it appears to be spread via roadside mowing.

Tutsan is a very serious threat to productive land, favouring marginal land and higher rainfall areas. Tutsan is non-toxic but is unpalatable to stock and can quickly spread over large areas. Total control may require long term management to contain and reduce its spread.

Our long term objective

Containment of infestations of tutsan in the Waikato region.

Our objective for this plan

Reduce the risk of spread of tutsan in the Waikato region, and reduce existing infestations where practicable.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of tutsan.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed tutsan. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.60.1	The occupier shall destroy all tutsan on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.60.2	The occupier shall destroy all tutsan located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor tutsan in the region in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of tutsan to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of tutsan, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of tutsan in accordance with section 11.7 of the plan.

5.61 Velvet leaf *(Abutilon theophrasti)*

Description

Velvet leaf, a member of the mallow family, is an aggressive annual broad-leaved herb. It grows 1-2.5m tall – higher than the maize plants among which it is often found. Velvet leaf flowers from spring to autumn, producing a capsule (similar to a pod) that consists of a cup-like ring formed by 12 to 15 woody segments and is roughly 2.5cm in diameter. The segments remain intact at maturity and each segment releases 1-3 seeds through a vertical slit on the outer face of the capsule. The seed capsules are large, holding distinctive black seeds.

Seeds are spread by water, farm machinery when harvesting grain (e.g. maize), through livestock and as a contaminant of grain. It is primarily a weed of crops.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Velvet leaf is a recent weed incursion in the Waikato. It is one of the most damaging weeds to corn and maize crops, aggressively competing with them for nutrients and water, and thereby lowering crop yield. Its seedlings are vigorous, and the plant grows rapidly in the first few months after germination.

It is regarded as the United States' worst cropping weed. The impacts on pasture and livestock in New Zealand are currently unknown. It has been found in crops, maize silage and in dairy pastures where maize silage was fed. Velvet leaf has been found on one farm in north Waikato and six farms in the Waihou area.

Our long term objective

Containment of infestations of velvet leaf in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of velvet leaf and, where practicable, reduce infestations of velvet leaf in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of velvet leaf.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed velvet leaf. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.61.1	The occupier shall destroy all velvet leaf on the land occupied. No person shall move, or allow to be moved, any velvet leaf propagules from a contaminated property. No person shall move, or allow to be moved, cultivating/harvesting machinery, any organism, risk goods or other goods into or out of a property that may be contaminated with velvet leaf, without the permission of an authorised person. A breach of these rules will create an offence under section 154O(14) of the Act and may incur penalties under section 157(1) of the Act. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan. Waikato Regional Council may use the provisions of section 130 of the Biosecurity Act 1993 in the management of this pest plant.
Good neighbour rule	
5.61.2	The occupier shall not move, or allow to be moved, any velvet leaf propagules from a contaminated property. The occupier shall not move, or allow to be moved, cultivating/harvesting machinery, any organism, risk goods or other goods into or out of a property that may be contaminated with velvet leaf, without the permission of an authorised person. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Monitoring	
	Waikato Regional Council will monitor velvet leaf in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of velvet leaf to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of velvet leaf infestations as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of velvet leaf in accordance with section 11.7 of the plan.

5.62 Water poppy *(Hydrocleys nymphoides)*

Photos: Trevor James

Description

Water poppy is a water lily-like perennial plant. It has tufts of thick, shining, floating leaves and a distinctive solitary yellow flower. Water poppy grows rapidly in warm, well-lit water bodies to depths of 2m.

Management category

Exclusion	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Water poppy can completely choke streams, cause flooding and exclude native species. It is found at Te Poi, Tokanui and Matamata, and on the Coromandel Peninsula.

Our long term objective

Eradicate water poppy from the Waikato region.

Our objective for this plan

Reduce to zero density by 2024 all known and new infestations of water poppy in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites and measure the outcome of any direct control of water poppy undertaken.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed water poppy. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
	The good neighbour rule will not apply.
Monitoring	
	Waikato Regional Council will monitor water poppy in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Provide advice and information on the threats of water poppy to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council will undertake direct control of water poppy in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.63 White bryony *(Bryonia cretica)*

Photo: Trevor James

Description

White bryony is a perennial vine that can reach 6m tall. The leaves resemble those of cucumber. It has large fleshy roots in the form of a persistent tuber.

Management category

Exclusion	**Eradication (MPI-led)**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

White bryony has the potential to cause substantial environmental damage in New Zealand. It can smother small trees and shrubs and exclude all other species. It is easily dispersed and may be difficult to kill due to its persistent tuber. Its dense growth habit may also impede recreational access to areas. It has been likened to having the same potential as old man's beard.

White bryony has a limited distribution in the region. It occurs in two locations in the Waitomo district (Aria and Mokauiti), where control has been carried out conjointly with the Department of Conservation. The species is now subject to a national programme for eradication being carried out by the Ministry for Primary Industries (MPI).

Our long term objective

In conjunction with MPI as lead agency, eradicate white bryony from the Waikato region.

Our objective for this plan

In conjunction with MPI as lead agency, reduce to zero density by 2024 all known and new infestations of white bryony in the Waikato region.

What we will measure

Waikato Regional Council may carry out surveillance at high risk sites for white bryony.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed white bryony. A breach of this obligation will create an offence under section 154O(1) of the Act.
Monitoring	
	Waikato Regional Council will monitor white bryony in the region, in accordance with section 11.2.1 of the plan.
Good neighbour rule	
	The good neighbour rule will not apply.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of white bryony to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	MPI is the led agency under the National Interest Pest Responses (NIPR).

5.64 Wild ginger: kahili ginger (*Hedychium gardnerianum)* and yellow ginger (*H. flavescens)*

Description

Kahili ginger *(Hedychium gardnerianum)* is a native of India and Nepal. The flowers are lemon-yellow with red stamens and are seen during the late summer and early autumn. Yellow ginger *(H. Flavescens)* is a native of India and Madagascar. The flowers are cream coloured and are seen in late autumn and early winter. Both varieties can grow up to 2m or more and produce massive branching rhizomes.

Photo: Trevor James

Photo: Weedbusters

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Kahili ginger and yellow ginger are extremely difficult to control. Once established, the tough rhizomes form a solid web over large areas, smothering and replacing understorey species and seedlings.

Our long term objective

Containment of infestations of wild ginger in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of wild ginger in the Waikato region and, where practicable, reduce existing infestations.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of kahili ginger and yellow ginger.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed wild ginger. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.64.1	The occupier shall destroy all wild ginger on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.64.2	The occupier shall destroy all wild ginger located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor wild ginger in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of wild ginger to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of wild ginger, as appropriate, in accordance with section 11.4 of the plan, alone or in conjunction with the Department of Conservation.
Biological control	
	Waikato Regional Council may undertake biological control of wild ginger in accordance with section 11.7 of the plan.

5.65 Wild kiwifruit *(Actinidia spp.)*

Photos: Trevor James

Description

The term 'wild', in relation to kiwifruit, means any kiwifruit vine that has established by natural means, or any kiwifruit vine that has not been purposefully planted.

Wild kiwifruit is a vigorous hairy climber. Its leaves are large and broadly oval with white hairs underneath and red hairs on their veins. Its small white flower clusters appear between October and December. The fruit are typically small kiwifruits.

Wild kiwifruit can form a mound of tangled stems up to 3m high, or grow up and over native and exotic trees.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

If left uncontrolled wild kiwifruit can strangle trees, causing them to die or fall, to the extent that forests and native bush might soon disappear in parts of our region. The true distribution of wild kiwifruit in the Waikato region is unknown, although small infestations have been found throughout.

Kiwifruit plants also act as a vector for a bacterium called *Pseudomonas syringae pv. Actinidiae* (Psa) that infects all varieties of kiwifruit, causing dieback or in some instances the death of kiwifruit vines. This disease has serious economic implications for the kiwifruit industry and the economies of areas that are heavily reliant on it for jobs and income.

Wild kiwifruit is a serious pest in the Bay of Plenty due to large-scale commercial production, the dumping of reject fruit and reject fruit being used as stock feed. The fruit are an easily accessible food for birds, rats and possums. Each fruit has about 1100 seeds, which are easily spread from droppings wherever birds fly.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

To prevent spread and minimise the adverse impacts of wild kiwifruit at high value biodiversity sites throughout the Waikato region.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
5.65.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all wild kiwifruit that are located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor wild kiwifruit in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of wild kiwifruit to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of wild kiwifruit, where there are threats to biodiversity values, in accordance with section 11.4 of the plan, in order to remove the risks of widespread establishment at an early stage. Control may be done in conjunction with the kiwifruit industry in places where the objectives of the council and the industry overlap.

5.66 Wilding conifers

Description

The term 'wilding' in relation to conifers, means any non-native conifer tree established by natural means, or any conifer tree that has not been purposefully planted.

Conifers are cone-bearing, woody seed plants. They belong to the group called gymnosperms, which appeared before flowering plants. In most temperate and tropical forests conifers have been superseded by flowering plants, but in New Zealand native conifers like kauri and kahikatea dominate rainforests and some shrublands.

Introduced conifers include pines, firs and spruces. These conifers are of great commercial value in New Zealand.

Photo: Trevor James

Photo: Kevin Loe

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Conifers are planted in the Waikato region mainly for production forestry, shelterbelts and erosion control by industry, government agencies and private individuals. The production forestry industry makes a very important contribution to the economy of the Waikato region, but wind-dispersed seed may result in unplanned and unmanaged wilding trees that grow much faster than native species. Productive farmland and recreational opportunities such as mountain biking, horse riding and tramping can be threatened by heavy infestations of wilding conifers. In particular, wilding conifers obscure scenic views, decrease production of pastoral farms, increase the risk of fire, reduce stream water yield in flow-sensitive catchments, displace threatened habitats and species, and impact on cultural and historic sites.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

To prevent spread and minimise the adverse impacts of wilding conifers at high value biodiversity sites throughout the Waikato region.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
5.66.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all wilding conifers located 100m or less from a high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor wilding conifers in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of wilding conifers to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of wilding conifers in accordance with section 11.4 of the plan in order to remove the risks of widespread establishment at an early stage.

5.67 Willow: grey *(Salix cinerea)* and crack *(Salix fragilis)*

Description

Grey willow is a shrub or small tree that can grow to 7m tall. Crack willow is larger, growing to 25m in height. Both species are deciduous. Spread of both willows is by stem fragments carried by water movement, which readily produce new plants. Grey willow also spreads by seed or suckering from the roots.

Management category

Exclusion	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Both willows can replace native species in wetlands and form vast dense stands and thickets. They can cause blockages, flooding and structural change in waterways, which leads to erosion and increased sedimentation.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

To prevent spread and minimise the adverse impacts of grey and crack willow at high value biodiversity sites throughout the Waikato region.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Photos: Trevor James

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed grey or crack willow. A breach of this obligation will create an offence under section 154O(1) of the Act.
Good neighbour rule	
5.67.1	The occupier shall, unless otherwise agreed upon between the parties, destroy all grey or crack willow in the area that has been identified as the source of the impact on an adjacent or nearby high value biodiversity site. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor grey and crack willow in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of grey and crack willow to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of grey and crack willow, as appropriate, in accordance with section 11.4 of the plan. The Department of Conservation may also consider undertaking direct control of grey or crack willow on Crown land that it administers, on a case by case basis.

5.68 Woolly nightshade *(Solanum mauritianum)*

Description

Woolly nightshade is an aggressive, rapidly growing shrub or tree reaching up to 9m in height. Its oval leaves are large, grey-green and covered with furry hairs. It has a strong kerosene-like smell, especially when leaves are rubbed or crushed. Flowers are purple with yellow centres and grow in clusters at the ends of branches. Berries ripen to yellow.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

In large numbers woolly nightshade can rapidly invade poorly managed land and forest margins, where it can totally exclude regeneration of native plants. Dense stands can invade pasture on poor soils, especially in hill country, and impede livestock movement. It can also cause skin irritation and respiratory problems for some people. All parts of the plant are thought to be toxic to livestock.

Woolly nightshade is now well established in many areas north of Taupō. Sites occur in all parts of the region with the densest infestations in the Port Waikato area and on the Coromandel Peninsula.

Our long term objective

Reduce the adverse effects of woolly nightshade and achieve containment of infestations of woolly nightshade in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of woolly nightshade in the Waikato region and, where practicable, reduce existing infestations.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of woolly nightshade.

Photo: Trevor James

Photo: Trevor James

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed woolly nightshade. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.68.1	The occupier shall destroy all woolly nightshade on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.68.2	The occupier shall destroy all woolly nightshade located 100m or less from the boundary of land occupied. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is an offence under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor woolly nightshade in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of woolly nightshade to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of woolly nightshade, as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of woolly nightshade in accordance with section 11.7 of the plan.

5.69 Yellow flag iris *(Iris pseudacorus)*

Photo: Trevor James

Description

Yellow flag iris is a leafy land-based or wetland iris that grows up to 2m. It produces large yellow flowers from September to December. It typically inhabits the margins of lakes, rivers or drains and is distinguished by conspicuous yellow flowers.

Management category

Exclusion	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Yellow flag iris forms dense stands that can displace native species and restrict access for recreational activities. Most infestations are the result of deliberate planting, but it also spreads by seed or by fragmentation of root rhizomes. It can also invade and displace low-lying pasture, and is toxic to livestock.

The largest established stands of yellow flag iris are on both sides of the Waikato River, particularly downstream of Hamilton, but this species is also establishing elsewhere.

Our long term objective

Containment of infestations of yellow flag iris in the Waikato region.

Our objective for this plan

Reduce the risk of the spread of yellow flag iris and, where practicable, reduce infestations of yellow flag iris in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council may monitor and record compliance with the plan rules.

Waikato Regional Council may record any outliers found and the outcome of any discretionary direct control of yellow flag iris.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed yellow flag iris. A breach of this obligation will create an offence under section 154O(1) of the Act.
Plan rules	
5.69.1	The occupier shall destroy all yellow flag iris on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
5.69.2	The occupier shall destroy all yellow flag iris in the area that has been identified as the source of the impact on an adjacent or nearby property. This rule is subject to the process requirements listed in section 4.2.3. A breach of this rule contravenes section 69(5) and is a breach under section 154N(19) of the Biosecurity Act 1993.
Monitoring	
	Waikato Regional Council will monitor yellow flag iris in the region, in accordance with section 11.2.1 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of yellow flag iris to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Direct control	
	Waikato Regional Council may undertake direct control of yellow flag iris infestations as appropriate, in accordance with section 11.4 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of yellow flag iris in accordance with section 11.7 of the plan.

5.70 Advisory plants

Description

This section includes a number of plants regarded as nuisance or weedy which are found throughout the region. Some have been established for a considerable period. Their effects are generally moderate to major, but it would be impractical and too costly for Waikato Regional Council to undertake direct region wide control of them, or place obligations on land occupiers to control them.

The plants listed in this section are undesirable in many circumstances, but they are not declared as official pests under the Biosecurity Act. Their 'advisory' status indicates that they can have unwanted effects that land occupiers should be aware of. These plants comprise a mix of forest invasive climbing vines, ground cover plants, production pests, aquatic plants and wetland colonisers. A number of them are banned from sale, propagation and distribution under sections 52 and 53 of the Biosecurity Act and managed through the National Pest Plant Accord. Many other plants could potentially be added to the list as undesirable in some circumstances. This list is limited to those that the council considers to be most relevant to members of the public.

Many individuals and groups control these plants around the region, particularly where there are only isolated infestations. Waikato Regional Council wants to support these efforts by providing the information here. The council may also assist with direct control of these and other plants in areas of high conservation value.

Our long term objective

To minimise adverse impacts of advisory pests at high value biodiversity sites throughout the Waikato region.

Our objective for this plan

Raise awareness and promote voluntary control of advisory pest plants. As practicable, reduce the establishment and spread of advisory plants into high value biodiversity sites.

What we will measure

Waikato Regional Council may record the number of enquires/complaints received.

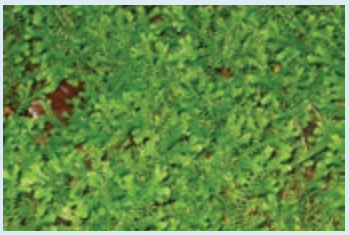
At any high value biodiversity site where control of an advisory pest is taking place, Waikato Regional Council will record the effort invested and size of infestation.

Means of achievement

Good neighbour rule	
	The good neighbour rule will not apply.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of advisory plants to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Biological control	
	Waikato Regional Council may undertake biological control of advisory plants in accordance with section 11.7 of the plan.

Advisory plants key

- Flower
- Fruit/ seed
- Leaf
- Size

Plant name	Description	Photo
African clubmoss *(Selaginella kraussiana)*	No flowers Spore cones rounded, 10mm long Small leaves in 4 rows on stem Ground cover; long, fine aerial roots	 Photo: Weedbusters
Production threat	**Environmental threat**	Public threat
Agapanthus *(Agapanthus praecox)*	Blue or white (Dec-Feb) Black seed also spread from fragments Long strap-like green leaves <60cm high from rhizome	 Photo: Weedbusters
Production threat	**Environmental threat**	Public threat
Apple of Peru/shoo-fly plant *(Nicandra physalodes)*	Blue or pale violet bell-shaped Brown berries 1-2cm in diameter Green oval up to 17cm long Annual <60m	 Photo: Weedbusters
Production threat	**Environmental threat**	Public threat
Aristea *(Aristea ecklonii)* An 'unwanted organism' as defined in the Biosecurity Act 1993. Nationally banned from sale in accordance with section 15.4.1 of this plan.	Deep blue flowers in bright sunlight (summer) Seed capsule 2cm long, grooved; seeds flat, dark red-brown Stiff, upright, sword-shaped leaves with parallel veins, folded in reddish-purple based fans Iris-like <45cm tall	 Photo: Weedbusters
Production threat	**Environmental threat**	Public threat
Arum lily *(Zantedeschia aethiopica)*	Yellow centre with a white outer (Sep-Dec) Berries, green-yellow Large, leathery, dark green, arrow-shaped leaves Evergreen <1.5m	 Photo: Weedbusters
Production threat	**Environmental threat**	Public threat

Bear's breeches
(Acanthus mollis)

- White with some pink and purple, on spike (Oct-Apr)
- Flattened seeds in individual capsules
- Large, shiny, dark green, lobed leaves
- Herbaceous perennial <120cm tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Bindweed
(Convolvulus arvensis)

- Flowers broadly funnel-shaped, 3cm diameter, pink or white with purplish-pink stripe on petal centre (Nov-Mar)
- Seed capsule egg shaped, 6-8mm long, hairless; seeds dark, smooth
- Leaves alternate, dark green, often bluish, arrow-shaped with basal lobes, 4x2cm
- Perennial scrambling or trailing vine to 2m tall

Production threat | **Environmental threat** | Public threat

Black taro
(Colocasia esculenta var.)

- Seldom flower (orange)
- Fruit is very rare
- Very variable, leaves and stalks can be white mottled, green, reddish or purple tinged to almost black, and up to 50cm long
- Robust perennial <2m

Production threat | **Environmental threat** | Public threat

Blue morning glory
(Ipomoea indica)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Purple tubular
- Doesn't usually seed in New Zealand, spread by fragments
- Heart-shaped, 3-lobed leaves
- High twining creeper

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Blue passion flower
(Passiflora caerula)

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Non-tubular white flowers (Dec-Apr)
- Round, yellow fruit <5cm in diameter
- Smaller 5-lobed leaves, with ring of purple filaments
- Climbing vine <10m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Boxthorn
(Lycium ferocissimum)

- White-pale mauve (Jul-Mar)
- Poisonous orange-red berries
- Hairless, almost stalkless leaves, narrow, oblong and <40mm long; occur alternately on young shoots but clustered on mature stems; rigid spines form a box-like arrangement
- Densely branched, woody, evergreen perennial shrub <6m tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Brush wattle
(Paraserianthus lophantha)

- Yellow or greenish-yellow flowers
- Brown or reddish-brown elongated and flattened pods, 6.5-12cm long, 1.5-3 cm wide
- Each leaf branchlet bears 15-40 pairs of small leaflets (4-11mm long)
- Shrub <8m

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Buddleja
(Buddleja davidii)

- Purple (Dec-Feb) forming dense panicles <30cm long
- Seeds in dry capsules
- Lance-shaped, pointed leaves green, hairless on upper surface, whitish and hairy underneath
- Shrub <3m tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Buttercup bush
(Senna septemtrionalis)

- Pea-like, yellow (Dec-Apr)
- 'Pea-pod' seed capsule
- Leaflets ovate-elliptic in 3-5 opposite pairs
- Shrub 2-3m tall

Photo: Auckland Council

Production threat	**Environmental threat**	Public threat

Californian thistle
(Cirisum arvense)

- Purple or mauve (Dec-Jan)
- Pale, cylindrical seeds
- Spiky leaves
- Aerial shoots reaching 1m tall

Photo: Trevor James

Production threat	Environmental threat	Public threat

Cape honey flower
(Melianthus major)

- Dark reddish-brown, foul-smelling (Jul-Apr)
- Inflated papery seedpods, sharply angled
- Huge, grey-green leaves, divided into 9-11 toothed leaflets
- Perennial shrub <2m tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Cape ivy
(Senecio angulatus)

- Clustered, yellow, daisy-like
- Fluffy
- Coarsely toothed, bright green
- Perennial herb <2m high

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Caper spurge
(Euphorbia lathyris)

- Yellowish-green, cup-like with triangular bracts (summer)
- Seeds rounded brown or grey
- Grey-green, opposite pairs in four rows on stem
- Persistent annual or biennial <120cm tall

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Castor oil plant
(Ricinus communis)

- Red clustered in heads (Dec-Feb)
- Soft spiny capsules with rectangular seeds up to 15mm long
- Green or purple, large, soft, deeply lobed
- Shrub <4m

Photo: Auckland Council

Production threat | **Environmental threat** | Public threat

Century plant
(Agave americana)

- Yellow, on a flowering stalk <8m tall
- Black seeds in 5cm long capsules
- Large, spear-like, sharp hooks along edges and very sharp tips
- Large succulent <2m tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Cestrum species

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Yellow, red or orange (Nov-Jun)
- Berries
- Leaves are hairless, up to 120cm long and 2.5cm wide, and foul smelling when crushed
- Shrub <4m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Chinese rice paper plant
(Trachycarpus papyrifer)

- White
- No fruit, spreads by suckering
- Palmately lobed, covered in star-shaped hairs
- Shrub <3m

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Chinese windmill palm
(Trachycarpus fortunei)

- Small (Nov-Jan), male flower yellow and female tuber green on a separate plant
- Berries are small, yellow and ripen to blue-black
- Fan shaped (1m)
- Tree <20m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Climbing dock
(Rumex sagittatus)

- Small green, pink or reddish (Nov-Mar)
- Yellow to pink or crimson fruit
- Large, green, arrowhead-shaped
- Low climbing or scrambling perennial herb

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Coastal banksia
(Banksia integrifolia)

- Masses of pale yellow flower spikes (Mar-Aug)
- Cone woody
- Leaves may be irregularly-toothed when young; upper side of leaves green, undersides silvery and felted
- Evergreen tree <8m tall

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Common alder
(Alnus glutinosa)

- Violet/purple, yellow (late winter)
- Cone (summer)
- Green toothed leaves oblong (5-10cm)
- Deciduous tree to <15m

Photo: Wikimedia commons

Production threat | **Environmental threat** | Public threat

Cotoneaster
(Cotoneaster glaucophyllus)

- Small white (Oct-Jan)
- Scarlet or orange berries
- Egg to diamond-shaped, pale blue-green
- Shrub <3m tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Dally pine
(Psoralea pinnata)

- Small clusters, blue and white, pea-like (Nov-Jan)
- Wrinkled pods
- Needle-like leaflets in opposite pairs
- Evergreen perennial shrub <5m tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Elaeagnus
(Elaeagnus x reflexa)

- Small, white (Mar-May)
- Reddish-orange, drupe-like fruit
- Oval, green above and scaly brown on undersides
- Scrambling shrub

Photo: Auckland Council

Production threat | **Environmental threat** | Public threat

Fairy crassula
(Crassula multicava)

(excl. double flowered cultivars)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Pale pink, star shaped, small, in large clusters on the end of a stalk (Aug-Feb)
- Spreads vegetatively (plantlets on flower heads drop off and develop)
- Leaves fleshy, 4x4cm covered with small pitted dots
- Creeping succulent herb

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Fairy grass: Himalayan fairy grass *(Miscanthus nepalensis)* and Chinese fairy grass *(M. sinensis)*

- Large, drooping, fan-shaped, golden-brown heads
- Seed 1-1.5mm
- Long, narrow (<60cm long, 1cm wide)
- Bamboo-like perennial grass <80cm

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

False acacia *(Robinia pseudoacacia)*

- White (Nov-Jan)
- Seed pods are shiny, smooth, narrow, flat, 5-10cm long, and contain 4 to 8 seeds
- The compound pinnate leaves are 20-30cm long, bearing 12-15 elliptic leaflets arising more or less opposite one another
- Deciduous tree up to 25m high

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Flea-bane (broad-leaved) *(Conyza sumatrensis)*

- Yellow/white
- Hairy small seed
- Basal rosette, thin, soft toothed, tapering to both ends
- Erect annual or biennial, rossette-forming, flower stalk up to 2m tall

Production threat	**Environmental threat**	Public threat

Giant buttercup *(Ranunculus acris)*

- Small, yellow, glossy(Nov-Apr)
- Strongly flattened seed
- Leaves on long stems, large, hairy, divided into 3-7 lobes
- Perennial <1m tall

Photo: Trevor James

Production threat	Environmental threat	Public threat

Giant reed *(Arundo donax)*

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Feathery plume-like flowerheads mature from reddish to white (Apr)
- Seed head terminal, fluffy
- Resembles leafy bamboo with wide leaves; stout, knotty stems, arching grey-green striped leaves
- Grass <5m

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Hawthorn
(Crataegus monogyna)

- White or pink (Nov)
- Shiny, round, crimson berries
- Stiff spines on stems, triangular, hairless leaves have 3-7 deep lobes and are often eaten by pear slugs
- Thorny, deciduous hedge plant <10m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Heather
(Calluna vulgaris)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Bell-shaped, red/pink (Jan-Apr)
- Seed capsules tiny, round, hairy, break open to disperse seeds
- Dark, green, oblong, <3mm
- Evergreen perennial shrub <50cm tall

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Himalayan balsam
(Impatiens glandulifera)

- Large, showy, purplish-pink or sometimes white (Nov-Mar)
- Purplish capsule with black seed
- Serrated, lanced-shaped to oval
- Annual <2.5m tall

Production threat | **Environmental threat** | Public threat

Himalayan honeysuckle
(Leycesteria formosa)

- White, funnel-shaped, deep reddish-purple bracts (Dec-May)
- Brownish-purple fleshy berries
- Green, pointed, heart-shaped
- Deciduous perennial shrub <2m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Holly
(Ilex aquifolium)

- White male and female (Oct-Nov)
- Bright red berries
- Glossy, dark green, prickly edges
- Evergreen tree <12m

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Hornwort
(Ceratophyllum demersum)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Green (female) and white (male) (Nov-Mar) in each whorl
- No viable seed in New Zealand
- Submerged, delicate, freshwater perennial; dark green leaves <4cm long and equally forked into stiff tapering segments
- Forms dense submerged masses of floating vegetation to <10m deep

Production threat	**Environmental threat**	Public threat

Ivy
(Hedera helix)

- Small, greenish (Mar-May)
- Black berries
- Dark green
- Perennial climber

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Japanese honeysuckle
(Lonicera japonica)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Tubular, white (Sep-May)
- Black berries
- Green, oval, waved or lobed
- Perennial climber

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Jasmine
(Jasminum polyanthum)

- Very fragrant, white, pink in bud (Jan-Dec)
- Glossy black berries
- Green, opposite, seven leaflets
- Perennial climber

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Mexican daisy
(Erigeron karvinskianus)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Small, daisy-like, white often pink-flushed (Sept-May)
- Small hairy seed
- Small, narrow lobed, fragrant when crushed
- Evergreen perennial daisy <30cm

Production threat	**Environmental threat**	Public threat

Monkey apple
(Syzgium smithii, formerly Acmena smithii)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

- White (Oct-Jan)
- White to pink-mauve, edible, berry-like fruit
- Shiny, oval, release an aromatic fragrance when crushed
- Evergreen tree <20m tall

Production threat | **Environmental threat** | Public threat

Mouse-ear hawkweed
(Pilosella officinarum)

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Yellow dandelion-like head
- Purplish-black seed
- Bluish-green, long hairs on leaves
- Creeping, mat-like herb

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Oxeye daisy
(Leucanthemum vulgare)

- Large, white, daisy-like
- Small, dark brown
- Dark green up to 12cm long and 2cm wide
- Erect up to 1m tall

Photo: Trevor James

Production threat | Environmental threat | Public threat

Palm grass
(Setaria palmifolia)

- Greenish, cylindrical flower (Dec-Mar)
- Narrow seed heads (20-30cm)
- Leaf stalks covered in irritating hairs
- Dense, palm-like grass <150cm

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Parrot's feather
(Myriophyllum aquaticum)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Small, single, have no petals
- No seed set in New Zealand; spread by stem fragment
- Submerged stems yellow-green, emerge 10cm above water; emergent leaves in whorls of 4-6, densely packed at stem ends, bright blue-green, deeply divided, feathery
- Sprawling freshwater perennial

Production threat | **Environmental threat** | Public threat

Patterson's curse
(Echium plantagineum)

- Purple or bluish, funnel-shaped
- Egg-shaped seed (nutlets)
- Green, bristly-hairy, lance-shaped
- Annual or biennial <90cm tall

Photo: Trevor James

Production threat	Environmental threat	Public threat

Periwinkle
(Vinca major)

- Blue-violet, tubular, paler centres
- Corrugated, 7-8mm long
- Oval, dark green, glossy, opposite, pointed tips
- Evergreen perennial <50cm tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Phoenix palm
(Phoenix canariensis)

- Orange (Oct-Nov)
- Orange-yellow berries on female plants (Dec)
- Long, arching fronds
- Evergreen palm <10m tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Plectranthus
(Plectranthus ciliatus)

An 'unwanted organism' as defined in the Biosecurity Act 1993

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- White (Dec-Aug), speckled with small purple spots
- Small, dark brown nutlets; also spreads by runners
- Opposite, shiny, purple underneath, dotted with glands, hairy
- Herbaceous groundcover

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Prickly hakea
(Hakea sericea)

- Clusters of <10, small, white (Jun-Aug)
- Woody, round, corrugated fruit with black seed
- Stiff, sharp, needle-like
- Evergreen shrub <3m tall

Photo: Auckland Council

Production threat	**Environmental threat**	Public threat

Scotch thistle
(Cirsium vulgare)

- Reddish-purple (Nov-Mar)
- Pale narrow egg-shaped 4mm long by 1.5mm across with pappus 20-25mm long
- Dark green, 30cm long by 10cm across deep lobed
- Thistle <1m

Photo: Trevor James

Production threat | Environmental threat | Public threat

Silver birch
(Betula pendula)

- Cream-green (Sep-Nov)
- Male catkins up to 9cm long, female catkins to about 2.5cm
- Green leaves 6cm long with 5-7 pairs of veins and serrate margins
- Tree <25m

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Smilax
(Asparagus asparagoides)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- Small, greenish-white (Jul-Aug)
- Small, sticky red berries
- Smallish, glossy, thin, green, alternate, broadly ovate with sharp point.
- Climbing perennial creeping herb <3m

Photo: Weedbusters

Production threat | **Environmental threat** | Public threat

Sycamore
(Acer pseudoplantanus)

- Green (Oct-Nov)
- V-shaped fruit (3-5.5cm long) consist of two prominently winged seeds
- Green leaves are shaped like a hand
- Deciduous tree <20m

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Thorn apple
(Datura stramonium)

- Large, white, trumpet-shaped
- Green egg-shaped capsules covered in spines with brown or black kidney-shaped poisonous seeds
- Dark green, alternate, oval, margins coarsely and irregularly cut into pointed teeth
- Summer annual <1m tall

Photo: Trevor James

Production threat | **Environmental threat** | Public threat

Tradescantia
(Tradescantia fluminensis)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- White, star-shaped (Aug-Nov)
- No fruit/seed, spreads by fragments
- Alternate, oval-pointed, shining leaves
- Succulent creeping plant <50cm tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Tuber ladder fern
(Nephrolepis cordifolia)

An 'unwanted organism' as defined in the Biosecurity Act 1993.

Nationally banned from sale in accordance with section 15.4.1 of this plan.

- No flower
- Wind-borne spores, also spreads vegetatively from potato-like tubers and runners
- Fronds, erect serrated
- Upright rambling <80cm

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Velvet groundsel
(Roldana petasitis)

- Small, yellow, daisy-like (Jul-Nov)
- Numerous white fluffy seeds
- Large, coarsely-toothed, oval, covered in hairs
- Erect perennial shrub <2m tall

Photo: Auckland Council

Production threat	**Environmental threat**	Public threat

Wattle
(Acacia spp.)

- Yellow or cream
- Long flat seedpods
- Leaflets arranged in two rows on either side of stalk
- Tree <20m

Photo: Auckland Council

Production threat	**Environmental threat**	Public threat

Wild blackberry
(Rubus fruiticosus agg)

- Small, white or pink (Nov-Apr)
- Sweet purplish berries (Jan-Mar)
- Dark green shiny leaves
- Erect, scrambling, thorny and grows in thickets <2m tall

Photo: Weedbusters

Production threat	**Environmental threat**	Public threat

Winged thistle
(Carduus tenuiflorus)

- Violet/purple (Nov-Dec)
- Brown seed (achenes) 4x2mm with simple pappus 10-12mm long
- Green, deeply lobed <30cm long by 15cm wide
- Annual thistle <1m

Photo: Trevor James

Production threat	Environmental threat	Public threat

Yellow bristle grass
(Setaria pumila)

- Summer
- Yellow bristles
- Green twisted, fine point
- Erect, 16-65cm tall

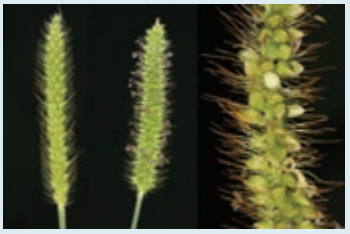


Photo: Trevor James

Production threat	Environmental threat	Public threat

Animals

6. ANIMALS

6.1 Introduction

This section of the plan details the management programmes in relation to each animal, or group of animals to which the plan applies.

Each management programme includes:

- a description of the animal
- management category
- why it is a pest
- a long term objective
- an objective to be achieved by Waikato Regional Council during the time period this plan covers
- a description of how this achievement will be measured
- measures by which Waikato Regional Council intends to achieve the objective, including:
  - plan rules and statutory obligations
  - surveillance, monitoring and enforcement
  - good neighbour rule
  - information and advice
  - direct control measures that allow Waikato Regional Council to consider direct control of some animals in certain circumstances
  - community initiatives.

Not all animals included have been given 'pest' status under the Biosecurity Act (for example, ants and some wasps). Instead, council will utilise other provisions of the Biosecurity Act (for example, section 13), the Local Government Act 2002, and the Resource Management Act 1991 to achieve the stated goals.

There are also animals that are undesirable in many circumstances but are not declared 'pests' under the Biosecurity Act. For example, sparrows and mynas can have unwanted effects themselves and they can also be linked to the spread of other pests by their behaviour. Many landowners or community groups control these animals and the council will support these efforts with information and advice in accordance with section 11.1 of the plan.

NOTE

A breach of any rule prescribed in section 6 of the plan will create an offence under section 154N(19) of the Biosecurity Act, or may result in default work under section 128 and section 129 of the Act, or both.

6.2 Ants: Argentine ant *(Linepithema humile)* and Darwin's ant *(Doleromyrma darwiniana)*

6.2.1 *Argentine ant*

Description

The Argentine ant is a small (2-3mm) honey-brown coloured ant. It is recognised as a serious agricultural and household pest in many countries. This species has successfully invaded sub-tropical and temperate regions and is now established on six continents.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	Site-led (MPI-led)

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

Argentine ant colonies are notably dense and fast growing, producing large numbers of aggressive and industrious workers. They produce multiple queens that bud off to form new colonies, and have a wide dietary range, allowing them to spread quickly and easily. Their capacity to invade native systems and displace native species, as demonstrated in Hawaii, California and South Africa, means they are listed as one of the world's 100 worst invasive species.

There are numerous confirmed sightings of Argentine ants in the Waikato region, including Morrinsville, Hamilton, Tairua and Taupō. They are also found in many other places in New Zealand.

6.2.2 *Darwin's ant*

Description

Darwin's ants are similar in appearance and behaviour to Argentine ants but can be distinguished by their pungent smell when squashed. Darwin's ants infest homes, shops and other buildings, and may pose a threat to native ecosystems.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	Site-led (MPI-led)

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

Darwin's ant has the potential to be a major pest in New Zealand. The first population recorded in Auckland in 1959 was eradicated, but large colonies are now well established in Christchurch. Smaller populations can be found in the northern and eastern North Island, particularly at Mount Maunganui, and the northern South Island.

In New Zealand these ants establish extremely large colonies and are a major pest for householders. The impact of Darwin's ants on native ecosystems is unknown.

Our long term objective

Reduce the adverse effects of Argentine and Darwin's ants in the Waikato region.

Our objective for this plan

Reduce the risk of Argentine and Darwin's ants affecting the environment, production and people in the Waikato region for the duration of the plan.

On a case by case basis, undertake control of Argentine and Darwin's ants to reduce negative impacts on high value sites.

What we will measure

Waikato Regional Council will measure the number of complaints received regarding these ant species, and monitor the effectiveness of any direct control undertaken.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Information and advice	
	Provide advice and information on the threats of Argentine ant and Darwin's ant to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Other assistance	
	These ant species are not declared 'pests' within this region, but section 13 of the Biosecurity Act allows monitoring and surveillance in conjunction with the Ministry for Primary Industries, Department of Conservation or other third parties or otherwise, if council considers this to be justified. In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of these ants at high value sites where their presence threatens site values, with the consent of landowners pursuant to the Resource Management Act 1991 and the Local Government Act 2002.

6.3 Ants not yet established in New Zealand: little fire ant *(W. auropunctata)*, red imported fire ant *(S. invicta)*, tropical fire ant *(S.geminata)* and yellow crazy ant *(A. gracilipes)*

These four species of ant are listed as unwanted organisms but are not established in New Zealand. If they were to establish they would prey on native invertebrates and compete with native nectar feeding birds for honeydew resources. They would also pose a serious risk to people through their painful stings or formic acid spray. In the event of any incursion, the Ministry for Primary Industries (MPI) would be the lead agency for any management of the species.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led (MPI-led)**

6.3.1 Little fire ant

Description

The little fire ant is approximately 1.5mm long and light brown to golden brown in colour. It is one of five ant species listed among the world's 100 worst invaders. The name comes from the fiery and very painful stings they inflict on people. The preferred habitats are in urban, agricultural and forestry areas, where they increase to very high numbers.

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

6.3.2 Red imported fire ant

Description

Red imported fire ants are 3-6mm long and reddish-brown in colour. Their nests are built in sunny open areas but also in walls of homes and enclosed spaces. They aggressively defend their nests, attacking en masse. Red imported fire ants have a fierce, painful sting that causes burning and itching.

There have been two incursions of this ant in New Zealand since 2001, both in border control areas. The first was at Auckland International Airport in March 2001, and the second at Napier Seaport in 2004.

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

6.3.3 *Tropical fire ant*

Description

Tropical fire ants are a serious threat to biodiversity because of their propensity to invade and adversely affect native communities, both plant and animal. These fire ants prefer open grasslands or barren areas where they nest in soil.

Why it is in this plan

Production threat	Environmental threat	Public threat

6.3.4 *Yellow crazy ant*

Description

Yellow crazy ants are 4-5mm long, pale yellow and have unusually long legs and antennae. They walk in a characteristically rapid and seemingly erratic manner, especially when disturbed.[1] They are capable of forming multi-queened supercolonies in which ants occur at very high densities, and are opportunistic invaders that will nest anywhere.

This species, also, is listed among the world's 100 worst invaders, being a major environmental and agricultural pest overseas. Its establishment in new locations has dramatic consequences for local ecosystems. Crazy ants are capable of mass attacks and killing larger animals. On Christmas Island, for example, they have killed 10-20 million Christmas Island red crabs.[2] They may invade households and have been known to attack humans, particularly on the feet and legs, where they spray formic acid causing localised irritation or burning.

Why it is in this plan

Production threat	Environmental threat	Public threat

Our long term objective

Reduce the adverse effects of exotic ant species within the Waikato region.

Our objective for this plan

Reduce the risk of exotic ant species affecting the environment, production and people in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council does not intend to monitor these ant species. This situation would be revisited in conjunction with MPI should they become established in the Waikato region.

1 The Ministry for Primary Industries: www.biosecurity.govt.nz/pests/yellow-crazy-ant
2 Global Invasive Species Database: www.issg.org/database/species/ecology.asp?si=110&fr=1&sts=&lang=EN

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Information and advice	
	Provide advice and information on the threats of little fire ant, red imported fire ant, tropical fire ant and yellow crazy ant to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Other assistance	
	These ant species are not declared 'pests' within this region, but section 13 of the Biosecurity Act allows monitoring and surveillance in conjunction with MPI, the Department of Conservation or other third party or otherwise, if council considers this to be justified.

6.4 Canada goose *(Branta canadensis maxima)*

Description

The Canada goose has a black head and neck and a face with distinctive white patches sometimes referred to as 'chin straps'. Its plumage is brown and grey and it ranges in length from 75-110cm with wingspans of 127-183cm. Males weigh up to 6.5kg and females 5.5kg.

The Canada goose, which is native to arctic and temperate areas of North America, was introduced to New Zealand via two liberations in 1905 and 1920. These introductions were from uncertain sources, and probably of mixed stock, but comparison with North American birds indicates the New Zealand stock is comprised predominantly of the *Branta canadensis maxima* species.[3]

While largely herbivorous, eating a wide range of grasses and grains, Canada geese also consume small insects and fish.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	Site-led

Why it is in this plan

Production threat	**Environmental threat**	Public threat

In June 2011 the Canada goose was moved from schedule 1 of the Wildlife Act 1953 to schedule 5. The change means this species is no longer recognised as a game bird, and that Fish & Game councils no longer have any legal responsibility for its management. Landowners may now control Canada geese by any humane means.

The Canada goose is not recognised by Waikato Regional Council as a pest. Its impact on farm production is largely unquantified, but it is known that five of these geese may consume the same amount of grass as one sheep and that they further exacerbate production impacts by fouling paddocks. It is likely that large aggregations of the birds do sometimes cause negative effects. Anecdotal evidence from landowners affected by these birds supports this statement.

In the water, Canada geese feed from bottom sediments and also directly on aquatic plants. However, it is defecation from large numbers of these geese that may become a threat to aquatic values. That's because when Canada geese concentrate at specific sites their droppings introduce bacteria and nutrients into the waterways.[4]

This species is widely distributed in the Waikato region. Flocks are most frequently reported on coastal farms from Kawhia Harbour to Port Waikato and wetland areas in the Waikato and Hauraki districts. They have also been reported by landowners at some sites on the Coromandel Peninsula.

3 White EG 1986. Canada Geese in New Zealand. Information Paper No.4, Centre for Resource Management, Lincoln College and University of Canterbury. http://researcharchive.lincoln.ac.nz/dspace/bitstream/10182/1275/1/crm_ip_4.pdf

4 White EG 1986.

Our long term objective

Help landowners to gain knowledge and skills to effectively manage Canada goose to mitigate any adverse effects.

To reduce the impact of Canada goose on the environment at high value sites within the region.

Our objective for this plan

Work collaboratively with landowners and stakeholders to promote landowner control of Canada goose.

Increase the knowledge about the impact of Canada goose on farm production and the environment within the region.

What we will measure

Waikato Regional Council may record details of Canada goose impacts within the region and monitor the effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Control	
	Waikato Regional Council may work collaboratively with agencies and groups of landowners to control Canada goose.
Monitoring	
	Waikato Regional Council may monitor the impacts of Canada goose in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council may provide advice and information on the threats of Canada goose in accordance with section 11.1 of the plan.

6.5 European hedgehog *(Erinaceus europaeus)*

Description

Hedgehogs are small, spiny, mainly insectivorous nocturnal animals that have the ability to roll into a tight prickly ball for defensive purposes. They are most closely related to shrews and moles.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Hedgehogs are abundant on temperate lowland and farmland areas where frosts are few and food is plentiful. Lowland stream and riversides are also favoured habitats. Dense populations of hedgehogs are common in cities and urban areas because invertebrate prey and dry sites for hibernating are available, as well as extra food purposely provided by householders.

Hedgehogs are mainly insectivorous, but will eat any animal substance and even some plant material. Hedgehogs may eat 160g of invertebrates per animal per day.[5] Diets vary depending on site and season, but beetles are important foods in most habitats. In suburban areas and lowland farms, hedgehogs eat mainly slugs, snails and a great variety of ground insects and larvae.[6] Earthworms are commonly eaten in pasture, but rarely in forest or drylands where weta and grasshoppers are more important. Earwigs and lepidopteran larvae are eaten in large numbers where available.[7] Hedgehogs also feed on mice, lizards, frogs, eggs and chicks of ground-nesting birds, and scavenge carrion.

The effects of hedgehogs on indigenous fauna in New Zealand have not been quantified although they clearly have the potential to contribute significantly to the decline of numerous taxa, including threatened ground-nesting birds. For example, hedgehogs were responsible for two of every three losses of New Zealand dotterel nests among sand dunes at Tawharanui.[8] Competition from hedgehogs could limit kiwi numbers in the long term because kiwi and hedgehogs have similar diets and nest in similar sites.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of hedgehogs at high value biodiversity sites in the Waikato region.

5 Wroot AJ 1984. Feeding ecology of the European hedgehog (Erinaceus europaeus L.). PhD. Thesis, University of London.
6 Brockie RE 1959. Observations of the food of the hedgehog (Erinaceus europaeus L.) in New Zealand. New Zealand Journal of Science 2, pp 121-136.
7 Jones C, Moss K, Sanders M 2005. Diet of hedgehogs (Erinaceus europaeus) in the upper Waitaki Basin, New Zealand: implications for conservation. New Zealand Journal of Ecology 29, pp 29-36.
8 Dowding JE 1998. Research on the impact of predation on New Zealand dotterels (Charadrius obscurus). Unpublished report. Department of Conservation, Wellington.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council may undertake direct control of hedgehogs, as appropriate, in accordance with sections 11.4 and 11.6 of the plan.
Community initiatives	
	Waikato Regional Council will undertake community initiatives, as appropriate, in accordance with section 11.5.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of hedgehogs to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council will encourage research to determine: • the target densities of hedgehogs required to protect any regional conservation species that are threatened by hedgehogs • the threat hedgehogs pose to any regionally threatened fauna • hedgehog density in relation to habitat.

6.6 Feral cat *(Felis catus)*

Photo: The State of Queensland, Department of Employment, Economic Development and Innovation, 2009

Description

Feral cats resemble domestic cats in size and colouration. They live in most terrestrial habitats, including sand dunes, pasture, forest, tussock and scrub, from sea level to elevations of about 3000m. If conditions are favourable they can have three litters per year. Feral cats are present throughout the region.

Feral cats differ from stray cats. Stray cats are defined as cats that rely on food or shelter that is provided intentionally or otherwise by humans. This category includes animals kept on farms for rodent control and abandoned cats living in urban fringe situations such as rubbish dumps. Reproduction in these populations is not usually manipulated by humans.

Feral cats are defined as free-living cats that have minimal or no reliance on humans, and which survive and reproduce in self-perpetuating populations.[9]

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Feral cats eat mostly small mammals such as mice, rats, rabbits and young possums but also eat birds, reptiles, bats and insects. The greatest impact cats have on native biodiversity is through the predation of native birds and reptiles. Their diet generally reflects the habitat in which they live. In areas of pasture where rabbits are common, rabbits will comprise the major part of their diet. In contrast, in forests where rabbits are absent but rodents plentiful, rodents and young possums are likely to be more common prey items.[10]

Feral cats carry a range of parasites and diseases, with one protozoan *(Sarcocystis spp.)* having an economic impact on the meat industry.[11]

The council acknowledges that over time, and as significant natural area management increases, there will be increased pressure or need to investigate other management options (such as developing rules that some eco-subdivisions have on property titles) around having cats in or adjacent to these areas.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of feral cats at high value biodiversity sites in the Waikato region.

9 National Possum Control Agencies 2009. Feral and Stray Cats, Monitoring and Control, a Preliminary Guideline Towards Good Practice.

10 Fitzgerald BM, Karl, BJ 1979. Foods of feral house cats (Felis catus L.) in forest of the Orongorongo Valley, Wellington. New Zealand Journal of Zoology 6, pp 107-126.

11 Langham NPE, Charleston WAG 1990. An investigation of the potential for spread of Sarcocystis spp. and other parasites by feral cats. New Zealand Journal of Agricultural Research 33, pp 429-435.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Plan rules	
6.6.1	No person shall knowingly abandon or release, or cause to abandon or release to the wild any cat.
6.6.2	No person shall actively assist in the maintenance of any feral cat.
	A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council may, as appropriate, undertake the direct control of feral cats in accordance with section 11.4 of the plan.
	In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of feral cats at high value sites where the presence of that animal threatens site values.
Community initiatives	
	Waikato Regional Council may undertake community initiatives, as appropriate, in accordance with section 11.5.2 of the plan.
Monitoring	
	Waikato Regional Council may inspect and monitor properties with suspected or confirmed feral cat populations and identify any remedial action to be taken in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the control of feral cats to interested parties in accordance with section 11.1 of the plan.
	Waikato Regional Council will advocate through factsheets and online information that all cat owners have a responsibility to ensure their pet cats do not stray or become feral.
Research required	
	Waikato Regional Council may encourage research to determine: • feral cat densities in relation to habitat • the contribution of urban cats to sustaining feral populations • if and where feral cats may be having a significant impact on native fauna in the Waikato region • the role feral cats play in maintaining infection of livestock with various diseases.

6.7 Feral goat *(Capra hircus)*

Description

Goats vary in size and colour. The adult male stands almost 70cm high at the shoulder and can grow to 150cm, weighing between 50-70kg. Adult females are considerably smaller. This plan concerns only feral (wild) goats. That is, goats without identification or branding, and uncontained.

Management category

Advisory animal	**Eradication (Hunua Ranges)**	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Feral goats are one of the most destructive animals found in forests. They can alter the composition of native forests by selectively killing seedlings and saplings of palatable plant species.

Goats in forest habitats live on seedlings and saplings, shoots of plants such as mahoe, and on trees that fall over or branches that fall from the canopy. As the seedlings and saplings are more palatable than canopy leaves, goats must be reduced to very low densities in forests before any benefit to understorey plants can be expected.[12]

Feral goats are found over about 39,500km^2 (14 per cent) of New Zealand and over about 8,527km^2 of public conservation land in the Waikato.[13] They can double their population within two years if left uncontrolled in favourable habitats.

Populations occur throughout the region on both Crown and private land in varying numbers. Major feral herds still occur in the western districts in the Herangi Range and most forests in the Waitomo and Ōtorohanga districts, as well as Mt Pirongia and generally throughout the region.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of feral goats at high value biodiversity sites in the Waikato region.

What we will measure

The effectiveness of control, changes in ecological conditions, as well as the amount of pest control effort.

Means of achievement

12 Stronge DC, Fordham RA, Minot EO 1997. The foraging ecology of feral goats Capra hircus in the Mahoenui giant weta reserve, southern King Country, New Zealand. New Zealand Journal of Ecology 21, pp 81-88.

13 Fraser KW, Cone JM, Whitford EJ 2000. A revision of the established ranges and new populations of 11 introduced ungulate species in New Zealand. Journal of the Royal Society of New Zealand 30, pp 419-437.

Plan rules	
6.7.1	The land occupier as directed by an authorised person shall destroy, or allow to be destroyed, feral goats (being those goats unmarked and uncontained) on the land occupied. Enforcement will be in accordance with the Wild Animal Control Act 1977.
6.7.2	No person shall knowingly distribute or release feral goats. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with the Wild Animal Control Act 1977. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
6.7.3	The occupier shall on a complaints basis, and unless otherwise agreed between the parties, undertake the level of goat control necessary to mitigate the impact on adjacent or nearby properties. This rule shall apply where goat control is being undertaken by the council or the Crown at a high value site, or on other lands involved in community-led goat control established for biodiversity or catchment protection. Where mitigation of impact is necessary, it may include upgrading fences to a standard that contains the feral goats. In cases where hunting is the appropriate form of control, the rule would be enforced only after discussion with technical experts to determine the area that would need to be controlled to effectively manage invasion across the boundary. This rule is subject to the process requirements listed in section 4.2.3.
Direct control	
	Waikato Regional Council may, as appropriate, undertake the direct control of feral goats in accordance with section 11.4 of this plan in order to achieve the above strategic objectives. In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of feral goats at high value sites where the presence of that animal threatens site values.
Monitoring	
	Waikato Regional Council will inspect and monitor properties with suspected or confirmed feral goat populations and identify any remedial action to be taken in accordance with section 11.2.2 of this plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the control of feral goats to affected land occupiers and other interested parties in accordance with section 11.1 of this plan.
Research required	
	Waikato Regional Council will encourage research to: • identify methods for reducing the risk of new goat populations being established (especially from escapes) • determine the most cost effective response strategy to deal with newly established populations • identify conservation values being threatened by goats in the Waikato region and determine the appropriate goat densities required to mitigate their impacts • determine the most cost effective method for sustained control of goats if eradication is not an option. Given goats' potential for rapid population recovery, a key factor is to determine how often repeat control is needed to maintain goats at or below a target density.
Hunua Ranges Pest Management Area	
	In the Hunua Ranges Pest Management Area (for a map, see figure 2 on page 42) feral goats (*Capra hircus*) are declared pests with a management category of **eradication** and an intermediate objective over the lifetime of this plan of: • reducing the feral goat population to zero; and • preventing the release of feral goats into the Hunua Ranges Pest Management Area. A goat is declared feral wherever it is not ear tagged and held behind effective fencing or otherwise constrained in manner that prevents the escape of that goat.
Plan rule	
6.7.4	No person shall release from containment any goat (*Capra hircus*) in any part of the Hunua Ranges Pest Management Area. A breach of this rule will create an offence under section 154N(19) of the Act. A breach of this rule may result in default work under section 128 of the Act.

6.8 Feral pig *(Sus scrofa)*

Description

Feral pigs, for the purposes of this plan, are pigs that are free ranging and are not in a farmed situation. They are smaller and more muscular than domestic pigs and have massive forequarters and smaller, shorter hindquarters. They also have longer and coarser hair; longer, larger snouts and tusks; and much narrower backs.

Management category

Advisory animal	**Eradication (Hunua Ranges)**	Progressive containment	Sustained control	Site-led

Why it is in this plan

Production threat	**Environmental threat**	Public threat

Like many organisms, feral pigs can be valuable or harmful, depending on the circumstances in which they occur. Feral pigs are a popular and valuable game animal and resource for many people, both as a food source and for the social/cultural aspects of hunting. Feral pig numbers are generally controlled by hunting pressure, but in some cases these pigs can have a significant impact on indigenous biodiversity. They can also cause damage to farming and forestry properties.

Feral pigs modify plant regeneration by eating fruit and some soft plant parts, and by disturbing the ground. However, their effects are generally outweighed by those of possums, deer and goats. Similarly, their effects on the fauna appear to usually be a minor part of the total impact caused by the suite of introduced predators and rodents. In fact, a 1996 study of the impacts of feral pigs[14] found that they are seldom the most critical pests in native ecosystems in mainland New Zealand. Other research shows that feral pigs can be the critical pest in some cases. For example, on Aorangi Island (part of the Poor Knights group) feral pigs were the only pest and their removal resulted in recovery of that ecosystem. Similarly, recovery of the Lord Howe Island rail was achieved only after pigs were identified as the critical threat and efforts to protect this flightless bird shifted from the control of rats (the pest initially blamed) to the control of pigs.[15] In another case, pigs were a major predator of giant native land snails.[16]

Published studies on the diet of feral pigs show that fruit and invertebrates, especially earthworms, are important foods. Many of these items are also important food sources for native animals. Feral pigs are known to uproot endangered dactylanthus plants – an underground parasitic flowering plant found only in New Zealand.[17] At Egmont National Park, the Department of Conservation has undertaken a programme of feral pig eradication because of pigs' potential effect on dactylanthus, native land snails and various species of ground orchids.

14 Nugent G, Parkes JP, Dawson N, Caley P 1996. Feral pigs in New Zealand as conservation pests and potential hosts of bovine tuberculosis. Landcare Research Contract Report LC9596/54, Lincoln, Canterbury.

15 Miller B, Mullette KJ 1985. Rehabilitation of an endangered Australian bird: the Lord Howe Island woodhen Tricholimnas sylvestris (Sclater). Biological conservation 34, pp 55-95.

16 Parkes J, Coleman M, Walker K 2004. Impact of feral pigs and other predators on Powelliphanta hochstetteri obscura and soil macroinvertebrates on D'Urville Island. Unpublished Landcare Research Contract Report LC0304/109, Lincoln.

17 Atkins GJ 2004: Te Araroa dactylanthus restoration project 2001, 2002, 2003. Department of Conservation, Gisborne (unpublished).

Feral pigs can impact production values through the damage they can cause to pasture, production forestry (in the early stages of establishment) and cropping. Damage can be substantial (for example, uprooting of pasture) but is generally localised. Feral pigs are also known to kill lambs, although the degree to which this occurs is poorly quantified.

Feral pig populations in New Zealand often have a high prevalence of TB infection in areas where other wildlife is infected (such as possums). Prevalence of the disease in pigs from infected areas can range from 50 per cent to 90 per cent. Feral pigs are considered a spillover end host that contract the disease and then spread it to ferrets and possibly possums that scavenge infected pig carcasses. However, they will not maintain the disease in the absence of other wildlife vectors, especially possums.

Because of their potential to adversely impact sensitive environments if left uncontrolled and unmonitored, Waikato Regional Council considers that feral pigs meet the criteria for control as pests under the Biosecurity Act. However, some stakeholders disagree. Given this, the council has not designated them as Biosecurity Act pests, except in the Hunua Ranges Pest Management Area. In this area, Auckland Council will be the management agency for the RPMP. In other parts of the region, should feral pigs need to be controlled the council would follow the provisions of section 31 of the Wild Animal Control Act and submit a proposed control plan to the Minister of Conservation.

Our long term objective

Reduce the adverse impacts of feral pigs only on high value biodiversity sites in the Waikato region.

Our objective for this plan

Reduce feral pig populations affecting high value biodiversity sites only if they are damaging significant resources in those sites.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Control process	
	In accordance with section 11.6 of the plan, should a site assessment indicate a need for control of feral pigs at a high value site, Waikato Regional Council would: • work with affected landowners to identify a suitable response • explore control options utilising local hunting clubs • follow the provisions of section 31 of the Wild Animal Control Act and submit a proposed control plan to the Minister of Conservation.
Monitoring	
	Waikato Regional Council may, after consultation with affected landowners, inspect and monitor high value sites with suspected or confirmed feral pig populations to determine, through an appropriate assessment survey, if feral pigs are damaging these areas. After consultation with landowners the council may identify required remedial action.
Information and advice	
	Waikato Regional Council may provide advice and information on the control of feral pigs to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council will encourage research to further assess the impacts that pigs have on: • a range of conservation values, including native biodiversity • production values, including direct consumption impacts on crops, lambing and pasture, and indirect impacts through rooting.
Hunua Ranges Pest Management Area	
	In the Hunua Ranges Pest Management Area (for a map, see figure 2 on page 42) feral pigs (*Sus scrofa*) are declared pests with a management category of **eradication** and an intermediate objective over the lifetime of this plan of: • reducing the feral pig population to zero; and • preventing the release of feral pigs into the Hunua Ranges Pest Management Area.
Plan rule	
6.8.1	No person shall release, or cause to be released, any pig (*Sus scrofa*) into the wild in any part of the Hunua Ranges Pest Management Area. A breach of this rule will create an offence under section 154N(19) of the Act. A breach of this rule may result in default work under section 128 of the Act.

6.9 Introduced fish: brown bullhead catfish *(A. nebulous)*, koi carp *(cyprinus carpio)*, gambusia *(Gambusia affinis)*, wild goldfish *(Carassius auratus)*, perch *(Perca fluviatilis)*, tench *(Tinca tinca)* and rudd *(Scardinius erythrophthalmus)*

Koi carp, brown bullhead catfish, wild goldfish and gambusia are four problem fish species found in the Waikato region. Because of Waikato Regional Council's role in water quality management and regional biosecurity issues, it is appropriate for these species to be included in this plan as pests. Waikato Regional Council will advocate for a coordinated approach to their management and control.

Perch, rudd and tench are sport fish under the jurisdiction of Fish & Game New Zealand. They are not yet present in all freshwater bodies in the Waikato region. To prevent their spread, provision is now made for their eradication, in conjunction with Fish & Game New Zealand and the Department of Conservation (DOC), should they ever appear in water bodies where they have not been legally authorised.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

6.9.1 Brown bullhead catfish

Description

The brown bullhead catfish is a large-headed fish with eight long, whisker-like barbels around the mouth. It can grow to 500mm long and 3kg in weight.

Native to the northern United States and Canada, this fish is now widespread throughout the Waikato River system, including Lake Taupō. It is also found in a few other localities in New Zealand, but appears to be absent from some neighbouring regions. It was probably accidentally introduced through a case of mistaken identity.

Why it is a pest

Production threat	**Environmental threat**	Public threat

The brown bullhead catfish preys on small native fish and eggs. It competes for food with koura and reduces water quality by stirring up bottom sediments. It possibly also affects trout in New Zealand. It can survive for long periods out of water, so can be transferred to new areas easily, both intentionally and accidentally (on boat trailers, for example). Brown bullhead catfish has not yet been classed as a noxious fish or unwanted organism.

Ministry for Primary Industries (MPI) regulations state that "recreational fishers will be required to kill catfish on capture. Commercial fishers will be allowed to sell dead catfish, but may return live catfish to the water when retrieving their fishing gear where they do not intend to take them for sale. Licensed commercial fishers are also permitted to retain live catfish to the first point of sale."

6.9.2 *Koi carp*

Description

Koi carp is an ornamental strain of the common or European carp. Koi commonly grow to over 5kg and 600mm in length. Each fish has two pairs of 'feelers' at the base of the mouth. Koi is native to western Europe, the Mediterranean and western Asia, but is now found in every continent except Antarctica. It was introduced to New Zealand as an ornamental fish, but now breeds in natural waterways.

This fish is classified as an unwanted organism under the Freshwater Fisheries Act 1983. The Freshwater Fisheries Regulations 1983 classify koi as a noxious fish and make it illegal to possess, rear or consign live koi. Under the Biosecurity Act it is illegal to release, sell or breed them without written authority. The primary responsibility for koi carp lies with DOC.

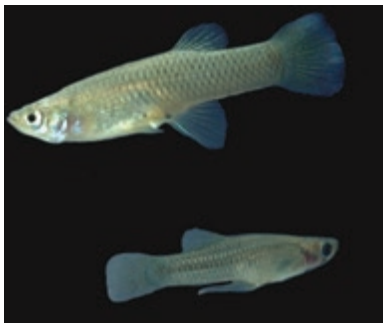
Why it is a pest

Production threat	**Environmental threat**	Public threat

Koi carp pose a significant threat to New Zealand's freshwater ecosystems by uprooting water plants, lowering water quality and eating insects and other young indigenous fish. There are currently no adequate methods for controlling koi carp in rivers, though their numbers may be controlled in small, closed water bodies.

Koi carp are found only in the Waikato and Auckland regions, and near Nelson. The Bay of Plenty Regional Council has classed koi carp as an exclusion and eradication animal pest and put in place monitoring and control provisions to prevent their spread to Bay of Plenty waters. Lake Taupō is currently free of koi carp. Waikato Regional Council wishes to work with neighbouring agencies to reduce the chances of koi carp spreading to previously uninfested areas. In line with this, the council and partner agencies have trialled a prototype automated koi carp removal system at Lake Waikare. This is a proof of concept trial that will inform discussions about whether the trap technology might be deployed strategically around the Waikato River system. The RPMP rules for koi carp will be reviewed if needed as part of this discussion.

6.9.3 *Gambusia*



Description

Gambusia is a small fish which was introduced to New Zealand in the 1930s to control mosquito larvae. However, it has proved to be ineffective at mosquito control and has instead become a pest. It can be identified by its greenish silvery sheen. Mature females grow to 60mm and males to 35mm. Gambusia give birth to live young that mature at six weeks. Large populations can develop very quickly and outnumber other species.

Why it is a pest

Production threat	**Environmental threat**	Public threat

Gambusia are aggressive predators that attack native fish by nipping at their fins and eyes and preying on their eggs. This pest is widespread in the Waikato region in the shallow margins of slow flowing ponds, wetlands and streams, especially around aquatic plants.

Gambusia habitat overlaps with several native fish species: inanga (Galaxias maculatus), smelt (Retropinna retropinna) and the common bully (Gobiomorphus cotidianus). The reduction of inanga populations is of particular concern because this affects whitebait fisheries. Whitebait and mudfish species are also vulnerable to gambusia.

6.9.4 Wild goldfish

Description

Wild goldfish lack the bright colours, bulging eyes and feathery fins of their domestic relatives, but are the same species. This section does not apply to domestic goldfish, which are in proper confinement (for example fish tanks and garden ponds), nor the trade in domestic goldfish.

Wild goldfish are bronze to gold in colour with large scales and average about 150-200mm in length. They are numerous and widespread in natural water bodies in the Waikato region and in many cases are much more numerous than koi carp. These fish are omnivorous, feeding on plant material, organic detritus and small insects and crustaceans. They are prolific breeders and capable of laying several hundred thousand eggs during spawning.

Why it is a pest

Production threat	**Environmental threat**	Public threat

Wild goldfish have the capacity to outcompete native fish species and other aquatic life such as water snails and aquatic plants, leading to highly degraded freshwater environments. Recent research has shown that growth of cyanobacteria (blue-green algae) is stimulated by its passage through goldfish intestines, thereby potentially contributing to algal blooms.[18]

6.9.5 Perch

Description

Perch can be identified by their two dorsal fins with the first fin having 13-17 firm, sharp spines. They also have a broad, flat spine on the gill cover and six or more dark bands along their sides that are most prominent in small fish. The bottom edge of the caudal fin is bright red-orange.[19]

Why it is in this plan

Production threat	**Environmental threat**	Public threat

Perch have become well established in Otago and Southland and occur in many other parts of New Zealand. They prefer slow flowing and still water habitats where they feed on insect larvae and other fish. Perch prey on small native fish species and can contribute to water quality deterioration.

18 Kolmakov VI, Gladyshev MI 2003. Growth and potential photosynthesis of cyanobacteria are stimulated by viable gut passage in crucian carp Aquatic Ecology 37, pp 237-242.

19 www.niwa.co.nz/freshwater-and-estuaries/nzffd/NIWA-fish-atlas/fish-species/perch

6.9.6 *Tench*

Photo: Brendan Hicks

Description

Tench are olive green in colour and have bright orange eyes. They have a single small barbel at each corner of the mouth. The fins are thick and fleshy and the body is covered in small scales. A golden variety of tench, which is bright yellow-orange, is thought to be present in some lakes in the Auckland region. This variety of tench was illegally imported in about 1980.[20]

Tench are native to Europe and were first introduced to New Zealand in 1867 as a sports fish. They grow to a large size in New Zealand (2-4kg) and some northern lakes have now gained an international reputation for them among anglers.

Why it is in this plan

Production threat	**Environmental threat**	Public threat

The biology of tench is not well known. They generally live in still or slow flowing waters and are carnivorous as juveniles, feeding on insect larvae, crustaceans and molluscs. As adults they eat mainly aquatic plants. They are prolific breeders, producing up to hundreds of thousands of small eggs. Tench occur in the Auckland, Northland, Bay of Plenty, Nelson, Waikato and Otago regions.

6.9.7 *Rudd*

Description

Rudd have a single dorsal fin, are darker on the back than the belly and have bronze highlights when the light catches the scales. Fins are usually bright orange. They are generally 200-250mm long.[21]

Why it is in this plan

Production threat	**Environmental threat**	Public threat

High densities of rudd impact on trout fisheries. They are also detrimental to native fish species and aquatic plants and have a role in suppressing regeneration of aquatic plants in turbid lakes. Rudd are prolific breeders, capable of producing hundreds of thousands of eggs.

Our long term objective

Ecological integrity of freshwater ecosystems at high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of koi carp, brown bullhead catfish, gambusia and wild goldfish populations in freshwater ecosystems at high value biodiversity sites.

20 www.niwa.co.nz/freshwater-and-estuaries/nzffd/NIWA-fish-atlas/fish-species/tench
21 www.niwa.co.nz/freshwater-and-estuaries/nzffd/NIWA-fish-atlas/fish-species/rudd

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Waikato Regional Council will measure the presence of gambusia, wild goldfish, perch, tench and rudd as by-catch in the semi-automated koi trap located at Lake Waikare.

Means of achievement

Plan rules	
6.9.8	The occupier is required, on direction from an authorised person, to destroy all koi carp in isolated ponds, wetlands and ditches on the land occupied. The authorised person shall determine which methods are realistic, including draining, poisoning or electric fishing.
6.9.9	No person shall release koi carp, brown bullhead catfish, gambusia or wild goldfish into any water body within the Waikato region outside the known current range for the species concerned. Consideration will be given to any relevant licences sought under the Freshwater Fish Farming Regulations 1983.
6.9.10	No person shall release perch, rudd or tench into any water body within the Waikato region where the introduction has not previously been legally authorised. Consideration will be given to any relevant licences sought under the Freshwater Fish Farming Regulations 1983.
6.9.11	The occupier is required, on direction from an authorised person, to destroy all perch, rudd and tench in isolated ponds, lakes, wetlands and ditches on the land occupied. The authorised person shall determine which draining/poisoning methods are realistic. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council in conjunction with Fish & Game New Zealand and DOC may undertake direct control of koi carp, brown bullhead catfish, gambusia and wild goldfish in any water body where they are having negative impacts, in accordance with section 11.4 of the plan. Waikato Regional Council in conjunction with Fish & Game New Zealand and DOC may undertake direct control of perch, rudd or tench in any water body in which they have become established, in accordance with section 11.4 of the plan.
Monitoring and surveillance	
	Waikato Regional Council in conjunction with Bay of Plenty Regional Council and DOC may undertake monitoring and surveillance of koi carp, brown bullhead catfish and gambusia to determine the extent of populations, in accordance with section 11.2.2 of the plan. Waikato Regional Council in conjunction with Fish & Game New Zealand and DOC may undertake monitoring and surveillance of perch, rudd and tench to determine the extent of populations, in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threat of these pest fish, in accordance with section 11.1 of the plan.
Management partnerships	
	Waikato Regional Council may undertake management of koi carp and brown bullhead catfish in association with DOC, the Waikato River Authority, Genesis Energy, the Ministry for Primary Industries, the National Institute of Water and Atmospheric Research and other appropriate partners.

6.10 Magpie *(Gymnorhina species)*

Description

Magpies were brought to New Zealand from Australia in the 1860s to control insect pests. Two sub-species were introduced, the white-backed *(Gymnorhina tibicen hypoleuca)* and black-backed *(Gymnorhina tibicen tibicen)* magpie. Both sub-species are black and white in colour. The magpie's most distinctive characteristic is its flute-like call (quardle, oodle, ardle, wardle, doodle), best heard soon after daybreak or in the evening.

Management category

Advisory animal	Eradication	Progressive containment	**Sustained control**	Site-led

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

Magpies are extremely territorial birds and show aggression to anything that may pose a threat to their territory. They can be a considerable nuisance during the breeding season, swooping on and occasionally attacking humans, especially children. Waikato Regional Council receives numerous complaints during the nesting season regarding harm caused by 'dive-bombing' magpies. Most complaints are in relation to urban and public parks, reserves and fields, and occasionally on private properties.

Magpies can affect native birds by excluding them from breeding territories. They may also prey on chicks and eggs to feed to their own young.

Our long term objective

Reduce the risk of magpies adversely affecting any person and reduce the adverse effects of magpies on indigenous fauna in the Waikato region.

Our objective for this plan

Promote public understanding of the 'pest' characteristics of magpies, and to facilitate the voluntary control of magpies, for the duration of this plan.

What we will measure

The effectiveness of any direct control measure undertaken.

Where enforcement processes are initiated, Waikato Regional Council will monitor a landowner or occupier's compliance with magpie control directives.

Means of achievement

Plan rule	
6.10.1	The occupier is required, on direction from an authorised person when a complaint is received from any affected party, to destroy magpies where the magpie nest occurs on land that he or she occupies. In this situation, 'destroy', means destruction of the bird, the nest, or both, as directed. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
6.10.2	The occupier shall, on a complaints basis and on direction from an authorised person, destroy magpies that are causing the impact. In this situation 'destroy' means destruction of the bird, the nest, or both, as directed. This rule is subject to the process requirements listed in section 4.2.3.
Direct control	
	Waikato Regional Council may undertake direct control of magpies during the nesting season, and at other times, in accordance with sections 11.4 of the plan. In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of magpies at high value sites where the presence of that animal threatens site values.
Community initiatives	
	Community initiatives may be undertaken, as appropriate, in accordance with section 11.5.2 of the plan.
Monitoring	
	Waikato Regional Council may undertake compliance monitoring of the above rule, on a complaints only basis, in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of magpies to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.

6.11 Mustelids: ferret *(Mustela furo)*, stoat *(Mustela erminea)* and weasel *(Mustela nivalis vulgaris)*

Description

The ferret, stoat and weasel belong to a group of animals known as mustelids. All have a characteristically long body, short legs and sharp pointed face. The ferret is the largest of the three species, growing to 0.5m long. The colours of all three can vary, but they are usually dark brown or blackish with creamy under parts. They are considered together in this plan because their effects on the environment are largely the same.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Mustelids were introduced to New Zealand in the mid 1880s to control rabbits. Although they failed to do that, they took the role of principal predator of rodents and birds over the whole country.

Mustelids are typically found in pastoral habitats including fertile pasture, rough grassland, tussock, scrubland and the fringes of nearby forest.[22] They are also commonly found in areas that have high numbers of rabbits. Ferrets and stoats are more numerous in the Waikato region than weasels, which are quite scarce. Ferrets and stoats are considered to be the 'ultimate predators' in New Zealand's unique natural environment. Stoats in particular are a key predator of kiwi chicks in the wild.

Ferrets feed mainly on small mammals: rabbits and young hares, particularly in spring and summer[23]; rodents and hedgehogs, particularly in autumn and winter; and possums and rats in forests and at forest margins. Ferrets also eat a variety of bird species[24], reptiles (geckos and skinks), weta, beetles and other invertebrates. Their greatest impact on native species occurs when their primary prey (such as introduced rabbits and rodents) becomes scarce. Adverse effects of ferrets on New Zealand's native fauna have been confirmed for a number of bird species (including kiwi, penguins, wading birds and passerines), lizards and invertebrates.

Through large-scale movements, ferrets may also play a role in the spread of bovine TB, invading parts of the Waikato region that are currently outside a vector risk area. Mustelids also carry parasites and toxoplasmosis, which cause abortions in sheep and illness in humans.

Ferrets have been declared 'unwanted organisms' under the Act. As an unwanted organism, no ferret can be bought, sold or bred without the permission of the Chief Technical Officer of the Ministry for Primary Industries (MPI). Pet ferrets alive before the unwanted organism determination was made can live out their natural life.

22 King CM, Moody JE 1982. The biology of the stoat (Mustela erminea) in the national parks of New Zealand. New Zealand Journal of Zoology 9, pp 49-144.

23 Ragg JR 1998. Intraspecific and seasonal differences in the diet of feral ferrets (Mustela furo) in a pastoral habitat, East Otago, New Zealand. New Zealand Journal of Ecology 22, pp 113-119.

24 Murphy EC, Keedwell RJ, Brown KP, Westbrooke I 2004. Diet of mammalian predators in braided river beds in the central South island, New Zealand. Wildlife Research 31, pp 631-639.

There is limited information on ferret distribution and densities in the Waikato region. Numbers are not known to be particularly high and the Waikato is not rabbit-prone compared to some areas of New Zealand. However, even at low densities ferrets may have important conservation impacts. Of particular note are the many remnant forest fragments scattered throughout the region. Because ferrets are known to make use of habitat edges, including forest margins, they may compromise conservation and restoration of native biodiversity in these areas.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Reduce the adverse impacts of mustelids at high value biodiversity sites.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Plan rule	
6.11.1	No person shall knowingly distribute to other persons, release, sell, offer for sale, hold in premises where animals are offered for sale, or breed, any ferret, stoat or weasel unless permitted by the Chief Technical Officer of MPI. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
6.11.2	Where more than three ferrets, stoats or weasels are kept for any purpose, permission must be obtained from the Director General of Conservation under the Wildlife (Farming of Unprotected Wildlife) Regulations 1985.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	As appropriate, Waikato Regional Council may undertake the direct control of mustelids in accordance with section 11.4 and 11.6 of this plan in order to achieve the above objectives.
Community initiatives	
	Waikato Regional Council may undertake community initiatives, as appropriate, in accordance with section 11.5.2 of the plan.
Monitoring	
	Waikato Regional Council will inspect and monitor properties with suspected or confirmed mustelid populations and identify any remedial action to be taken in accordance with section 11.2.2 of this plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the control of mustelids to interested parties in accordance with section 11.1 of this plan.
Research required	
	Waikato Regional Council will encourage research to: • identify which areas in the Waikato region are most likely to have high mustelid densities, and which of these areas have high conservation values • determine which primary prey species (rodents or rabbits) drive the population dynamics of mustelids in the region and how • determine the effects of mustelids on key groups of prey species that are of conservation importance, such as native birds, reptiles and iconic invertebrates • determine the importance of mustelid impacts on native fauna in the Waikato region relative to other pest animal species, to allow managers to prioritise pest management efforts • determine the survival and recovery of at-risk native fauna in forest remnants, and in an ecosystem context, in the presence and absence of mustelids at various density levels.

6.12 Possum *(Trichosurus vulpecula)*

Description

The Australian brushtail possum is a nocturnal marsupial introduced to New Zealand between 1837 and 1898 to establish a fur trade. Protection of this animal was lifted in 1947 because it had become apparent that the environmental damage it caused far exceeded any profit from skins. Today, possums are generally considered to be the major vertebrate animal pest in New Zealand.

Possums have a thick bushy tail, pointed snout, and a darkly stained sternal gland on the chest. The fur is thick and woolly. They have relatively long and narrow ears which are nearly naked on the inside and on the outer tips. The size, weight, and colouring of possums vary greatly throughout New Zealand.[25]

Management category

Advisory animal	Eradication	Progressive containment	**Sustained control**	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Possums act as a vector for bovine TB, a serious disease of cattle and deer that has economic implications for the meat and dairy industries in meeting internal and international trade standards. They also pose a major threat to the environment by destroying native and exotic forest areas, browsing trees and other plants to near extinction and predating on young birds.

Cover for nesting plus a suitable and varied food supply are the only requirements possums have. Hence they live in a diverse range of habitats: all types of indigenous forest from sea level to the tree line, montane scrublands, introduced and indigenous grasslands including tussock, exotic forests, shelter belts, orchards and cropping areas, thermal regions, swamps, sand dunes, and urban and city areas. Forests, however, are their preferred habitat. In mixed hardwood forests, possum densities are higher than in beech or exotic pine forests. Forest-pasture margins, which provide plentiful browsing including grass, often support very dense populations (up to 25 per hectare). In North Island mountain ranges possums regularly forage above the snowline in beech forest.[26]

Possums are best described as opportunistic herbivores, feeding mainly on leaves of native and exotic trees and shrubs, ferns, epiphytes, grasses, herbs and sedges. Cereal, vegetable and horticultural crops are also eaten. They also take buds, flowers, fruits, ferns, bark, fungi and invertebrates, which at times comprise most of their diet.

25 Cowan PE 2005 Brushtail possum In: King CM ed. The handbook of New Zealand mammals. Oxford University Press, Melbourne. pp 56-80.
26 Cowan PE 2005 Brushtail possum In: King CM ed. The handbook of New Zealand mammals. Oxford University Press, Melbourne. pp 56-80.

Fruits of at least 65 species of native plants are eaten by possums, generally but not always in proportion to availability. Entire crops of some species, for example kaikomako *(Pennantia corymbosa)*, may be destroyed in a few days. Buds and flowers may comprise up to 30 per cent of their diet when in season. Possums also readily eat meat, especially native birds and their eggs, and land snails. They are routinely trapped in leg-hold traps baited with rabbit meat to catch ferrets, and they scavenge deer and pig carcasses, including those infected with bovine TB.

Agencies controlling possums in the Waikato region

In the Waikato region, possum control is carried out by the Department of Conservation (DOC), TBfree New Zealand and Waikato Regional Council, as well as many private individuals and community groups. In many instances the control is collaborative and extends over wide areas.

Waikato Regional Council controls possums within areas designated as priority possum control areas (PPCAs) and at some high value sites to protect and enhance biodiversity, catchment and production values. TBfree New Zealand controls possums in order to eradicate bovine TB. When an area is determined to be free of this disease, their contribution ceases. DOC undertakes possum control to protect native species on public conservation land.

Council is concerned that budget pressures facing DOC may curtail its pest control operations in the region. This has the potential to limit the very effective collaboration between Waikato Regional Council and the department, as well as undermining the council's pest control operations. In addition, it is likely that funding pressure will come on Waikato Regional Council's possum control programme over the duration of this plan as a result of TBfree New Zealand's withdrawals and DOC cutbacks.

The council will rely on its normal scoring prioritisation process to evaluate which areas should receive possum control. The scoring criteria include agricultural values, ecological components and catchment health considerations. When ranked against all other potential projects, some areas might be prioritised lower and therefore not receive continued treatment.

Our long term objective

Ecological integrity of forest ecosystems at high value biodiversity sites is maintained or enhanced and impacts on production values are reduced in the Waikato region.

Our objective for this plan

Reduce the adverse impacts of possums at high value biodiversity sites.

Achieve post operational possum control densities for direct control operations at an average residual trap catch index (RTCI) of no greater than 5 per cent at all current PPCA locations.

Investigate management techniques to maintain the level of possum control at 5 per cent RTCI but increase the amount of time between PPCA control operations.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Plan rules	
6.12.1	No person shall possess a live possum unless permitted under the Biosecurity Act 1993 or regulations subject to that Act.
6.12.2	Occupiers within a Waikato Regional Council PPCA shall, on direction from an authorised person: • allow council staff, contractors or agents to control possums on their properties from time to time down to a specified density using uniform methods prescribed by the council across all properties • not impede or hinder the progress of such control operations. Waikato Regional Council shall determine for all PPCAs: • any need for integration with site-specific control of other vertebrate pests • the suite of vertebrates to be controlled • the type and frequency of control.
6.12.3	Occupiers of land within a PPCA (proposed or active) shall, on direction of an authorised person: • allow council staff, contractors or agents to carry out pre and post control monitoring uniformly across all properties to determine the RTCI percentage • allow staff, contractors or agents to carry out monitoring of biodiversity, catchment and production outcomes as determined by Waikato Regional Council • not impede or hinder the progress of such monitoring operations. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
6.12.4	The occupier shall on a complaints basis, unless otherwise agreed between the parties, undertake the level of possum control necessary to mitigate the impact on adjoining properties: • where a PPCA has been implemented by the council; or • where possum control is being undertaken by the council or the Crown at a high value biodiversity site; or • on other lands involved in community led possum control established for biodiversity protection. This rule shall apply to any area of land up to 500m from the affected property boundary. This rule is subject to the process requirements listed in section 4.2.3.
Information and advice	
	Waikato Regional Council will provide advice and information to affected land occupiers and other interested parties on the threats of possums and means of control in accordance with section 11.1 of the plan.
Hunua Ranges Pest Management Area	
	In the Hunua Ranges Pest Management Area (for a map, see figure 2 on page 42) brushtail possums (*Trichosurus vulpecula*) are declared pests with a management category of **sustained control** and an intermediate objective over the lifetime of this plan of reducing the impacts of possums in the Hunua Ranges Pest Management Area by maintaining a RTCI level below 3 per cent.
Plan rule	
6.12.5	In the Hunua Ranges Pest Management Area no person shall: a. cause or permit brushtail possums (*Trichosurus vulpecula*) to be in a place where they are offered for sale, or exhibited (without a permit); or b. sell or offer brushtail possums (*Trichosurus vulpecula*) for sale; or c breed, or multiply brushtail possums (*Trichosurus vulpecula*) or otherwise act in such a manner as is likely to encourage or cause the breeding or multiplication of brushtail possums (*Trichosurus vulpecula*). A breach of this rule will create an offence under section 154N(19) of the Act. A breach of this rule may result in default work under section 128 of the Act.

6.13 Rabbit
(Oryctolagus cuniculus)

Description

The European rabbit is about the size of a small domestic cat with long ears and a small tail. They breed continually throughout the year, with adult females capable of producing 45-50 young each year.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Rabbits compete directly with stock for grazing and reduce the amount of palatable pasture. Their overgrazing increases the amount of bare ground and causes soil erosion. They can also damage young plantation trees, horticultural crops and residential gardens.

Rabbits are widespread throughout the Waikato region at varying levels of infestation, but generally they are not a serious problem because in most places the region's high rainfall and resulting lush growth restricts their abundance. There are, however, isolated problematic infestations in rabbit prone areas. These areas (which correspond with sandy/pumice soil) lie south of Tokoroa, around Lake Taupō and in a narrow strip along the margins of the Waikato River. Some settlements on the Coromandel Peninsula are also prone to rabbit infestations. This situation is exacerbated by holiday home owners who are absent for large periods of the year and may not regularly carry out rabbit control – something that should now generally be an accepted part of property management.

The impact of rabbits on agriculture in the Waikato region has not been studied, but is likely to be very low. Rabbits can impose significant costs on agricultural production where they are abundant, but there is presently no way to assess the marginal costs and benefits of rabbit control.

The effects of rabbits on conservation values vary widely according to habitat type. In two exclosures in the central North Island, the exclusion of rabbits and hares for 5-15 years had no significant effect on recovery rates of red tussock, hard tussock or exotic grasses. In some short-tussock grasslands, native plant species that are vulnerable to weed competition and have native fauna dependent on them may benefit from light grazing by rabbits.[27]

Our long term objective

With regard to protecting production and agricultural values; contain rabbit populations within affected properties and protect them from the negative effects.

Ecological integrity of high value biodiversity sites is maintained or enhanced.

27 Rogers GM 1994. Kaimanawa feral horses: recent environmental impacts in their northern range. Conservation Advisory Science Notes 105, pp 1-11.

Our objective for this plan

Reduce the adverse impacts of rabbits at high value biodiversity sites and minimise the effects on agricultural and production values.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Plan rule	
6.13.1	The occupier shall, on direction from an authorised person, control rabbit populations to level 4 or below on the McLean scale (refer to section 11.2.2, table 4) on the land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan. Note: this rule does not apply to 'domestic' rabbits which are in proper confinement (for example, New Zealand white, angora, Flemish giant, rex, Californian, Netherlands dwarf, Dutch, tan and silver fox).
Good neighbour rule	
6.13.2	The occupier shall, on a complaints basis and on direction from an authorised person, control rabbit populations to level 4 or below on the McLean scale (refer to section 11.2.2, table 4) where directed on the land occupied. This rule is subject to the process requirements listed in section 4.2.3.
Direct control	
	Waikato Regional Council may undertake direct control of rabbits, as it considers appropriate, in accordance with sections 11.4 and 11.6 of the plan.
Monitoring	
	Waikato Regional Council will undertake compliance monitoring of rabbit populations in the region, on a complaints-only basis, in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of rabbits to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council will encourage research to: • improve information on costs and benefits of rabbit control • determine, for rabbit-prone areas, whether rabbit numbers increase after rabbit haemorrhagic disease (RHD) releases • identify key conservation values within the Waikato region that might be threatened by rabbits • determine the relationship between rabbit density and impacts on selected conservation values in the Waikato region • identify optimal ways for integrating RHD with conventional control.

6.14 Rainbow lorikeet *(Trichoglossus haematodus)*

Description

The rainbow lorikeet is a small (25-30cm long) parrot, intensely coloured with patches of emerald green, orange, midnight blue, dull blue, ruby red, lemon yellow, purple, and violet greenish grey. It is native to north-eastern Australia.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led (MPI-led)**

Why it is a pest

Production threat	**Environmental threat**	Public threat

Rainbow lorikeets are unwanted organisms under the Biosecurity Act 1993 and are managed under the National Interest Pest Responses (NIPR) initiative. They are regarded as a pest because they compete with native birds for food, particularly with honey eaters such as tui and bellbird. They also compete for nest sites with cavity nesters such as kaka, and may carry avian diseases.

Deliberate releases have occurred in Auckland and a feral population has established in that region. Although feral populations of rainbow lorikeet are not yet found in the Waikato region, the council wishes to retain a capability to assist with control and monitoring if considered appropriate.

Our long term objective

Prevent the establishment of feral rainbow lorikeets in the Waikato region, in conjunction with the Ministry for Primary Industries (MPI) as the lead agency.

Our objective for this plan

In conjunction with MPI, reduce towards zero density any infestations of rainbow lorikeet identified in the region, over the duration of the plan.

What we will measure

Sightings of rainbow lorikeet will be recorded and forwarded to MPI.

Means of achievement

Statutory obligation	
	No person shall knowingly communicate, release, sell or offer to sell rainbow lorikeet. A breach of this obligation will create an offence under section 154O(1) of the Act. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council may undertake direct control of rainbow lorikeet in conjunction with MPI as the lead agency, in accordance with section 11.4 of the plan. In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of rainbow lorikeets at high value sites where the presence of that animal threatens site values.
Monitoring	
	Waikato Regional Council may, at its discretion, undertake trend monitoring of feral rainbow lorikeet in conjunction with MPI and the Department of Conservation in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threat of feral rainbow lorikeet to the region in accordance with section 11.1 of the plan.

6.15 Rats: ship rat *(Rattus rattus)* and Norway rat *(Rattus norvegicus)*

Ship rat
Photo: Nga Manu images

Description

There are two introduced European rat species in New Zealand – the ship rat *(Rattus rattus)* and Norway rat *(Rattus norvegicus)*.

The ship rat has a pointed muzzle and large eyes and ears. Its tail is longer than the combined length of its head and body. The body is quite sleek with a scaly, sparsely haired tail. Ship rats are smaller than Norway rats, weighing 130-170g.

The Norway rat is the largest rat in New Zealand. They often weigh between 150-300g, but can grow to more than 500g. It has a short body and a heavy tail, which is slightly shorter than the combined length of the head and body. The coat of both sexes is coarse and quite shaggy, greyish brown on the flanks with a darker brown along the back. The stomach and throat are pale grey. Norway rats are competent swimmers and are commonly called 'water rats'. This ability enables them to colonise offshore islands. In favourable conditions a crossing of 600m is possible. They can also jump up to 77cm vertically or 120cm horizontally.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is a pest

Production threat	**Environmental threat**	**Public threat**

Rats have been responsible for the extinction of a number of native species[28] and continue to have a major impact on New Zealand's flora and fauna. They are also implicated in the spread of human diseases.

Both species eat seeds and foliage, birds, eggs, invertebrates, snails and lizards. This means their impact on native species is two-fold – they prey on them and compete with them for food. However, it is the nocturnal ship rat – an excellent climber – that is probably the most widespread mammalian predator in non-beech forests on the New Zealand mainland.

Ship rats eat seeds, fruits, flowers and other plant parts, which make up 80 per cent (by volume) of their diet. However, insects (including beetles, moths, stick insects, cicadas and especially weta) are always eaten when available. The detrimental effect of both rat species on insect populations is evidenced by research showing that rat control is followed by increases in insect abundance.

It is difficult to separate damage caused by ship rats from the damage caused by the other rodents and herbivores occupying their range. Ship rats are found from sea level to tree line and in a broad range of habitats, including urban areas, farmland, native and exotic forests, and shrubland. They reach their highest densities in lowland podocarp-broadleaved forests. Some examples of recorded densities range from 1.7 to 6.2 rats per hectare.

28 Innes JG 2005. Ship rat. In: King CM ed. The handbook of New Zealand mammals. Oxford University Press, Melbourne. pp 187-203.

In mixed podocarp-hardwood forest a common sign of ship rats is the cached and gnawed remnants of miro *(Prumnopitys ferruginea)* or hinau *(Elaeocarpus dentatus)* seeds. Although they destroy many seeds, ship rats may also help to disperse some seeds, as shown in captive feeding trials.

Norway rats tend to occupy coastal margins, but are also found in forests.

Our long term objective

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Tui numbers are enhanced at designated Halo operational sites.

Our objective for this plan

Reduce the adverse impacts of rats on ecological values at high value biodiversity sites.

Reduce the adverse impacts of rats on tui and other ecological values at designated Halo operational sites.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
6.15.1	The occupier shall, on a complaints basis and unless otherwise agreed between the parties, undertake the level of rat control necessary to mitigate the impact on the affected biodiversity values at the adjoining or nearby property. Unless otherwise agreed, this rule shall apply to the land not beyond 200m of the affected boundary. The rule may be enforced only in areas where rats are being effectively controlled on the adjacent land to protect biodiversity values. This rule is subject to the process requirements listed in section 4.2.3.
Direct control	
	Waikato Regional Council may undertake the direct control of ship rats and Norway rats in high value sites in accordance with sections 11.4 and 11.6 of the plan.
Monitoring	
	Waikato Regional Council may inspect and monitor high value sites with suspected or confirmed rat populations and identify any remedial action to be taken to achieve the objectives of this plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the control of rats to interested parties in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council will encourage research to determine the: • effect of rats on insect biodiversity (both species diversity and their abundance) • interaction of rats with other introduced pests in order to avoid unexpected consequences from control operations • rat population levels required to be maintained to avoid significant impacts on a selection of key conservation values.

6.16 Rook
(Corvus frugilegis)

Description

Rooks are large, black birds, 30-50cm long with a violet-blue glossy tint. They live in conspicuous breeding colonies or rookeries generally built in pine or eucalyptus trees. A typical rookery in the region holds 3-7 nests, equating to 3-35 birds. Adults live in and about the rookery from when eggs are laid in early September until juveniles fledge in mid-December.

Management category

Advisory animal	**Eradication**	Progressive containment	Sustained control	Site-led

Why it is a pest

Production threat	Environmental threat	Public threat

Rooks are native to Britain and mainland Europe and were introduced to New Zealand in the late 1860s to control pasture pests. They first became a problem in the Waikato region in the Miranda area in 1968.

Rooks feed on and damage newly sown crops, particularly peas, maize and squash. The greatest damage is done at emergence when rooks pull young plants from the ground to get the seeds. They can also damage pasture by tearing it up in search of grubs. In large numbers they can devastate emerging crops, and damaged paddocks often have to be re-sown.

Waikato Regional Council has been involved in controlling rooks since 2002 and the rook population in the region is now estimated to be less than 200 birds. The relatively low incidence of this pest in the region makes surveillance and control challenging.

Landowners/occupiers are required to leave rooks and rookeries undisturbed because rooks are wary birds and will shift locations if pressured. We request that sightings of rooks and rookeries are reported to the council.

Our long term objective

Achieve zero density of rooks in the Waikato region.

Our objective for this plan

Reduce to zero density all known and new rook sites in the Waikato region.

What we will measure

Waikato Regional Council will measure the success of the operation.

Means of achievement

Plan rules	
6.16.1	No person shall possess a live rook unless permitted by an authorised person.
6.16.2	All land occupiers that have rooks or rookeries present on their land must take reasonable steps to ensure they are left undisturbed.
6.16.3	All occupiers with rooks or rookeries present on their land shall, on direction from an authorised person: • allow council staff, contractors, or agents to monitor or control rooks on their properties down to a specified density using uniform methods prescribed by the council • not impede or hinder the progress of such control or monitoring operations. A breach of these rules will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council will undertake direct control of rooks, as appropriate, in accordance with section 11.4 of the plan.
Monitoring	
	Waikato Regional Council may monitor the distribution of rooks in the region, in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of rooks to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.

6.17 Wallaby: dama wallaby *(Macropus eugenii)*, Bennett's wallaby *(Macropus rufogriseus rufogriseus)*, parma wallaby *(Macropus parma)*, brushtailed rock wallaby *(Petrogale penicillata penicillata)* and swamp wallaby *(Wallabia bicolour)*

Description

Waikato Regional Council is most concerned with dama wallabies as a population of this species is present in the region. However, the plan will apply to all wallaby species present in New Zealand because deliberate releases could extend their range.

The dama wallaby stands up to half a metre tall and weighs 5-7kg. Its body colour is grey brown with red shoulders that are more pronounced in males. The ears are long and pointed and the long, tapering tail is uniformly grey.

Management category

Advisory animal	Eradication	**Progressive containment**	Sustained control	Site-led

Why it is a pest

Production threat	**Environmental threat**	Public threat

Dama wallabies browse on native and exotic vegetation and when present in high densities can change the pattern of forest succession, or at least alter the local abundance of different species. In this regard wallabies can have a similar effect to possums. They are classified as an unwanted organism and possession of any live wallaby is an offence under the Biosecurity Act, unless the landowner is exempt. They may be hunted.

Wallabies were first liberated in the Rotorua area in 1912[29] with a further liberation in 1940. Since 1912 their range has steadily extended, mainly north and east, by an average rate of about 19km^2 per year. By 2000 they occupied 1,697km^2. Efforts are currently underway to confirm the latest extent of their range.

Dama wallabies prefer the margins of forest and scrub habitats where they can shelter during the day and feed on grasses and pasture species at night.[30] They inhabit predominantly podocarp/tawa/mixed hardwood forest with adjoining areas of manuka scrub, bracken and pasture.

In the Waikato region, dama wallaby populations occur from south of the Paeroa Range to the Waikato River and throughout the Mamaku plateau. There have been two reports of them near Hamilton – a confirmed sighting at Puketaha and a road kill body at Te Pahu. While the expansion of their range is probably occurring through both natural and human means, the dama wallaby population in the region is estimated to be low. Because the numbers are low, it is challenging and expensive to detect and manage dama wallaby populations in the region.

Bennett's wallaby are located in the South Island of New Zealand, principally in the Waimate district. The other wallaby species are present on the Hauraki Gulf islands, mostly Kawau Island. They will only become present in the Waikato if intentionally moved by people.

29 Commins PN, Clements B 2000 Dama wallaby distribution in the Bay of Plenty. Unpublished Environment Bay of Plenty report.

30 Warburton B 2005. Dama wallaby. In: King CM ed. The handbook of New Zealand mammals. Oxford University Press, Auckland. pp 32-39.

Our long term objective

In conjunction with Bay of Plenty Regional Council and the Department of Conservation (DOC), achieve zero density of wallabies in the Waikato region and change the goal from progressive containment to an eradication or exclusion programme.

Ecological integrity of high value biodiversity sites is maintained or enhanced.

Our objective for this plan

Identify the location of populations of wallaby in the Waikato region.

Undertake control of new infestations of this pest and meet the objectives of the joint agency wallaby management plan.

Reduce the adverse impacts of wallabies on ecological values at high value biodiversity sites.

What we will measure

We will measure the spread of wallaby within the Waikato region and the effectiveness of surveillance programmes.

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Plan rule	
6.17.1	No person shall possess a live wallaby under the Biosecurity Act 1993 or regulations subject to that Act. A breach of this rule will create an offence under section 154N(19) of the Act. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council will undertake direct control of wallaby, as appropriate, in accordance with section 11.4 of the plan and the Bay of Plenty Regional Council, Waikato Regional Council and DOC dama wallaby management plan. In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of dama wallabies at high value sites where the presence of that animal threatens site values.
Monitoring	
	Waikato Regional Council will monitor the distribution of wallaby in the region, in accordance with section 11.2.2 of the plan. Ongoing joint monitoring with Bay of Plenty Regional Council and DOC will be determined on an annual basis under the joint agency wallaby management plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of wallaby to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council may encourage research to: • confirm locations where dama wallabies have become established in the Waikato region and the boundaries of those populations • determine the relationship between dama wallaby densities and their impacts on selected conservation values so that objective target densities can be set • determine the optimal management practices required to maintain zero density, which could require a mix of aerial and ground-based techniques • determine and quantify the effect of dama wallaby on agricultural and horticultural production values.

6.18 Wasps: Australian paper wasp *(Polistes humilis)*, Asian paper wasp *(Polistes chinensis)*, common wasp *(Vespula vulgaris)* and German wasp *(Vespula germanica)*

Four species of wasps in the Waikato region are considered pests. These are the Australian paper wasp *(Polistes hummulis)*, Asian paper wasp *(Polistes chinensis)*, the common wasp *(Vespula vulgaris)* and German wasp *(Vespula germanica)*.

As well as inflicting a painful sting, and in some cases allergic reactions, wasps frighten people, cause schools to close, forestry operations to stop, and force campers and tourists to leave some of New Zealand's most visited conservation areas. Beekeepers class wasps as a serious threat to their industry and orchardists and viticulturists suffer the destruction of fruit.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

6.18.1 Australian paper wasp and Asian paper wasp

Photos: Landcare Research

Description

Paper wasps are distinguished by their body shape, which is slender and 13-25mm long. They have reddish-brown to black bodies with yellow rings and reddish areas on the abdomen. The wings are reddish or amber brown and they have long legs that hang down during flight.[31] The Asian paper wasp frequently constructs its nest on houses or other buildings and will also nest in trees or bushes.[32,33]

Australian paper wasps are slender with long, thin wings. They are 10-15mm long and reddish brown. This species nests above ground in buildings and trees. The Australian paper wasp has been in New Zealand for more than a century.

The Asian paper wasp is larger than the Australian paper wasp. It arrived in New Zealand in the late 1970s and by 1995 was widespread throughout the upper North Island. It had also spread as far south as Lower Hutt and Nelson. Populations increased the most in the central North Island. Large populations of Asian paper wasps occur in lowland open habitats such as shrublands, swamps and salt marshes.[34]

Why they are pests

Production threat	**Environmental threat**	**Public threat**

Asian paper wasps can occur at high densities of more than 200 nests per hectare and 6300 wasps per hectare.[35] The potential impact of such high densities of these wasps on native ecosystems is a concern, although the full extent of this impact requires further research. Asian paper wasps prey mainly on invertebrates, especially caterpillars, and are capable of consuming 957g per hectare per season of invertebrate biomass.[36] They also compete with other insects for nectar and honeydew resources.

31 Information from Global Invasive Species Database: www.issg.org/database/species/ecology.asp?si=67&fr=1&sts

32 Toft RJ, Harris R J 2004. Can trapping control Asian paper wasp (Polistes chinensis antennalis) populations? New Zealand Journal of Ecology 28, pp 279-282.

33 Clapperton BK 1999. Abundance of wasps and prey consumption of paper wasps (Hymenoptera, Vespidae: Polistinae) in Northland, New Zealand. New Zealand Journal of Ecology 23, pp 11-19.

34 Ministry of Agriculture and Forestry fact sheet

35 Clapperton BK 1999. Abundance of wasps and prey consumption of paper wasps (Hymenoptera, Vespidae: Polistinae) in Northland, New Zealand. New Zealand Journal of Ecology 23, pp 11-19.

36 Clapperton BK 1999.

6.18.2 Common wasp and German wasp

Description

Common wasps are generally 12-17mm long, although queens are larger. Workers can be identified by a black mark behind the eye on the side of the head and an anchor-shaped or dagger-shaped mark on the 'face', parallel yellow pronotal bands, and black dots and rings on the abdomen which are usually fused.[37]

The black dots and yellow rings on German wasps are separate and the pronatal band is just behind the head, but to the untrained eye German wasps are almost indistinguishable from common wasps.

Both species are social insects that inhabit agricultural areas, natural forests, planted forests, scrub/shrublands and urban areas where they nest underground and in cavities in trees and buildings.

Why they are pests

Production threat	Environmental threat	Public threat

Photos: Landcare Research

The German wasp is a successful invader of disturbed environments and natural ecosystems. It establishes large nests and the workers efficiently exploit food resources such as nectar and insects, which native fauna depend on. This species is difficult to control as a new colony can be established from a single inseminated female.

The common wasp has been nominated as one of the world's worst invaders. This species impacts on conservation, forestry, beekeeping, horticulture and human activities. In addition to causing painful stings to humans, they compete with birds and other insects for insect prey and sugar sources. They will also eat fruit crops and scavenge around rubbish bins and picnic sites.

Our long term objective

Reduce the adverse effects of wasp species within the Waikato region.

Our objective for this plan

Reduce the risk of wasps adversely affecting the environment, production and people in the Waikato region for the duration of the plan.

What we will measure

Waikato Regional Council will measure the number of complaints received for wasps.

We will measure the success of any direct control of wasps that is carried out by Waikato Regional Council.

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

37 Information from Global Invasive Species Database: www.issg.org/database/species/ecology.asp?si=67&fr=1&sts=

Means of achievement

Plan rule	
6.18.3	On complaint from any affected party the occupier is required, on direction from an authorised person, to control Australian paper wasp, Asian paper wasp, common wasp and German wasp by destroying any wasp nest where the nest occurs on land occupied. A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.
Good neighbour rule	
6.18.4	The occupier shall, on a complaints basis unless otherwise agreed, control Australian paper wasp, Asian paper wasp, common wasp and German wasp by destroying any wasp nest within 50m of the boundary of a property or high public use area. This rule shall be enforced on receipt of a complaint and following the direction of an authorised person. This rule is subject to the process requirements listed in section 4.2.3.
Direct control	
	In accordance with section 11.6 of the plan, Waikato Regional Council may undertake the direct control of these wasps at high value sites where their presence threatens site values.
Monitoring	
	Waikato Regional Council will undertake compliance monitoring of the above rule, on a complaints only basis, in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council will provide advice and information on the threats of Australian paper wasp, Asian paper wasp, common wasp and German wasp to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.

6.19 Wasps not yet established in New Zealand: lesser banded hornet *(Vespa affinis)*, median wasp *(Dolichovespula media)* and yellow flower wasp *(Radumeris tasmaniensis)*

These three species of wasp are not yet established in New Zealand and have not been declared as pests. However, their establishment is considered to be imminent and the public need to be aware of them.

If they were to establish, these wasps would prey on native flies and moths and be in direct competition with native nectar feeding birds for honeydew resources. They would also pose a risk to people.

The Ministry for Primary Industries (MPI) should be contacted for updated information about these species, including identification.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led (MPI-led)**

6.19.1 Lesser banded hornet

Photo: John X. Q. Lee

Description

The lesser banded hornet is a large species. Its body is approximately 20-25mm long with a brownish-red or black head and thorax and dark brown legs. The front half of the abdomen is orange or yellow and the remainder is black or dark brown. Wings are a smoky brown colour and not transparent like other wasps.

Why it is in this plan

Production threat	**Environmental threat**	Public threat

Hornets feed mainly on insects, consuming a large number of them during the nesting season. They also feed on nectar, tree sap and fruit. They are a direct competitor for honeydew. Preferred habitats are forest margins, forest clearings and human settlements.

6.19.2 Median wasp

Description

Median wasps are considerably larger than common and German wasps, measuring 16-22mm in length. They have a distinctive reddish-brown appearance with brown tinted wings and notably less yellow colouration than many wasps. They construct small nests in trees or shrubs and under the eaves of buildings. A male median wasp was found in Raglan in 2002. No other sightings of this species have been reported.

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

6.19.3 *Yellow flower wasp*

Photo: Landcare Research

Description

Female yellow flower wasps are up to 30mm long with a wingspan of up to 40mm and a large, robust body. Males are smaller, measuring up to 20mm long with a wingspan of about 25mm. Females have a dark brown thorax, a narrow 'waist' and a broad orange abdomen with narrow black stripes across its width. The underside of the abdomen has wider black stripes, alternating with narrower whitish stripes. Males have a narrower abdomen with alternating black and yellow stripes of similar width on the upper and lower surfaces. The female has short antennae about the same length as the width of the head. The male has longer antennae, about half the length of the forewings. Both male and female have orange to brownish wings with very fine veins towards the wing tips.

So far, the only discoveries of the yellow flower wasp in New Zealand have been at three isolated coastal sites in Northland.

Why it is in this plan

Production threat	**Environmental threat**	**Public threat**

This species is a parasite of scarab beetles and for this reason scientists are concerned that it may pose a risk to native beetles. Currently very little is known about this species.

What we will measure

Waikato Regional Council does not intend to monitor these wasp species, but this situation would be revisited in conjunction with MPI should they become established in the Waikato region.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Information and advice	
	Provide advice and information on the threats of lesser banded hornet, median wasp and yellow flower wasp to affected land occupiers and other interested parties, in accordance with section 11.1 of the plan.
Other assistance	
	These wasp species are not declared 'pests' within this region, but section 13 of the Biosecurity Act allows monitoring and surveillance in conjunction with MPI, the Department of Conservation or other third parties or otherwise, if the council considers this to be justified.

6.20 Wild deer
(Cervus, Axis, Dama, Odocoileus or *Elaphurus* species)

Photo: Daryl Panther

Description

Wild deer, for the purposes of this plan, include the species listed above and any hybrid deer living in the wild.

Wild deer range in size and colour, depending on the species. Generally wild deer are various shades of brown. The antlers of deer, borne by males only, are shed each year.

Management category

Advisory animal	**Eradication (Hunua Ranges)**	Progressive containment	Sustained control	Site-led

Why it is in this plan

Production threat	**Environmental threat**	Public threat

Like many organisms, wild deer can be valuable or harmful, depending on the circumstances in which they occur. Deer are a popular game animal and a valuable resource for many people, as a food source and for the social/cultural aspects of hunting. Commercial deer hunting makes an important economic contribution to some areas, as does commercial trophy hunting.

Established wild deer populations can thrive in habitats ranging from steep hill country to coastal flats and scrub margins. Wild deer are opportunistic and highly adaptable feeders that can browse and graze. Their diet is largely determined by what is locally available. In forested areas, wild deer can destroy the understorey vegetation. However, wild deer have not completely eliminated any formerly widespread native plant species because such species persist (at much reduced densities) as epiphytes or on inaccessible sites such as steep slopes.[38] Areas damaged by deer browse can also regenerate, provided sufficient seed sources are available.

Wild deer create damage on steep land by tracking and compacting sensitive skeletal soils, often initiating or aggravating slope failure through slipping, debris avalanches, earth and rock slides. It is acknowledged the damage being caused now is substantially lower than the mid-twentieth century, but the inherent risk to steep land soils and upper catchment watershed protection zones within the region still exists.[39]

In a study at Waihaha in the central North Island, wild deer had a major impact on regeneration patterns.[40] All of the deer-preferred species had fewer tall seedlings than adult trees of the same species. In comparison, most species not preferred by deer had more than twice as many tall seedlings as adults. Even at the lowest deer densities within the study area, regeneration of these deer-preferred species was being almost completely prevented.[41] The browsing efficiency of deer means

38 Nugent G, Fraser W and Sweetapple P 2001. Top down or bottom up? Comparing the impacts of introduced arboreal possums and terrestrial ruminants on native forests in New Zealand. Biological Conservation 99, pp 65- 79.

39 McCaskill LW 1973. Quotes from McKelvey, Holloway, and Pohlen in Hold This Land Chapter 11, pp 181-183.

40 Update of the specifications governing the keeping of deer in captivity in New Zealand for deer farming and for safari parks/game estates. Background Information. Public Discussion Document Section B. June 2005, Department of Conservation.

41 Nugent et al 2001.

they can often continue to induce major changes in the composition of vulnerable forest types even when controlled at low densities. In forests, deer seldom have any direct effects on established trees and shrubs, but brushtail possums *(Trichosurus vulpecula)* can initiate a catastrophic collapse of the forest canopy. When this happens, the effects of deer on plant succession are accelerated.

Wild deer may also have a significant impact on agricultural production. Although red deer are considered a 'spillover' host for bovine TB, their presence can compromise bovine TB eradication programmes largely through survival of already-infected females and the immigration of infected males into bovine TB free areas.[42]

Wild deer can also have an impact on forestry production by browsing and damaging the bark on trees by antler rubbing, particularly during the trees' establishment phase.

In the Waikato region, sika deer are found to the east and south of Lake Taupō in both indigenous and production forests. Their density is likely to be in the order of 7-15 per square kilometre. Red deer are widely spread in the Waikato region with densities ranging from 5-15 per square kilometre.

The Department of Conservation determines legal limits with regard to wild deer. The department's Deer Farming Notice No.5 2008 stipulates:

- Deer farms and safari parks are prohibited in areas on the Coromandel Peninsula and the Hunua Ranges.
- The farming of red deer, fallow deer, and wapiti, will be permitted in the north and west of the North Island outside of prohibited areas and will continue to be regulated.
- The farming of sika deer will be permitted in the central North Island and will be regulated.
- All safari parks will still need a permit to operate under sections of the Wild Animal Control Act 1977.

Because of their potential to adversely impact sensitive environments if left uncontrolled and unmonitored, Waikato Regional Council considers that wild deer meet the criteria for control as pests under the Biosecurity Act. However, some stakeholders disagree. Given this, the council has not designated deer as a Biosecurity Act pest, except in the Hunua Ranges Pest Management Area. In this area, Auckland Council will be the management agency for the RPMP. In other parts of the Waikato region, should they need to be controlled, the council would follow the provisions of section 31 of the Wild Animal Control Act and submit a proposed control plan to the Minister of Conservation.

Our long term objective

Reduce the adverse impacts of wild deer only on high value sites in the Waikato region.

Our objective for this plan

Reduce wild deer populations affecting high value sites only if they are damaging significant resources in those sites.

42 Nugent G, Whitford J 2004. Are deer important long-term reservoir hosts of TB? Landcare Research Contract Report: LC0405/028. Prepared for the Animal Health Board, Wellington. pp 21

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Good neighbour rule	
	The good neighbour rule does not apply.
Control process	
	In accordance with section 11.6 of the plan, should a site assessment indicate a need for control of wild deer at a high value site, Waikato Regional Council would: • work with affected landowners to identify a suitable response • explore control options utilising local hunting clubs • follow the provisions of section 31 of the Wild Animal Control Act and submit a proposed control plan to the Minister of Conservation.
Monitoring	
	Waikato Regional Council may, after consultation with landowners, inspect and monitor high value sites with suspected or confirmed wild deer populations to determine, through an appropriate assessment survey, if deer are damaging these areas. After consultation with landowners the council may identify required remedial action.
Information and advice	
	Waikato Regional Council may provide advice and information on the control of wild deer to affected land occupiers and other interested parties in accordance with section 11.1 of the plan.
Research required	
	Waikato Regional Council may encourage research to: • determine optimal management practices for wild deer at high value sites • monitor impacts of wild deer on high value sites through changes in populations where control is initiated • assess the ability of recreational hunting to manage wild deer populations in high value sites.
Hunua Ranges Pest Management Area	
	In the Hunua Ranges Pest Management Area (for a map, see figure 2 on page 42) wild deer (*Cervus, Axis, Dama, Odocoileus* or *Elaphurus* species, including any hybrids) are declared pests with a management category of **exclusion/eradication** and an intermediate objective over the lifetime of this plan of preventing the spread of feral deer to or in the Hunua Ranges Pest Management Area. Deer are declared feral wherever they are not: a. held behind fencing that meets the requirements of the Deer Farming Regulations; and b. identified as required by those regulations.
Plan rule	
6.20.1	No person shall release from containment any deer (*Cervus, Axis, Dama, Odocoileus,* or *Elaphurus* species, including any hybrid) in any part of the Hunua Ranges Pest Management Area. A breach of this rule will create an offence under section 154N(19) of the Act. A breach of this rule may result in default work under section 128 of the Act.

6.21 Wild red-eared slider turtle *(Trachemys scripta elegans)*

Description

Red-eared slider turtles are a medium sized freshwater turtle that are native to southern parts of the United States. This turtle is readily available in New Zealand, being sold through the pet trade as juveniles around 50mm in length.

Adult red-eared slider turtles can live up to 50 years in captivity and their shell can grow up to 350mm long. The shell and skin are olive to brown in colour. This turtle gets its name from distinctive patches of colour, from yellow to red, present on both sides of the head.[43] It is deceptively fast, and the 'slider' part of the name comes from its ability to quickly slide off rocks and logs into the water when disturbed.

Management category

Advisory animal	Eradication	Progressive containment	Sustained control	**Site-led**

Why it is in this plan

Production threat	**Environmental threat**	Public threat

The Invasive Species Specialist Group has listed the red-eared slider turtle as one of the world's 100 worst invasive species. They are omnivorous, long lived and tolerate a range of environmental conditions. These attributes enable them to survive in a wide range of aquatic habitats, including man-made drains and canals, natural wetlands, rivers, lakes, ponds and brackish estuarine waters.[44]

Given their diet of aquatic plants and animals, wild red-eared slider turtles could potentially compete for food with native fish and eels. They could also prey on these native species.

Overseas, wild populations have become established predominantly from people releasing pet turtles when they outgrow their tanks. In these cases wild red-eared slider turtles have proven technically challenging to control in small lakes, let alone river systems. With large numbers of pet turtles already in the hands of the public, and a steady supply available through the pet trade, there is potential for wild red-eared slider turtles to become a serious pest in some locations. However, while they can survive in the wild, the Waikato's current climate is considered unsuitable for them to successfully reproduce.[45] Climate change may provide sufficient warmth for this to occur in the future. Turtles also could potentially breed in some of the region's aquatic geothermal areas.

The council is taking a long term view with this species and has included it in the plan to raise public awareness and address the potential negative impacts wild red-eared slider turtles may pose to high value biodiversity sites.

43 Global Invasive Species Database: www.issg.org/database/species/ecology.asp?si=71&fr=1&sts=&lang=EN
44 Global Invasive Species Database
45 Kikillus KH 2010. Exotic Reptiles in the Pet Trade: Are They a Threat to New Zealand? Victoria University of Wellington.

The council is advocating for responsible ownership of this species. It also welcomes the opportunity to become involved in nationally led initiatives, such as a Ministry for Primary Industries led proposal to implement a national accord to address high risk pet species. Future involvement in such initiatives could assist the council in achieving the aims of the plan.

Our long term objective

Take steps so that the negative impacts from wild red-eared slider turtles on biodiversity in the region is minimised.

Our objective for this plan

Raise public awareness about the threats wild red-eared slider turtles pose to the environment and advocate for responsible ownership.

What we will measure

The effectiveness of control, changes in ecological condition, as well as the amount of pest control effort.

Means of achievement

Statutory obligation	
	No person shall knowingly release red-eared slider turtles into the environment. No person shall knowingly communicate, sell, or offer to sell, red-eared slider turtles from the wild. A breach of this obligation will create an offence under section 154N(19) of the Act and may incur penalties under section 157(1) of the Act.
Good neighbour rule	
	The good neighbour rule does not apply.
Direct control	
	Waikato Regional Council may undertake direct control of wild red-eared slider turtles, in accordance with section 11.4 and 11.6 of this plan.
Monitoring	
	Waikato Regional Council may monitor the presence of wild red-eared slider turtles in accordance with section 11.2.2 of the plan.
Information and advice	
	Waikato Regional Council may provide advice and information on the threats of wild red-eared slider turtles in accordance with section 11.1 of the plan.

Other management responses

7. OTHER MANAGEMENT RESPONSES

7.1 National, small-scale and other initiatives

There are harmful plants and animals that are not directly addressed in this plan. This is because it is not appropriate, necessary or reasonable to include them in the plan. For example, these species may not be present in the region but may be in other parts of New Zealand. Notwithstanding that, other management responses may apply.

7.1.1 Small-scale management programmes

Waikato Regional Council may undertake small-scale management programmes for 'unwanted organisms' under section 100V of the Act. This provision could be particularly useful for harmful plants and animals not yet found in the Waikato region but which may arrive during the plan period. Waikato Regional Council may request a Chief Technical Officer to determine an organism as 'unwanted'.

7.1.2 Advice and information

For other harmful or potentially harmful plants and animals, Waikato Regional Council will provide advice and information where appropriate. Alternatively, interested parties may prepare their own pest management plan under the Act. For example, Kiwi Vine Health has been formed to manage PSA; a bacterium that can result in the death of kiwifruit vines.

7.1.3 Integrated management

Waikato Regional Council will continue to recognise and facilitate other management responses with regard to harmful plants and animals through the integrated management measures set out in section 11.6 of the plan.

7.2 Pest dispersal routes and transport corridor responsibilities

Weed species spread along dispersal corridors, including roads, rail, navigable rivers and stream and river banks. The dispersal mechanisms are assisted by the geographic continuity of these routes. Mechanisms of dispersal include seeds and insects being transported:

- on vehicles of all types
- by roadside mowing and vegetation trimming
- by wind, including via wind gusts generated by passing road and rail traffic
- by water flow
- by birds
- in the case of aquatic weeds, pest fish eggs and micro-organisms – such as *Didymosphenia geminata* – by being carried on boats, trailers and associated equipment.

Dispersal corridors provide entry routes into the region from places such as Auckland and Bay of Plenty, where the incidence of some pest species is higher than in the Waikato. They also provide a means of dispersal all around the region once unwanted species have invaded the Waikato. Weed 'hot spots' can develop at convergences of these various corridors, calling for extra vigilance at such places.

In many parts of the Waikato region pest plants have established on road and rail verges. The spreading of metal obtained from a number of different sources (which have sometimes been weed contaminated) along transport corridors is one example of how this has happened in the past. Topsoil re-spread as part of road reinstatement work has also been a significant potential source of weed spread to previously uninfested areas. This action has in some cases resulted in verge areas becoming infested with weeds, which in turn creates adverse effects upon adjoining occupiers. The reverse situation can occur if land occupiers don't control weeds on land adjacent to the road.

7.2.1 Rail corridors

The 400km rail network in the Waikato, in certain circumstances, has the potential to function as a weed dispersal corridor in the region. However, there are unusual practical challenges to pest plant management on the rail network. Therefore the council and KiwiRail, as occupier of the rail network, have agreed to take a joint approach to identifying the priority pest management issues along this network.

Given the unusual operational challenges associated with pest management along the rail network, KiwiRail and the council have signed a Memorandum of Understanding (MOU) that includes a process by which the council can grant exemptions to KiwiRail so that compliance with RPMP rules is practical.

The pest specific rules in sections 5 and 6 will be implemented in accordance with this MOU, specifically the process summarised below.

- Both parties shall plan and execute a joint biennial survey of pest issues along the rail network in the Waikato region.
- Waikato Regional Council shall provide KiwiRail with a report indicating the top priority areas for pest plant control work.
- KiwiRail and Waikato Regional Council will jointly finalise a mutually acceptable work programme.
- Upon finalisation of the agreed work programme, Waikato Regional Council shall grant KiwiRail appropriate exemptions from compliance with the rules in the RPMP relating to pests and locations not covered by the work programme.
- Amendments may be made to the exemption if action needs to be taken to respond to a substantiated landowner complaint.

7.2.2 Road reserves

Road reserves include the land on which the formed road lies and the verge area that extends to adjacent property boundaries. Roading authorities (NZ Transport Agency and district/city councils) are all exacerbators (to the extent that they are occupiers of road reserves) and beneficiaries (to the extent that pests can interfere with roading operations) from pest control. It is consistent with the principles of the Act for these roading authorities to be fully responsible for pest control on land they occupy and manage. However, an RPMP may, where appropriate, transfer responsibility for pest management of road reserves to the adjacent occupier, or have a mix of responsibilities. The council has concluded that the latter option is appropriate.

7.2.2.1 Roading authorities' obligations

Roading authorities are responsible for controlling most 'progressive containment' pest plants and all 'sustained control' pest plants on all parts of the road reserve, especially in the following areas or situations:

- rest areas
- weigh pits and stockpile areas
- road reserves where road works have contributed to the establishment of named pest plants
- road reserves adjacent to land that is free of pests
- road reserves adjacent to land where the landowner is undertaking programmed pest plant management.

7.2.2.2 Adjoining occupiers' obligations

Where the road reserve is mown or grazed by the adjoining land occupier, rule 7.2.2.1 does not apply and that adjoining land occupier is responsible for controlling pest plants from their property boundary to the middle of the road adjoining their property.

7.2.2.3 Implementation/interpretation

- Enforcement of road reserve pest plant clearance will be in accordance with section 11.3.1 of the plan.
- Where the road reserve boundary is unknown it shall be taken as 10m from the road centre line together with any additional area up to the neighbouring fence line (where there is one).
- The control of pest plants on unformed (paper) roads remains the responsibility of the person physically occupying that land.
- Where fences encroach into a surveyed road reserve, the occupier adjoining the road reserve shall be responsible for pest plant control.
- In situations where adjacent land occupiers do not support the use of chemicals to control pests (for example, organic farming practices), it will be sufficient for roading authorities to mechanically trim/mow for initial control, after which the adjoining occupier shall maintain control of the pest plants for the duration of the plan.

A breach of this rule will create an offence under section 154N(19) of the Act. Enforcement will be in accordance with section 11.3.1 of the plan. Exemptions to a rule may apply, as outlined in section 11.3.2 of the plan.

7.3 Kauri dieback: Waikato Regional Council's role

Kauri dieback (*Phytophthora* taxon Agathis, also known as PTA) is a soil-borne, fungus-like disease that infects kauri roots and damages the tissues that carry nutrients within the tree. Infected trees show a range of symptoms, including yellowing of foliage, loss of leaves, canopy thinning, dead branches and lesions that bleed resin at the base of the trunk. Kauri dieback can kill trees of all ages. Nearly all infected kauri die. In the past 10 years, kauri dieback has killed thousands of kauri in the Northland and Auckland regions as well as Great Barrier Island. As at August 2014 there was one confirmed site on the Coromandel Peninsula.

Kauri dieback had not been found anywhere else in the Waikato, however, a delimiting survey for the entire region was still to be completed at the time this RPMP was adopted.

Kauri dieback is spread through the movement of soil and groundwater. For this reason, it is important for people visiting areas where kauri are present to stay on tracks and paths and as much as possible stay off the roots of kauri trees.

Kauri stands occur throughout the Waikato region from its southern limit in the west at Kawhia to the Kaimai-Mamaku Ranges in the east. The largest stands of kauri in the region are found in the Coromandel. Other stands of note are located in the Kaimai Ranges, Hakarimata Ranges and as far south as Te Kauri Reserve in Kawhia.

Kauri dieback was first discovered in the 1970s on Great Barrier Island but was incorrectly identified as an organism already resident in New Zealand. It was formally identified in April 2008 and a response was initiated later that year. To coordinate the response a joint agency partnership was formed between the Ministry for Primary Industries (MPI), Department of Conservation (DOC), Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council and iwi whose representatives form the Tangata Whenua Roopu.

The joint agency partnership developed a long term management programme to secure funding for the first five year period to enable the agencies to undertake operational activities, short and long term research, increase public awareness and support communities to contribute to the programme. This programme ceased on 30 June 2014 but not before a business case to secure funding for a further 10 year period had been developed and approved by all participating agencies, and supported by the Government. At the time of publication, MPI was developing the second long term management plan.

From 1 July 2014, Waikato Regional Council will contribute $72,000 every year for 10 years to this joint agency programme.

Waikato Regional Council biosecurity staff, working with the joint agency programme, will visit private properties where landowners are concerned about the health of kauri and assess whether symptoms typical of kauri dieback are present. Soil samples will be taken where necessary to confirm if kauri dieback is present.

If kauri dieback is identified on a private property, a site-specific plan for that property will be developed aimed at managing risks associated with various vectors and activities on the site identified with soil movement.

7.4 National Interest Pest Responses

The Ministry for Primary Industries (MPI) is the lead agency for the National Interest Pest Responses (NIPR). The aim is to eradicate selected established pests from New Zealand.

Animals managed under the Wild Animal Control Act and freshwater fish are excluded.

There are currently 11 NIPR species. These pests were selected for national response because of their potential to have a significant impact on our economic, environmental, social and cultural values.

Waikato Regional Council and MPI co-manage white bryony and Manchurian wild rice.

Table 3: National Interest Pest Responses species

Species	Response goal
Kariba weed or salvinia *(Salvinia molesta)*	Eradication
Water hyacinth *(Eichhornia crassipes)*	Eradication
Johnson grass *(Sorghum halepense)*	Eradication
Cape tulip *(Moraea flaccida)*	Eradication
Pyp grass *(Ehrharta villosa)*	Eradication
Phragmites *(Phragmite australis)*	Eradication
Hydrilla *(Hydrilla verticillata)*	Eradication
Hornwort *(Ceratophyllum demersum)*	Eradication and exclusion from the South Island
White bryony *(Bryonia cretica)*	Eradication
Rainbow lorikeet *(Trichoglossus haematodus)*	Control to zero density
Manchurian wild rice *(Zizania latifolia)*	Eradication in Auckland, Waikato, Wellington regions, outlier populations in Northland, containment of intransigent populations in Northland.

7.5 Hunua Ranges Pest Management Area

Auckland Council is the pest management agency within that part of the Waikato region identified as the Hunua Ranges Pest Management Area (see figure 2 on page 42). As the pest management agency, Auckland Council's responsibilities include:

- the administration and implementation of integrated pest management programmes
- responses to all new pest or 'unwanted organism' incursions in the area
- responses to biosecurity enquiries and complaints relating to the area.

In the Hunua Ranges Pest Management Area, the pest management programmes for wild deer, feral goats, feral pigs and possums are consistent with the Auckland Regional Pest Management Strategy 2007 to 2012. The relevant management categories and rules for each of these species are listed in section 6 of this plan.

In addition, the organism which causes kauri dieback – *Phytophthora* taxon Agathis (also known as PTA) – is also identified as a pest in the Hunua Ranges Pest Management Area. The management category, objective and rules that will apply in this area, but not elsewhere in the Waikato, are detailed below.

The pest designations, management categories and rules for the Hunua Ranges Pest Management Area are applied in order to address the adverse effects these species have on the environment and people's enjoyment of it, and the relationship between Māori, their culture and traditions, and their ancestral lands, waters, sites, wāhi tapu, and taonga.

Kauri dieback in the Hunua Ranges Pest Management Area	
	The organism which causes kauri dieback – *Phytophthora* taxon Agathis (also known as PTA) – is declared a pest within the Hunua Ranges Pest Management Area with a management category of **exclusion** and an intermediate objective, over the lifetime of this plan, of preventing the incursion and establishment of *Phytophthora* taxon Agathis in the area. Should *Phytophthora* taxon Agathis be identified within the Hunua Ranges Pest Management Area then it will be subject to the management category of **sustained control** with an intermediate objective, over the lifetime of this plan, of preventing the spread and minimising the adverse impacts of *Phytophthora* taxon Agathis.
Plan rule	
7.5.1	No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread *Phytophthora* taxon Agathis or material contaminated with *Phytophthora* taxon Agathis within the Hunua Ranges Pest Management Area. A breach of this rule will create an offence under section 154N(19) of the Act and may result in default work under section 128 of the Act.

Part 3
Administrative and implementation provisions

Powers conferred for plan implementation

8. POWERS CONFERRED FOR PLAN IMPLEMENTATION

To achieve the purpose of the plan, and to give effect to its objectives and principal means of achievement, Waikato Regional Council will use the statutory powers provided in the Act as listed in table 4 below. By virtue of part 1, section 5 of the Act, except as provided in section 87, these powers bind the Crown. However, under section 69 of the Act, a good neighbour rule is the only way in which the Crown can become liable to meet obligations or costs.

The Principal Officer of Waikato Regional Council will appoint authorised and accredited persons for the purpose of exercising functions, powers and duties under the Act. Most of these functions, powers and duties relate to the implementation of this plan.

When carrying out his or her duties, an authorised person will be limited to using those powers specified in his or her instrument of appointment. The powers specified in an authorised person's instrument of appointment are based upon those powers identified in table 4 and reflect the officer's experience, technical competence and qualifications relevant to his or her responsibilities.

Table 4: Administrative powers under the Act

Administrative powers	Reference in the Biosecurity Act 1993 as amended by the Biosecurity Law Reform Act
The power to exempt land occupiers from plan rules.	Section 78
Undertake small-scale management of unwanted organisms.	Section 100V
The appointment of authorised and accredited persons.	Section 103
Authorised persons to comply with instructions.	Section 104
Delegation to authorised persons.	Section 105
Power to act on default (undertake necessary work on failure of section 122 notice to be adhered to and recover costs from occupier).	Section 128
Liens (statutory land charge may be placed on property if section 128 costs not paid, or prosecution is an option).	Section 129
Declaration of controlled area.	Section 131
Duration of place and area declarations.	Section 133
Options for cost recovery.	Section 135
Failure to pay.	Section 136
Offences.	Section 154M, 154N, 154O
Powers of an authorised person	
The power to request information from land occupiers.	Section 43
Power to require assistance (any person can be asked to help).	Section 106
Power of inspection (entry to land).	Sections 109, 110 and 112
Entry in respect of offences.	Section 111
Power to record information.	Section 113
General powers.	Section 114
Use of dogs and devices (such as traps and bait stations).	Section 115
Power to seize evidence.	Section 118
Power to seize abandoned goods.	Section 119
Power to intercept risk goods.	Section 120
Power to examine organisms.	Section 121
Power to apply articles or substances to places.	Section 121A
Power to give directions (serve notices on occupiers to remove pests).	Section 122
Power to vaccinate.	Section 123
Power to declare restricted places.	Section 130

Section 100V powers

There are many harmful or invasive species that are not directly addressed within this plan. In many cases these species may not be present in the region but may be in other parts of the country or they are species that have been identified as potentially serious pests by outside agencies. In any instance where a new species incursion occurs in the region the council may adopt powers under section 100V of the Act.

Operational plan

9. OPERATIONAL PLAN

Under section 100B(1)(a) of the Act, Waikato Regional Council, as the management agency, must prepare an operational plan (to be reviewed annually) within three months of this RPMP being approved.

As required under section 100B of the Act, the operational plan will be reviewed annually and a report prepared for Waikato Regional Council on its implementation. Assessment of the council's performance, as the management agency, will be reported each year in the RPMP Annual Report. These reports will include measurements or estimates of progress toward achieving the 2024 goals as much as is practical. RPMP annual reports are available online or on request.

Auckland Council, as the management agency for the Hunua Ranges Pest Management Area, will comply with section 100B of the Act and prepare the necessary operational plans and reports for that area. Those plans and reports will be submitted to Waikato Regional Council for approval.

Review of the plan

10. REVIEW OF THE PLAN

A review of the plan may be initiated in the following circumstances.

- The council may review the whole or part of the plan if the plan is failing to achieve its objectives or the relevant circumstances have changed.
- As required by section 100D of the Act, the council must initiate a review if the plan was last reviewed as a whole more than 10 years previously.

Implementation methods

11. IMPLEMENTATION METHODS

This section sets out Waikato Regional Council policy relating to achieving and giving effect to the objectives for individual plants and animals.

11.1 Provision of advice and information

POLICY

Waikato Regional Council will, in relation to each pest plant and animal, provide technical advice and information to land occupiers and the wider community for the purposes of:

- promoting greater public awareness of the potential or actual adverse effects associated with pest plants and animals
- promoting greater public awareness of an individual's responsibilities under this plan
- promoting effective pest plant and animal control or the adoption of management techniques that will avoid, minimise or remedy the adverse impacts associated with pest plants and animals
- promoting consideration of animal welfare impacts and use of the most humane control tools that will still achieve desired outcomes.

Waikato Regional Council will use the following procedures in relation to its advisory and educational programmes:

- respond to public requests for information or enquiries in relation to the identification of pests, their impacts, and appropriate control options
- disseminate advice to land occupiers when undertaking property inspections and other pest management activities
- prepare and distribute pamphlets and other educational material, including web based access, in relation to pest management
- undertake, on request, presentations to interested groups
- as appropriate, organise timely and relevant media and publicity programmes to highlight particular pest management issues
- as appropriate, organise and attend field days, meetings and discussion groups.

11.1.1 Weedbusters programme

Waikato Regional Council supports and participates in the national Weedbusters programme, and will:

- promote weed awareness and education through the national, inter-agency Weedbusters programme
- encourage membership of Weedbusters and participation in Weedbuster events
- support Weedbuster groups by providing advice and information, and where appropriate small-scale funding through the Weedbusters Small Scale Initiative Fund
- work with other agencies involved in Weedbusters, such as the Department of Conservation (DOC) and other regional councils, to promote Weedbusters.

11.2 Monitoring and inspections

11.2.1 Monitoring and inspections: plants

POLICY

Waikato Regional Council may monitor the location, nature and extent of pest plant infestations in order to establish:

- whether land occupiers, where required, are complying with the rules prescribed in part 2 of this RPMP
- the extent to which the objectives in part 1, and the goals and appropriate measures set out in part 2 of this RPMP are being achieved.

Waikato Regional Council will monitor land occupier compliance with the RPMP rules prescribed in part 2 of the plan by:

- placing emphasis on those properties where, in the opinion of an authorised person, there have been historical pest plant problems
- inspecting other properties as time and resources permit, or in the event of a public complaint
- maintaining a biosecurity database to record property visits, inspections, pest plant programmes and all activity related to the enforcement process
- carry out six-monthly inspections of quarries
- inspecting plant nurseries and retail outlets on behalf of the Ministry for Primary Industries (MPI), on an as-required basis, to ensure no pest plants are being propagated, sold or offered for sale

- inspecting roadside verges on an as-required basis to ensure road controlling authorities are undertaking an adequate control programme
- inspecting other properties following the identification of a problem either by the public or by an authorised person of the council
- annually surveying and mapping, for each pest plant, the presence and distribution of pest plant infestations
- annually surveying and mapping the direct control undertaken by Waikato Regional Council of pest plants identified in part 2 of the RPMP
- recording the release of biocontrol agents in the region using a biosecurity information system
- working with Landcare Research New Zealand Limited to monitor biocontrol in the region
- recording the number of public complaints pertaining to individual pest plants, instances of non-compliance with the plan rules and the council's response
- recording the number of public enquiries in relation to individual pest plants, including requests for information
- monitoring vegetation to assess the health of ecosystems by assessing changes in ecological conditions pre and post pest control at high value sites, using tools such as species composition and seedling recruitment.

11.2.2 Monitoring and inspections: animals

POLICY

Waikato Regional Council may monitor the location, nature and extent of pest animal infestations in order to establish:

- whether land occupiers, where required, are complying with the rules prescribed in part 2 of this RPMP
- the extent to which the objectives set out in part 1 and the goals set out in part 2 of this RPMP are being achieved.

Waikato Regional Council undertakes the following types of monitoring for pest animals and organisms, but may undertake other types also.

- **Compliance monitoring (random or on complaint)** to assess whether landowners are meeting obligations or standards placed on them through the plan.
- **Audit/performance monitoring** to assess whether contractors are following operational plans and industry standards during control.
- **Vegetation monitoring** to assess the health of ecosystems by monitoring pre and post pest control at high value sites to measure ecological condition to establish the extent to which the goals set out in section 6 of the plan are being achieved.
- **Compliance monitoring** with regard to rabbit infestations on a complaints basis, using the McLean scale – see table 5 and refer also to section 6.13. No infestation levels are to be over level 4.
- **Monitoring of possum populations** to assess operational contract performance using the National Trap-Catch Protocol. The trap catch method or similar indexing tool (chew cards, wax tags) may be used to establish possum population trends.
- **Magpie and wasp monitoring** on a complaints basis where concern is expressed regarding magpie and wasp nest infestations.
- **Monitoring of wild deer, feral goat and feral pig infestations** using the following monitoring procedures.
  - Where there are feral goat infestations adjacent to high priority DOC sites at which DOC is undertaking control, an authorised person will determine an appropriate buffer width (or other chosen boundary) around each site (in conjunction with DOC), taking into account the values being protected. A random property inspection will be undertaken and properties where feral goats are observed will be subject to enforcement in accordance with the Wild Animal Control Act 1977.
  - In all other circumstances, site assessment surveys may be undertaken to confirm the presence/absence of wild deer, feral goat and/or feral pig populations where there is evidence those animals may be contributing to damage. These surveys may identify remedial action to be taken.
- **Monitoring for presence/absence of pest fish** to be undertaken in conjunction with DOC and other organisations.
- **Recording the number of public complaints** pertaining to individual animal pests or organisms, instances of non-compliance with the plan rules and the council's response.
- **Recording the number of public enquiries** in relation to individual animal pests or organisms, including requests for information.

Table 5: Modified McLean scale (2012) of rabbit infestation

The following modified scale (Version 1.0) was adopted by the New Zealand Rabbit Coordination Group on 12 October 2012.

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

NOTE

This scale provides an index of rabbit density that is most useful when making comparisons between similar types of country or recording changes from year to year in the same district. It is not suitable for measuring short term changes because old signs may last and numbers seen are affected by factors like the time of day and pasture length. The McLean scale level 4 indicates a minor-moderate infestation density. Any property monitored at level 5 and over represents a situation where rabbits on the assessed property are likely to be impacting on neighbouring landowners and control action is required.

11.2.3 *Measuring ecological effectiveness of pest control*

When undertaking monitoring of pest control at high value sites we will measure success at maintaining and enhancing ecosystem functioning if cumulatively:

- there are no further local extinctions
- ecosystems are protected in representative proportions
- lost species have returned
- depleted ecosystems have been recreated.

Monitoring programmes also will identify threats, risks or other activities that may impact the effectiveness of the pest control programme.

11.2.4 *Monitoring other effects of this plan*

The provisions of this plan do not replace other legislation or regulations relating to the use of toxins or public health and safety. Where appropriate, Waikato Regional Council will monitor and report on any impacts arising through the use of toxins through systems and processes established under the Resource Management Act. Waikato Regional Council may also record and report any adverse effects arising from its direct control operations, including non-target kills.

Agencies other than Waikato Regional Council are more likely to undertake monitoring and respond to any problems under the Health and Safety in Employment Act 1992, the Hazardous Substances and New Organisms Act 1996 and the Agricultural Compounds and Veterinary Medicines Act 1997.

11.3 Regulatory management

11.3.1 *Compliance/enforcement process*

POLICY

In the event that any person fails to comply with any requirement included in a plan rule prescribed in this plan, Waikato Regional Council will:

- advise that person of their non-compliance and direct him or her to take remedial action
- follow up to confirm whether the remedial action required has been taken and identify any outstanding requirements
- prosecute if the council considers it appropriate.

NOTE

Waikato Regional Council generally achieves over 90 per cent compliance at the voluntary step 1 level. Section 128 is a power given to regional councils to act on failure by an occupier to abide by a notice issued under section 122 of the Act. The council chooses to use a notice to achieve this outcome.

Waikato Regional Council places a strong emphasis on consultation and encouragement in the first instance to solve pest problems. This collaborative approach is supported by the regional community, but there is also an expectation that when necessary Waikato Regional Council will use enforcement provisions to ensure that the provisions of this plan are complied with.

Procedures

To obtain compliance Waikato Regional Council will:

- use the procedure outlined in figure 6; and/or
- prosecute the non-complier if the council considers it appropriate.

Figure 6: Plan compliance/enforcement process

Step 1	PEST CONTROL PROGRAMME	Programme without charge • Inspection visit. No charge to the landowner. • Advice given, consultation with landowner undertaken, timeframes and methods of control negotiated and agreed where appropriate. • Written programme issued.
Step 2	NOTICE OF DIRECTION Issued under section 122 of the Act, the notice outlines remedial action required from step 1.	Notice with charges • $500 fee for rural properties plus GST and actual costs of issuing notice and re-inspection. • $150 for urban properties plus GST and actual costs of issuing notice and re-inspection. • Two week timeframe given to comply.
Step 3	NOTICE OF INTENTION TO ACT ON DEFAULT Issued under section 128 of the Act, Waikato Regional Council authorises contractors to enter land and carry out work described in step 2.	Notice with charges • $500 fee for rural properties plus GST and actual costs of issuing notice and re-inspection, and the cost of control work. • $150 for urban properties plus GST and actual costs of issuing notice and re-inspection, and the cost of control work. • Statutory land charge placed on the property under section 129 of the Act for non-payment of costs.

11.3.2 Exemption provisions

Waikato Regional Council may, upon the written request of a land occupier, exempt any person from any requirement in any plan rule included in part 2 of this plan. Before granting an exemption under section 78 of the Act, Waikato Regional Council shall be satisfied that:

- the requirements have been substantially complied with and that further compliance is unnecessary; or
- the action taken or provision made in respect of the matter to which the requirement relates is as effective or more effective than actual compliance with the requirement; or
- the prescribed requirements are clearly unreasonable or inappropriate in the particular case; or
- events have occurred that make the prescribed requirements unreasonable or inappropriate in the particular case; and
- that the granting of the exemption will not significantly prejudice the attainment of the objectives of this plan; and
- regard will be given to any effects of the exemption on the adjacent landowner.

The exemption provisions also are available to address potential conflicts between obligations imposed by 'good neighbour rules' and what is practical or feasible in a given situation.

The council may impose such conditions as it considers appropriate and these may include:

- prescribing measures to be taken to minimise any adverse and unintended effects of the pest plant or animal
- ensuring that any beneficial effects associated with the pest plant or animal are safeguarded or enhanced
- imposition of monitoring requirements and recovery of costs
- bonds to ensure performance.

The council will maintain a register of the number and nature of exemptions granted, which will be available for public inspection during normal office hours as required by section 78 of the Act.

POLICY

On receipt of any request, Waikato Regional Council shall advise that person within five working days of its decision whether or not to exempt him or her from any requirement in any plan rule included in sections 5 and 6 of the plan. The power to approve exemptions is delegated within the council's delegations manual. A register of exemptions will be maintained for public inspection. Regard will be given to:

- soil conservation effects of plant pests in erosion prone sites (except quarries)
- regeneration of indigenous plant species
- prevention or mitigation of flood damage
- effective suppression of the pest through grazing or hedge maintenance
- whether the pest is being used for valid scientific research
- whether the pest is used for approved herbal use
- differences in land use, where two land occupiers with a common boundary agree that boundary control of a pest is not necessary (exemption would only apply to: broom, gorse, Australian sedge, ragwort and nodding/plumeless thistles in areas with boundary control standards).

11.4 Direct control programmes: plants and animals

Where this plan provides, or allows for Waikato Regional Council to undertake the direct control of pest plants and animals, such direct control will be funded and undertaken to the extent as determined by Waikato Regional Council within the limits of any available annual budget.

Control under this section may be planned and carried out in association with the Crown, tangata whenua, associations and such persons or organisations and on such terms and conditions from time to time as the council thinks appropriate.

Where direct control of pest plants is considered appropriate, Waikato Regional Council will destroy all adult and juvenile forms of the plant using the most appropriate and cost effective treatment techniques.

Where direct control of pest animals is considered appropriate, Waikato Regional Council will adopt the most appropriate and cost effective treatment techniques, including consideration of animal welfare impacts.

11.5 Community initiative programmes

11.5.1 Community initiative programmes for pest plants

POLICY

Active community participation in addressing pest plant problems is supported and strongly encouraged by Waikato Regional Council. This approach will maintain consistency with other areas of the council where the establishment of care groups is encouraged. Community pest control groups will be encouraged through provision of information and advice on how to undertake control programmes for pest plants. Waikato Regional Council will also consider financial support to seed such initiatives. This policy will apply to all or any combination of pest plants, and may also apply to any pest or harmful animals if considered appropriate to obtain the objectives for those pests.

Communities with particular pest plant problems often have the enthusiasm and local knowledge to undertake control to provide benefits to the community.

Waikato Regional Council will support community initiatives to remove pest plants from nominated and agreed areas. Each situation will be treated on merit, including the

nature of the problem, the degree of public support and the willingness of communities to accept responsibility for control programmes, including a targeted rate.

The extent of assistance to be given by Waikato Regional Council will be influenced by the council in each individual case and may be reviewed at any time. The following conditions apply.

- The objectives and standards to be achieved by the initiative shall not be less than those specified for the individual pests in section 5 and 6 of the plan, so that the initiative will assist in that outcome.
- Waikato Regional Council reserves the right to determine the annual amount of budget availability, and the priorities for its application. Those responsible for carrying out the initiative must therefore be prepared for changes or withdrawal of support. The council may vary the extent of support. Communities will be encouraged to be self-sufficient and self-reliant.
- Waikato Regional Council will have regard to the extent to which the participants are prepared to provide for the costs of monitoring and control, whether by a targeted rate or otherwise.

Waikato Regional Council recognises that on occasion some plants that do not pass tests for regional intervention, and are therefore not included in the plan, are harmful in certain situations. In particular, some sections of the farming community are adversely affected by agricultural weeds, such as kikuyu grass and yellow bristle grass, requiring concerted action to improve on-farm and between-farm practices. In support of 'action groups' which are formed in response to those situations, Waikato Regional Council may use any of the following methods:

- attend field days or on-farm discussion groups when invited, and attend meetings where appropriate
- provide information on weed hygiene strategies and management practices which reduce the spread of the relevant plants
- provide support for funding applications (such as to the Sustainable Farming Fund of the Ministry for Primary Industries) where the group requires funding to increase awareness and/or knowledge of the plant (such as pamphlet production or research into control methods)
- support the development of educational materials
- provide small-scale funding if appropriate to help seed group initiatives
- record distribution of the relevant plants using council's biosecurity information database systems where appropriate.

11.5.2 Community initiative programmes for animals

POLICY

Active community participation in addressing pest animal problems is supported and strongly encouraged by Waikato Regional Council. This approach will maintain consistency with other areas of the council where the establishment of care groups is encouraged.

As with pest plants, communities with particular pest or harmful animal problems often have enthusiasm and local knowledge to undertake control to provide benefits to the community, and in general the same provisions for community initiatives for pest plants provided in 11.5.1 shall also apply to animals.

As an indication, small-scale community control initiatives will apply to small-scale solutions generally for environmental protection. Typically, a number of private landowners organise themselves and volunteer their time. Waikato Regional Council has a contestable fund to assist these groups, and also will help them in other ways.

11.6 Site-led and integrated pest control at high value biodiversity sites and high value catchment sites

11.6.1 Control at identified high value sites

Waikato Regional Council may control plant or animal species at high value sites (see the definitions in section 2) in order to protect, restore and enhance site values.

The identification of these high value sites and their prioritisation is an ongoing process of continual refinement. The most up to date information will be used in any prioritisation and will be carried out pursuant to the council's responsibility to maintain indigenous biodiversity and catchment stability and function. The significant natural areas (SNAs) project assists with identifying these high value sites. Management needs such as pest control or revegetation are addressed subsequently.

The need for control at high value sites, the extent, frequency and nature of control, any need for integration with control of other plant or animal species, and the

outcomes for control including population densities will be determined and reviewed on a case by case basis by Waikato Regional Council by assessment survey (see the definitions in section 2).

As with all direct control operations, every effort will be made to work in partnership with landowners prior to any control being undertaken. In addition, control under this section may be planned and carried out in association with the Crown, tangata whenua, hunting clubs or associations and such persons or organisations as appropriate.

In cases involving the proposed control of wild animals as defined in the Wild Animal Control Act (WACA), Waikato Regional Council would follow the provisions of section 31 of the WACA and submit a proposed control plan to the Minister of Conservation.

11.6.2 Control not limited to pest species

The need to control harmful organisms at SNAs and other high value sites is not restricted to those species named as Biosecurity Act pests in this plan, but may encompass any exotic organism that threatens site values. However, if the organism is not a listed Biosecurity Act pest, then this requires the agreement of land occupiers.

11.6.3 Integrated pest and harmful organism management at high value sites

The need for integrated vertebrate pest control (multiple species pest management) at high value sites comes from:

- the dynamic nature of interactions among multiple animal pests
- their different impacts on different site values at different population densities
- their different rates of recovery following control
- the need to optimise control solutions.

Minimum desirable animal densities may depend on the exact nature of site values to be protected. For example, a reduction in possum or stoat numbers can result in increased rat numbers. A reduction in rat or mice numbers can result in increased predation by stoats on indigenous birds. A number of animals may influence forest regeneration – mice, rats, feral pigs and deer – and over time this may affect forest succession trajectories.

Protecting biodiversity or catchment values at a specific site first requires that the values are identified and then that an appropriate management is decided (that is, how to manage the threats). These considerations may also apply to pest plants, where removal of one undesirable species (for example, willow) may result in invasion by other pests, and so a multi-species approach to site management should be considered.

11.6.4 Research to aid in the protection of high value sites

Waikato Regional Council recognises that current knowledge of interactions among pests is incomplete. A greater ecosystem-level understanding of the consequences of pest control is needed to maximise the benefits gained from targeting critical pests and minimise possible adverse consequences that result from non-target species responses to changes in abundance of targeted species. Consequently, council will encourage research initiatives to:

- determine the optimal strategies for achieving cost effective control of multiple pests, taking account of species-specific rates of increase and interactions among species
- develop effective methods for councils to use for identifying key values that need protecting or to be restored, the critical threats to those values, and to assist them to change from a single-species focus to a multi-threat/multi-protection/restoration focus
- determine key spatial parameters to enable landscape-scale integrated pest management programmes to be developed.

11.7 Biological control programmes

NOTE

Waikato Regional Council will implement biological control programmes for pests, where appropriate, throughout the region.

For pests that are well established, biological control in conjunction with other control methods provides the most effective long term control. Waikato Regional Council believes that the significant public benefits of biological control make it an appropriate investment.

Currently, most biological control agents are directed at pest plants. However, over the life of this plan, animal pests also may become candidates for biological control.

Because biological control has high initial establishment costs, and its benefits will in time accrue to the region rather than the individual, the council may apply it to private land. Occupiers are, however, generally considered responsible for pest management on their land.

Biological control programmes will consist of Waikato Regional Council biosecurity staff and contractors:

- releasing, propagating and re-distributing appropriate biological control agents
- managing release sites
- collecting data
- monitoring and reporting.

In addition, Waikato Regional Council may provide financial and logistical support for research into additional biological control agents.

Waikato Regional Council will work with Landcare Research New Zealand Limited to monitor the effectiveness of the various biological control agents. Where biological control agents have successfully been propagated and have become established, consideration will be given to their further distribution.

Waikato Regional Council will use the following procedures to implement biological control programmes:

- prioritise release sites and give priority to high infestation areas and sites where alternative control methods are impracticable or too costly
- make release sites, and especially nursery or propagation sites, secure so that agents can be easily bred for release
- advise occupiers of land on which biological control agents have been released how to manage release areas to achieve maximum gains
- establish a comprehensive database to record release sites and monitor the impact and effectiveness of releases
- contribute to national and inter-regional collaborative research on new agents required.

11.8 Cross-boundary issues

Waikato Regional Council aims to minimise the effects of cross-boundary issues and promote complementary, efficient and effective pest plant management among affected agencies and regions.

Cross-boundary issues may occur in a number of ways:

- the environmental effects of one resource use may influence another part of the environment (for example, aggregate taken from river beds for roading may inadvertently spread weeds); or
- management approaches and techniques may be constrained by administrative boundaries.

To minimise the effects of cross-boundary issues Waikato Regional Council will:

- Have regard, pursuant to section 71(a) of the Act, to any national or regional pest management plan concerning the same organism, any regulation, or any regional policy statement, or regional plan prepared under the Resource Management Act.
- Liaise, as appropriate, with the Ministry for Primary Industries (MPI) over pest management issues which are best dealt with or coordinated at the national level. In particular, Waikato Regional Council will participate in the National Pest Plant Accord, which involves regional councils collectively enforcing a national ban on the sale, propagation and distribution of a list of recognised harmful plants, which have been declared unwanted organisms.
- Liaise with MPI and other regional councils over marine biosecurity issues which may affect the Waikato region. However, Waikato Regional Council believes that MPI should be the lead agency for marine biosecurity in New Zealand.
- Liaise, as appropriate, with Bay of Plenty, Taranaki, Auckland, Horizons (Manawatu-Wanganui) and Hawkes Bay regional councils on cross-boundary issues pertaining to pest management.
- Liaise, as appropriate, with other regional councils on matters of pest management which are relevant to more than one region.
- Advocate and encourage other authorities to adopt policies, practices or measures which will avoid, mitigate or remedy adverse effects associated with pests.
- Make submissions in respect of documents prepared by other authorities in relation to pests.

Coordination with other pest management plans will be achieved through a process based on consultation and communication between Waikato Regional Council and other persons or organisations proposing and implementing plans.

Funding provisions

12. FUNDING PROVISIONS

12.1 Funding rationale

Waikato Regional Council has determined that this plan will promote more effective and efficient control at a regional level, resulting in significant net savings to the community overall through coordinated pest control. In the absence of this plan, whereby the control of pest plants and animals depends upon the voluntary actions of individuals to control the animals, the imposition of external and uncompensated costs on others through a lack of effective control is considered inevitable.

Both the long standing Local Government Act and the newly proposed national policy direction require the council to assess how costs can be allocated fairly and in a practical way. The funding policy for Waikato Regional Council is considered and adopted during the long term plan process; information from the RPMP process is considered as part of that analysis. The main funding policy principle underpinning the RPMP is that those who benefit from control, or those who contribute to the continuing worsening of a pest problem, should pay for the administration and implementation of the plan and, where appropriate, the costs associated with the control of pests.

The principal exacerbator of problems to be addressed by this plan and, in many cases, also the beneficiary of pest control, is the occupier of land where pests are present or where pest habitat exists. Accordingly, land occupiers will, in most instances, fund the direct cost of pest management on their property to ensure the externality impacts of those pests are addressed. Good neighbour rules are designed to extend this long-standing principle to the Crown.

Neighbouring land occupiers and the regional community at large also benefit from the control of these pests. These benefits come from ensuring pest numbers do not reach a level where they begin to impact upon neighbouring properties or values of regional significance such as, agricultural production, indigenous biodiversity, water quality, human health and safety, Māori culture, and/or recreational values. Accordingly, the regional community will contribute to the collective costs of implementing the plan in recognition of their 'share' of the public benefits anticipated from regional intervention in the management of the pests identified in this plan. These public benefits relate to the conservation and production benefits that land occupiers collectively accrue from efficient and effective pest management in the region. This regional benefit is captured through a targeted biosecurity rate collected on a capital value basis across the region. However, the Crown does not pay rates and so does not contribute fully to this system of accounting for public benefits.

Beneficiaries of the plan and exacerbators of the pest problems are identified in appendix 3 in compliance with the proposed national policy direction (see CD-ROM included with the printed RPMP). It also is available on the Waikato Regional Council website or in hard copy on request.

12.2 Plan costs

The costs of administering and implementing the plan are incurred through the following activities:

- the provision of advice and information
- monitoring and surveillance
- enforcement of the plan's rules
- undertaking direct control and other assistance
- general administrative functions.

These activities are designed to provide benefits to the regional community as a whole and will be available to any person in the region on an as-needed basis.

12.3 Cost benefit analysis information

Both the Biosecurity Act and the proposed national policy direction require a cost benefit analysis (CBA) as part of the development or review of a regional pest management plan.

For many pests, the cost/benefit situation has not changed significantly since the pests were first included in a regional pest management plan. For those pests, Waikato Regional Council has not repeated a CBA. Waikato Regional Council uses the Harris model of CBA, which has been recognised as a model that meets the requirements of the proposed national policy direction.

Some pests are either new to this plan or have situations that have changed since the last CBA was done. In those cases, a new CBA has been completed, again using the Harris model. Pests with more complicated circumstances or with potentially large impacts on land occupiers were analysed by an outside consultant. More straightforward pests were analysed by Waikato Regional Council staff internally.

For all the pests identified in this plan, Waikato Regional Council was satisfied that the benefits outweigh the costs. The council notes that many of the costs and benefits associated with pests are not financial. In fact, non-monetary issues are notoriously difficult to quantify in a CBA. Nevertheless, these non-monetary issues are often very important to the communities that regional councils serve.

Waikato Regional Council took all factors into account when it made determinations about which pests to include in this RPMP.

The CBA for all pests in this RPMP is contained in appendix 1 on the CD-ROM included with the printed document. It also is available on the Waikato Regional Council website or in hard copy on request.

12.4 Funding sources

The Act requires a pest management plan to provide information on the allocation of costs of the plan. It may be funded by direct charges against land occupiers and/or by rates or levies. To the extent that the plan is to be funded wholly or partially from rates, section 100T of the Act allows for the funding to be by general rate, targeted rate, or both.

In making a decision, the Waikato Regional Council must have regard to:

- the extent to which the funding relates to the interests of the land occupiers
- the extent to which the benefits will accrue to land occupiers
- the collective benefits to land occupiers in relation to their collective costs from rates
- the extent to which the characteristics and uses of the rated land contribute to the presence or prevalence of the pests.

Waikato Regional Council has determined that achieving the purpose and objectives of this plan benefits land occupiers collectively and is 'public good'. That is, the regional community generally benefits from the implementation of the plan. The dominant public good aspects of the plan favour use of a targeted rate to charge for these services. The targeted rate will be calculated on the basis of capital value for each separately rateable property in the region.

In addition to this, Waikato Regional Council will recover costs for a particular function or service under section 135 of the Act. In the event that the council incurs costs arising from a land occupier's failure to comply with a notice of direction, the council will recover such costs under section 128 of the Act. The amount of money recovered from direct charges will vary year to year depending on the number of cost recovery pest control operations undertaken, if any.

Table 6 shows the projected revenue and costs associated with each year of the plan, including the effect of inflation. Funding sources include direct charges, government grants and the targeted rate. It is noted that pest management budgets are set by council through the long term plan and subsequent annual plans. The figures shown here are indications only.

Table 6: Indicative costs and sources of funds (GST exclusive)

Activity	Project	Income/ expenditure	2012/13 LTP forecast ($)	2013/14 forecast ($)	2014/15 forecast ($)	2015/16 forecast ($)	2016/17 forecast ($)	2017/18 forecast ($)	2018/19 forecast ($)	2019/20 forecast ($)	2020/21 forecast ($)	2021/22 forecast ($)	2022/23 forecast ($)
Environmental pest management	Compliance plants	Direct charges	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
		Targeted rates	319,298	333,552	403,313	416,486	419,027	462,769	469,095	474,960	479,829	487,242	492,114
		Total income	**329,298**	**343,552**	**413,313**	**426,486**	**429,027**	**472,769**	**479,095**	**484,960**	**489,829**	**497,242**	**502,114**
		Total expenditure	390,298	404,552	413,313	426,486	429,027	472,769	479,095	484,960	489,829	497,242	502,114
	Direct control plants	Interest on reserve	31,841	1,632	1,619	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634
		Income other	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
		Targeted rates	1,141,409	1,201,573	1,244,983	1,268,386	1,290,016	1,366,629	1,395,989	1,424,758	1,454,172	1,488,892	1,503,781
		Total income	**1,198,250**	**1,228,205**	**1,271,602**	**1,295,020**	**1,316,650**	**1,393,263**	**1,422,623**	**1,451,392**	**1,480,806**	**1,515,526**	**1,530,415**
		Total expenditure	1,198,250	1,228,205	1,271,602	1,295,020	1,316,650	1,393,263	1,422,623	1,451,392	1,480,806	1,515,526	1,530,415
	Direct control animals	Targeted rates	151,565	149,836	152,763	154,489	156,036	167,634	170,541	173,960	176,663	180,136	181,937
		Total income	**151,565**	**149,836**	**152,763**	**154,489**	**156,036**	**167,634**	**170,541**	**173,960**	**176,663**	**180,136**	**181,937**
		Total expenditure	151,565	149,836	152,763	154,489	156,036	167,634	170,541	173,960	176,663	180,136	181,937
	Regional priority catchment protection	Targeted rates	257,138	309,602	401,322	503,820	335,226	401,886	412,223	424,172	435,131	448,032	452,512
		Total income	**257,138**	**309,602**	**401,322**	**503,820**	**335,226**	**401,886**	**412,223**	**424,172**	**435,131**	**448,032**	**452,512**
		Total expenditure	257,138	309,602	401,322	503,820	335,226	401,886	412,223	424,172	435,131	448,032	452,512
	Regional priority possum control	Income other	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
		Targeted rates	2,367,099	2,853,725	4,050,823	4,835,480	4,845,695	4,372,451	4,595,612	4,851,563	5,105,208	5,383,742	5,437,579
		Total income	**2,382,099**	**2,868,725**	**4,065,823**	**4,850,480**	**4,860,695**	**4,387,451**	**4,610,612**	**4,866,563**	**5,120,208**	**5,398,742**	**5,452,579**
		Total expenditure	2,502,099	3,410,725	4,065,823	4,850,480	4,860,695	4,387,451	4,610,612	4,866,563	5,120,208	5,398,742	5,452,579
Potential pest management	National partnerships	Income other	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
		Targeted rates	148,957	169,226	218,813	231,133	241,063	256,383	268,376	276,133	285,927	299,891	302,889
		Total income	**268,957**	**289,226**	**338,813**	**351,133**	**361,063**	**376,383**	**388,376**	**396,133**	**405,927**	**419,891**	**422,889**
		Total expenditure	286,457	324,226	338,813	351,133	361,063	376,383	388,376	396,133	405,927	419,891	422,889
	Plants and animals	Targeted rates	144,893	165,925	223,454	230,191	236,043	248,279	249,673	262,809	267,781	275,464	278,219
		Total income	**144,893**	**165,925**	**223,454**	**230,191**	**236,043**	**248,279**	**249,673**	**262,809**	**267,781**	**275,464**	**278,219**
		Total expenditure	162,393	200,925	223,454	230,191	236,043	248,279	249,673	262,809	267,781	275,464	278,219

Activity	Project	Income/ expenditure	2012/13 LTP forecast ($)	2013/14 forecast ($)	2014/15 forecast ($)	2015/16 forecast ($)	2016/17 forecast ($)	2017/18 forecast ($)	2018/19 forecast ($)	2019/20 forecast ($)	2020/21 forecast ($)	2021/22 forecast ($)	2022/23 forecast ($)
Public threat pest management	Public health pest threats	Direct charges	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
		Interest on reserve	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
		Targeted rates	132,232	136,265	164,231	168,311	169,182	184,162	185,713	192,071	194,875	199,213	201,205
		Total income	**147,232**	**151,265**	**179,231**	**183,311**	**184,182**	**199,162**	**200,713**	**207,071**	**209,875**	**214,213**	**216,205**
		Total expenditure	147,232	151,265	179,231	183,311	184,182	199,162	200,713	207,071	209,875	214,213	216,205
Production pest management	Direct control	Targeted rates	64,383	103,149	106,122	107,830	109,757	115,876	118,796	120,663	123,291	126,369	127,633
		Total income	**64,383**	**103,149**	**106,122**	**107,830**	**109,757**	**115,876**	**118,796**	**120,663**	**123,291**	**126,369**	**127,633**
		Total expenditure	86,183	103,149	106,122	107,830	109,757	115,876	118,796	120,663	123,291	126,369	127,633
	Compliance and regulation	Direct charges	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
		Targeted rates	74,481	76,050	87,385	87,540	87,710	97,778	96,786	100,324	101,229	102,608	103,634
		Total income	**77,481**	**79,050**	**90,385**	**90,540**	**90,710**	**100,778**	**99,786**	**103,324**	**104,229**	**105,608**	**106,634**
		Total expenditure	77,481	79,050	90,385	90,540	90,710	100,778	99,786	103,324	104,229	105,608	106,634
Regional Pest Management Plan Review	Regional Pest Management Plan Review	General rates	256,667	183,955	65,962	57,379	57,813	93,318	75,329	63,723	65,192	196,851	198,820
		Total income	**256,667**	**183,955**	**65,962**	**57,379**	**57,813**	**93,318**	**75,329**	**63,723**	**65,192**	**196,851**	198,820
		Total expenditure	256,667	183,955	65,962	57,379	57,813	93,318	75,329	63,723	65,192	196,851	198,820
TOTAL EXPENDITURE			5,515,763	6,545,490	7,308,790	8,250,679	8,137,202	7,956,799	8,227,767	8,554,770	8,878,932	9,378,074	9,469,973

12.5 Rating provisions and compensation

12.5.1 Rate remissions and postponements

Waikato Regional Council believes that rates remission can help recognise the work that many landowners do voluntarily to protect and enhance the natural environment on their own properties. The council has rates remission policies that are available to properties that are protected by a conservation covenant, or properties with significant natural areas (SNAs) on them. In some cases, rates remission can be coupled with assistance to control pests in SNAs. We strongly encourage landowners to contact the council about these policies.

12.5.2 Compensation

Section 70(2)(n) of the Biosecurity Act requires the council to state the basis, if any, on which compensation is to be paid in respect of losses incurred as a direct result of the plan. No compensation will be payable by Waikato Regional Council in respect of losses incurred as a result of reasonable implementation of this plan. Notwithstanding that, in incidents where any person as a result of an authorised person's negligence or unreasonable action has incurred losses, the council will consider all means for resolving any disagreement including the payment of compensation.

12.5.3 Administrative problems or costs

No unusual administrative problems or costs are expected in recovering costs from any of the persons who are required to pay Waikato Regional Council.

In a related matter, Waikato Regional Council believes there is a national interest in maintaining effective ongoing pest control throughout New Zealand, particularly as bovine TB related pest control declines. The Department of Conservation (DOC) is a major partner delivering pest control in the Waikato region. The council notes the budget pressures facing the department and is concerned that their pest control operations in the region will decline. This has the potential to limit the very effective collaboration between Waikato Regional Council and the department, as well as undermining the council's own pest control operations. Waikato Regional Council will press Government to maintain a level of funding sufficient for DOC to appropriately manage the public conservation land in the region.

Hauraki Gulf pest free initiatives

13. HAURAKI GULF PEST FREE INITIATIVES

13.1 Background

The Hauraki Gulf has a biological diversity that makes it distinctive within New Zealand. This is recognised by the establishment of the Hauraki Gulf Marine Park (Hauraki Gulf Marine Park Act, 2000). A number of the islands are currently free of some pests found on the mainland and others have had eradication programmes carried out on them.

During 1998/1999, the then Auckland Regional Council declared the Hauraki Gulf and all its islands within its jurisdiction a controlled area under the Biosecurity Act 1993. Auckland Council (renamed after amalgamation) then instituted controls to require the inspection of relocatable dwellings prior to them being moved to the islands of the Hauraki Gulf and to help publicise the fact that many of the islands in the gulf are free of pests such as possums and mustelids. Combined with the Department of Conservation (DOC), Auckland Council has developed the 'Treasure Islands' theme for the gulf. A pest free warrant system has been established for commercial vessels and tourism operators to further reduce the risk of pest invasions and to assess if the biosecurity standards for visiting the islands of the gulf are being met.

The following policy is adopted in order to be consistent with the policies of the Auckland Council with regard to the Hauraki Gulf and in recognition of the fact that Waikato Regional Council is a member of the Hauraki Gulf Forum. Waikato Regional Council also recognises that there are frequent travellers from the Coromandel Peninsula to the islands of the Hauraki Gulf islands who may pose a threat to the pest-free status of some of the islands in the gulf.

13.2 Rule

The movement of declared pests in this plan into or from one place to another place within the Hauraki Gulf Marine Park is prohibited, except with the permission of an authorised person. A breach of this rule will create an offence under section 154N(19) of the Act and may incur penalties under section 157(5) of the Act.

Waikato Regional Council will also enforce section 52 of the Act with regard to the movement of pests or unwanted organisms as defined in the Act into or within the Hauraki Gulf Marine Park.

Waikato Regional Council will participate in joint projects with Auckland Council and DOC regarding publicity over the issue of pests moving into the Hauraki Gulf Islands and the provision of signage at wharves and other access points where pests may be transported to Hauraki Gulf Islands (such as airfields).

Marine biosecurity

14. MARINE BIOSECURITY

Marine biosecurity is a growing problem. Marine pests and diseases are regarded as a significant national and regional threat to our economy and environment. The Pest Management National Plan of Action produced by the Ministry for Primary Industries (MPI) says regional councils should be responsible for:

- coordinating joint decision making with Crown agencies and interested parties when a pest is already present in New Zealand and there has been a decision not to eradicate or contain nationally
- risks to any national or regional value associated with intra-regional movement of vectors (for example, structures, equipment and vessels)
- risks to any national or regional value associated with development of marinas, wharves, jetties and moorings and their ongoing maintenance
- risks to any national or regional value associated with dumping of organic material from vessels (within the 12 nautical mile limit and on land).

However, the boundaries between regional council and MPI roles and responsibilities remain relatively unclear. Where councils are involved in marine biosecurity, there is inconsistency in management approaches, which hinders a coordinated and effective inter-regional approach to risk reduction.

There is a need for councils to have improved information on the feasibility, cost, and effectiveness of different management approaches, including how any new pathway management plans under the Biosecurity Act can complement existing management. Effective management of risks within each region requires some minimum measures that are agreed to and applied across all regions. At the same time clarity around where a regional approach fits in relation to national requirements and responsibilities is essential.

At the time of writing this RPMP, Waikato Regional Council was partnering with MPI in a marine response effort that highlighted the extreme challenges associated with marine biosecurity. The response was to Mediterranean fan worm (*Sabella*) in Coromandel harbour. The techniques needed in this response were not well-tested, the costs high, the level of MPI responsibility unclear, and the skills needed were in short supply. Waikato Regional Council recognises the importance of marine biosecurity, but this response effort confirms the council's reservations about capacity and cost.

Separate from the Biosecurity Act, the New Zealand Coastal Policy Statement gives regional councils certain responsibilities for managing biosecurity risks from marine structures. The council supports a national approach to examine how this responsibility would work in practice. The council also is working with the marine farming industry to address biosecurity issues through Resource Management Act consent conditions.

Pathway management of pest plants

15. PATHWAY MANAGEMENT OF PEST PLANTS

A significant proportion of weed dispersal is related to human activity pathways such as agricultural practices. At present there is no law to prevent the movement within New Zealand of plant material, or of goods potentially contaminated by weeds or weed seeds.

In agriculture, the pathways for spread include:

- transported livestock and fodder
- contaminated crop and pasture seeds
- deliberate introductions of new species
- contaminated machinery such as harvesters and diggers
- recreational vehicles, including boats which can spread water weeds.

Introduced plants are sometimes distributed for use or commercial purposes before their potential economic and environmental impacts as weeds are fully understood. Another significant cause of weed spread is inappropriate use and disposal of green waste, which includes garden waste and inadequately composted mulches.

The nursery, landscaping and gardening industries are also important pathways for the introduction and spread of weeds.

15.1 Pest dispersal through contaminated machinery and equipment

The role of machinery, vehicles and equipment (for example, railway wagons, tractors, diggers, cars and so on) contaminated with plants and animals (fragments or whole organisms) in spreading and infesting previously clear areas is well recognised, but often not managed in practice. This dispersal is caused through human movement of risk goods and can be intentional or unintentional, although the latter is more likely.

POLICY

Waikato Regional Council will undertake education and public awareness projects during the course of the plan to increase awareness of the public, land occupiers and agricultural and commercial contractors of the risks associated with movement of equipment (such as harvesters, freshwater fishing nets and boat trailers) and risk goods (such as seed, grass, crop, timber and topsoil) through the region.

This initiative will be undertaken in accordance with sections 5 and 6 for plant and animal pest issues, respectively.

Waikato Regional Council has the ability to use administrative powers (section 122 of the Act) to direct any person in charge of a risk good to treat any good, destroy any pest and take steps to prevent the spread of any pest. Waikato Regional Council can also declare 'restricted places' under section 130 of the Act.

Regulation is seen as a less cost effective option than personal responsibility but may be used if there is clear disregard shown by offenders.

15.2 Pest dispersal through contaminated stock feed, crop and pasture seeds

There is increasing demand for stock feed imports to the region from within New Zealand and from international sources. This increases the risk of incursions of new weeds onto properties. Farmers in particular should be aware there are a number of serious weeds either not known in the region or present at very low levels, that are a threat to their business if allowed to establish. Whether the stock feed's purpose is to increase stock production or to supplement feed shortages caused by climatic factors, purchasers must know the weed status of materials and goods entering their property.

Landowners and sellers of risky goods such as stock feed, seed and crops should follow strategies that minimise the risk of weed contamination.

When buying animal/stock feed:

- ask the seller to guarantee that feed, such as hay and silage, is weed free
- inspect the crop before it is harvested
- ask about any past weed problems.

If feed comes from overseas:

- only buy from reputable dealers and ask for a guarantee that it is weed free
- inspect feed on arrival
- keep records of where the product came from and where it is fed out
- if in doubt, restrict feed out areas to simplify the weed control that an incursion would require.

Waikato Regional Council has the ability to use administrative powers (section 122 of the Act) to direct any person in charge of a risky good to treat any good, destroy any pest and take steps to prevent the spread of any pest.

Any plants listed in section 5 have a statutory obligation that:

- "No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed pest plants."

Regulation is seen as a less cost effective option than personal responsibility but may be used if there is clear disregard shown by offenders.

15.3 Pest dispersal through contaminated green waste

A key pathway of pest spread is the inappropriate disposal (dumping) of green waste from domestic gardens. Pest plants from domestic gardens can spread in a variety of ways, from seed carried by birds or wind, to fragments of stem or roots forming new plants.

Inappropriate disposal of garden waste is illegal and regulated by local councils.

Waikato Regional Council does not permit the inappropriate disposal of plants listed in section 5. For those plants, there is a statutory obligation that:

- "No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed pest plants."

Regulation is seen as a less cost effective option than personal responsibility but may be used if there is clear disregard shown by offenders.

15.4 Pest dispersal through the nursery, landscaping and gardening industries

Biosecurity staff will regularly inspect plant nurseries and retail outlets to ensure no pest plants are being propagated, sold or offered for sale as required by this plan.

Waikato Regional Council does not permit the sale of plants listed in section 5. For those plants, there is a statutory obligation that:

- "No person shall knowingly communicate, release, sell, offer to sell, display in a place where plants are offered for sale or exhibition, propagate or breed pest plants."

Regulation is seen as a less cost effective option than personal responsibility but may be used if there is clear disregard shown by offenders.

15.4.1 National Pest Plant Accord

The National Pest Plant Accord (NPPA) is a cooperative agreement between the Nursery and Garden Industry Association, regional councils and government departments with biosecurity responsibilities. The Ministry for Primary Industries (MPI) is responsible for coordinating, developing and managing the accord.

The NPPA is a list of approximately 150 plants that have been declared unwanted organisms and which regional councils have agreed to monitor to prevent their sale, propagation or distribution. This work is undertaken to prevent breaches of section 52 and 53 of the Biosecurity Act 1993.

Some species included in this plan are also listed on the accord. The full list of species on the NPPA is available on MPI's website (www.mpi.govt.nz). Waikato Regional Council undertakes regular surveillance for these plant species.

Pest plant threats associated with land development

16. PEST PLANT THREATS ASSOCIATED WITH LAND DEVELOPMENT

There are a number of eradication and containment pest plants such as alligator weed, climbing spindleberry and old man's beard that are associated with vegetation clearance, soil disturbance and movement of vehicles and equipment during land development and subdivision. Of these, the most notable pest plant affecting the region at present is alligator weed.

As noted in section 5.3 of this plan, alligator weed is the most expensive and difficult to control weed within the Waikato region due to its ability to invade a range of terrestrial and wetland sites. When growing on land, it displaces other more favorable plants such as crops or native vegetation and can be harmful to animals. When growing in fresh water, alligator weed can cover the entire water surface, preventing flow, blocking drainage channels and potentially increasing flood damage. When it forms mats it can also reduce oxygen exchange, affecting in-stream plants and animals and reducing water quality.

Although there are large infestations of alligator weed at Te Rore, Lake Whangape and along the Waikato River to the delta, these are being successfully managed with herbicides. However, due to rapid land development and urbanisation, it is becoming increasingly difficult to manage the terrestrial infestations that have been discovered in Hamilton, Cambridge, Te Kopu and Kihikihi.

To control weed pests such as alligator weed, the biosecurity group has:

- invoked section 130 (restricted places) of the Act
- sprayed infested sites
- enforced weed hygiene procedures (such as vehicle washing) at infested sites
- required contaminated material to be either buried on-site or disposed of at a registered landfill.

Although these measures have resulted in good control at all known sites, serious pest plants are still being spread to new sites during the land development process.

Given the continued spread of high risk pests such as alligator weed, more comprehensive weed hygiene measures are required in the industry. However, mainstreaming weed hygiene measures across the entire building and construction industry is problematic and needs to be done in conjunction with the industry. A targeted approach to the development and implementation of appropriate weed hygiene measures is considered to be more appropriate.

Given the significant economic and environmental risks associated with the spread of pest plants like alligator weed within the Waikato region, and the limited success that education and advocacy is having, it is clear that more needs to be done to manage eradication and containment pest plants. The rules below outline some of the new measures required.

16.1 Subdivision and land development

When land subdivision or development will involve redistribution of materials that may contain pest plant propagules or seeds, or when it may create bare ground prone to weed infestation, the activity must be carried out in accordance with the following rules.

NOTE

1. If site works must comply with these rules, the owner or developer of the site shall be advised in advance by Waikato Regional Council or one of its authorised agents.

2. The rules below apply only to urban and peri-urban development.

RULES

- If an owner or developer is notified that they must comply with these rules, then at least 10 working days prior to the commencement of the activity, Waikato Regional Council shall be notified in writing of the nature of the works proposed and the measures being taken to minimise the risk of 'high risk' pest plants infesting or spreading from the site both during the works and after they have been completed.

  There shall be no transfer of earthen material or green waste from an infested site to an uninfested site.

- During the works, areas of bare ground on the site shall be managed in a way that prevents high risk weed populations becoming established on the site. This can be achieved by using control methods such as re-grassing stockpiles and bare, undeveloped strips, covering them with weed matting or cloth, or regularly spraying emergent weeds with herbicide.

- On completion of the work, areas of bare ground on the site created during the works shall be rehabilitated to an extent that they are unlikely to facilitate the establishment of high risk weed populations.
- Rehabilitated areas on the site shall be maintained free of weeds until a weed resistant groundcover has been established to minimise the risk of high risk weeds subsequently becoming established in these areas.
- Waikato Regional Council shall be notified in writing of completion of the works and be given the opportunity to inspect the site with the landowner/developer.
- The owner/developer shall provide to Waikato Regional Council such performance bond as the council considers appropriate in order to secure compliance with this rule.

Breach of rules

A breach of these rules will create an offence under section 154N(19) of the Act.

16.2 Subdivision and land development on infested properties

Rules

When land that is to be subdivided or developed contains 'high risk' eradication and/or containment pest plants, and the activity will involve redistribution of materials that contain propagules or seeds of those plants, or when it may create bare ground prone to weed infestation, the owner or developer of the land must carry out their activities in accordance with the following rules.

NOTE

1. If a site contains the relevant weeds, the owner or developer of the site shall be advised in advance by Waikato Regional Council or one of its authorised agents.

2. The rules below apply only to urban and peri-urban development.

RULES

a. Prior to the commencement of the works, the owner or developer of the site shall prepare and submit a weed hygiene plan (WHP) to the Waikato Regional Council for approval. The WHP shall include, but may not necessarily be limited to the following.

   i. A description of the soil disturbance and land development activities proposed on the site.

   ii. A site plan of a suitable scale to identify the locations of eradication and containment pest plants on the site, the extent of earthworks and vegetation removal, waterways, any 'no go' and/or neighbouring areas, all key pest management facilities/sites (such as wash down areas and green waste disposal sites), sediment control structures and any other relevant site information.

   iii. Details of all principles, procedures and practices that will be implemented to manage pest plants on the site and prevent their spread (such as weed control programmes, restrictions on material exported, vehicle decontamination procedures and short and long-term treatment of bare ground).

   iv. A timetable for the soil disturbance and development activities proposed and the rehabilitation/revegetation works proposed on the site.

   v. Maintenance, monitoring and reporting procedures adopted to ensure the infestation on the site is adequately controlled and not spread.

   vi. Response and contingency measures, including procedures to minimise adverse effects in the event that the eradication and/or containment pest plants are spread on or off site as a result of the works.

   vii. Procedures and timing for review and/or amendment to the WHP.

   viii. Identification of specific personnel responsible for the implementation, operation and maintenance of the weed management practices outlined in the plan.

b. The landowner/developer shall ensure that a copy of the approved WHP, including any approved amendments, is kept onsite and the onsite copy of the WHP is updated within five working days of any amendments being approved.

c. At least five working days before commencement of site works the land owner/developer shall inform Waikato Regional Council of the name and contact details of an appointed representative(s) who shall be Waikato Regional Council's principal contact person for matters relating to the works. Should that person(s) change during the period of the works,

the landowner/developer shall immediately inform Waikato Regional Council of the change and give written notice of the new representative's name and contact details.

The owner/developer shall inform Waikato Regional Council of the commencement of the works covered by the WHP in writing at least five working days in advance to allow a pre-work site inspection to be carried out.

d. The owner/developer shall be responsible for all contracted operations related to the works carried out on the site and must ensure contractors are made aware of the content of the WHP and ensure compliance with the commitments given in the plan.

e. Waikato Regional Council shall be notified in writing of completion of the site works and be given the opportunity to inspect the site with the landowner/developer.

f. The owner/developer shall provide to Waikato Regional Council such performance bond as the council considers appropriate in order to secure compliance with this rule.

Breach of rules

A breach of these rules will create an offence under section 154N(19) of the Act.

COMPETING GLOBALLY

CARING LOCALLY

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Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

Private Bag 3038
Waikato Mail Centre
Hamilton 3240
New Zealand

Freephone 0800 800 401
info@waikatoregion.govt.nz
www.waikatoregion.govt.nz