

Northland Regional Pest Management Strategies 2010-2015

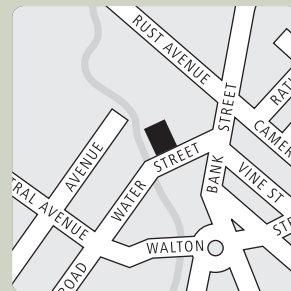


Putting Northland first

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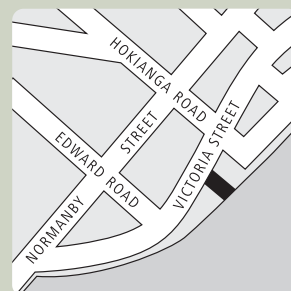
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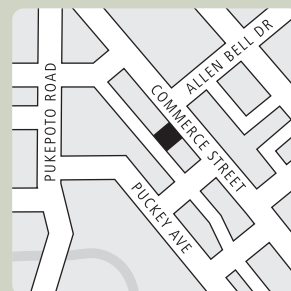
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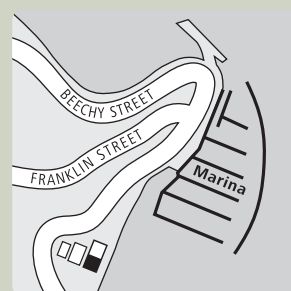
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This is a true and correct copy of the Regional Pest Management Strategies for Northland.

This document has been prepared by the Northland Regional Council in accordance with the requirements of the Biosecurity Act 1993.

The Strategies were adopted at a meeting of the Northland Regional Council on 20 July 2010 and are operative from this date.

The Common Seal of Northland Regional Council was affixed on 20 July 2010.



Mark Farnsworth
Chairman

Ken Paterson
Chief Executive Officer

Councillor Craig Brown
Chairman Environmental Management Committee



Mark Farnsworth
Chairman

The Northland Regional Pest Management Strategies (RPMS) are the culmination of a comprehensive review of the way in which introduced pests are managed in Northland. The new Northland Regional Council Strategies cover a broad suite of plants and animals, and introduce a new category, marine pests. They aim to 'future-proof' pest management and reduce the impact that pests are having on our region's economic, environmental and cultural values.

Northland faces new and increasing biosecurity challenges. There are constant new pest threats as well as established pests that require ongoing management. In addition, a growing number of landowners are becoming involved in Community Pest Control Schemes (CPCAs) and are leading more multi-species, site-led control of unwanted pests.

In the face of these challenges the Northland Regional Council has shifted its strategic approach to pest management. Management strategies have been developed to address new pest threats while providing for more flexible management of existing pests.

Underpinning this approach is a desire to sustain the good progress that private landowners have already made and to foster greater involvement from both the Crown and other stakeholders. This approach will help sustain both pest-led and community-driven pest control.

It's an exciting time to be working alongside private landowners, many of whom are leading the way in environmental protection. Many current initiatives on private land are now at the stage where the environment is recovering from the effects of pests because of the commitment and determination of individuals and community groups. The Strategies allow for a more integrated approach to support this sort of restoration work.

Similarly, Northland's coastal marine environment is of significant economic benefit to the region. Our coast is integral to the lives of all Northlanders in terms of cultural, recreational, biodiversity and social values. The new Marine Pest Management section of the strategy is a comprehensive approach to addressing the growing risks increasing numbers of marine pest invaders pose to Northland's marine environment.

The marine section of the Strategies aims to protect our regional interests and reflects the Council's commitment to working to develop partnerships with all major stakeholders including iwi, the Ministry of Fisheries, Department of Conservation, MAF Biosecurity NZ, industry and the wider community – a process that's encouraged throughout all the sections of the RPMS.

The RPMS sorts pests into five categories: exclusion, eradication, containment, suppression, and risk assessment. Each category has a set of management tools which will allow the Regional Council to protect the gains already made while including several new plant and animal pests and expanding on the CPCAs.

Pests grouped within each category are also listed together with those that have the same management techniques. A description and photograph is provided for every pest within the category to help identify them.

There are two main themes throughout the Strategies: the more traditional approach of species-led management using biological practices to target specific pests; and the site-led work of the CPCAs.

To make it clearer where pest control will occur, the Strategies include maps. These show where pest-led work will happen and will be a valuable tool for the Regional Council, community groups, industry stakeholders and individuals to assess the scope of any pest management project. They will also be used to measure performance, gauging the effectiveness of management techniques and therefore any possible future modifications.

The Regional Pest Management Strategies come after lengthy consultation with the public, interest groups and industry stakeholders. Input from appropriate government agencies and current scientific research has also been incorporated.

The next step is to implement the Strategies and continue to work with our community to protect Northland's environment for future generations – putting Northland first to create a region of choice.



Ken Paterson
Chief Executive Officer



Councillor Craig Brown
Chairman Environmental Management Committee

1. INTRODUCTION

The primary mechanisms available to the Northland Regional Council (NRC) for the control of pests are Regional Pest Management Strategies which are developed under the Biosecurity Act 1993.

Under the Biosecurity Act, Regional Councils are the agencies responsible for processing and approving regional pest management strategies. While Regional Councils have no statutory obligation to undertake pest management, most have significant roles in this field. The Biosecurity Act prescribes the process to be followed in the preparation, subsequent implementation and review of pest management strategies.

Each organism included in the Strategies is capable of causing a serious, adverse and unintended effect in the region on one or more of the following:

1. Economic wellbeing; or
2. The viability of threatened species of organisms, the survival and distribution of indigenous plants or animals, or the sustainability of natural and developed ecosystems, ecological processes, and biological diversity; or
3. Soil resources or water quality; or
4. Human health or enjoyment of the recreational value of the natural environment; or
5. The relationship of Māori and their culture and traditions with their ancestral lands, waters, sites, waahi tapu, and taonga.

The NRC also has responsibilities under the Resource Management Act 1991 (RMA) to sustainably manage the natural and physical resources of the region, including the Coastal Marine Area (CMA). These responsibilities include sustaining the potential of natural and physical resources, safeguarding life-supporting capacity and protecting environmentally significant areas and habitats (s5(2) and 6(c)).

The RMA specifies functions of Regional Councils in relation to maintenance and enhancement of ecosystems in water bodies in the coastal marine area in the region (s30(1)(c)(iia)), the control of actual or potential effects of use, development or protection of land (s30(1)(d)(v)) and the establishment, implementation and review of objectives, policies and methods for maintaining indigenous biological diversity (s30(1)(ga)).

The Regional Policy Statement for Northland identifies the following objectives, which are relevant to the management of pests:

- The avoidance, remedying or mitigation of the adverse effects of pest plants and pest animals on the use of land¹, including its potential for primary production and natural ecosystems (*Objective 20.3.4*).
- Maintenance of the biodiversity of the Northland region (*Objective 23.3.1*).
- Protection of the life supporting capacity of ecosystems through avoiding, remedying or mitigating (in that order of priority) the adverse effects of activities, substances and introduced species on the functioning of natural ecosystems (*Objective 23.3.2*).

¹ The Resource Management Act defines land to include land covered by water.

1.1 Purpose of Strategies

The purpose of the Regional Pest Management Strategies (RPMS) is to provide a strategic and statutory framework for the efficient and effective management of pests in Northland.

1.2 Objective of Strategies

The primary objective of the Strategies is to reduce or eliminate the impact of introduced pests on environmental, economic and social values.

Long-term management of pests extends far beyond simply controlling those that currently infest the region. It also includes management to reduce susceptibility to infestation by pests, control operations to prevent reinvasion and to control the mechanisms by which pests enter and are spread within the region.

In association with the NRC policy of empowering local people to assume ownership of local problems and the solutions to those problems, the NRC will promote integrated pest management operations by way of 'Community Pest Control Areas'.

1.3 Management Agency

The management agency for the Plant, Animal and Marine Pest Management Strategies is the Northland Regional Council.

1.4 Duration of Strategies

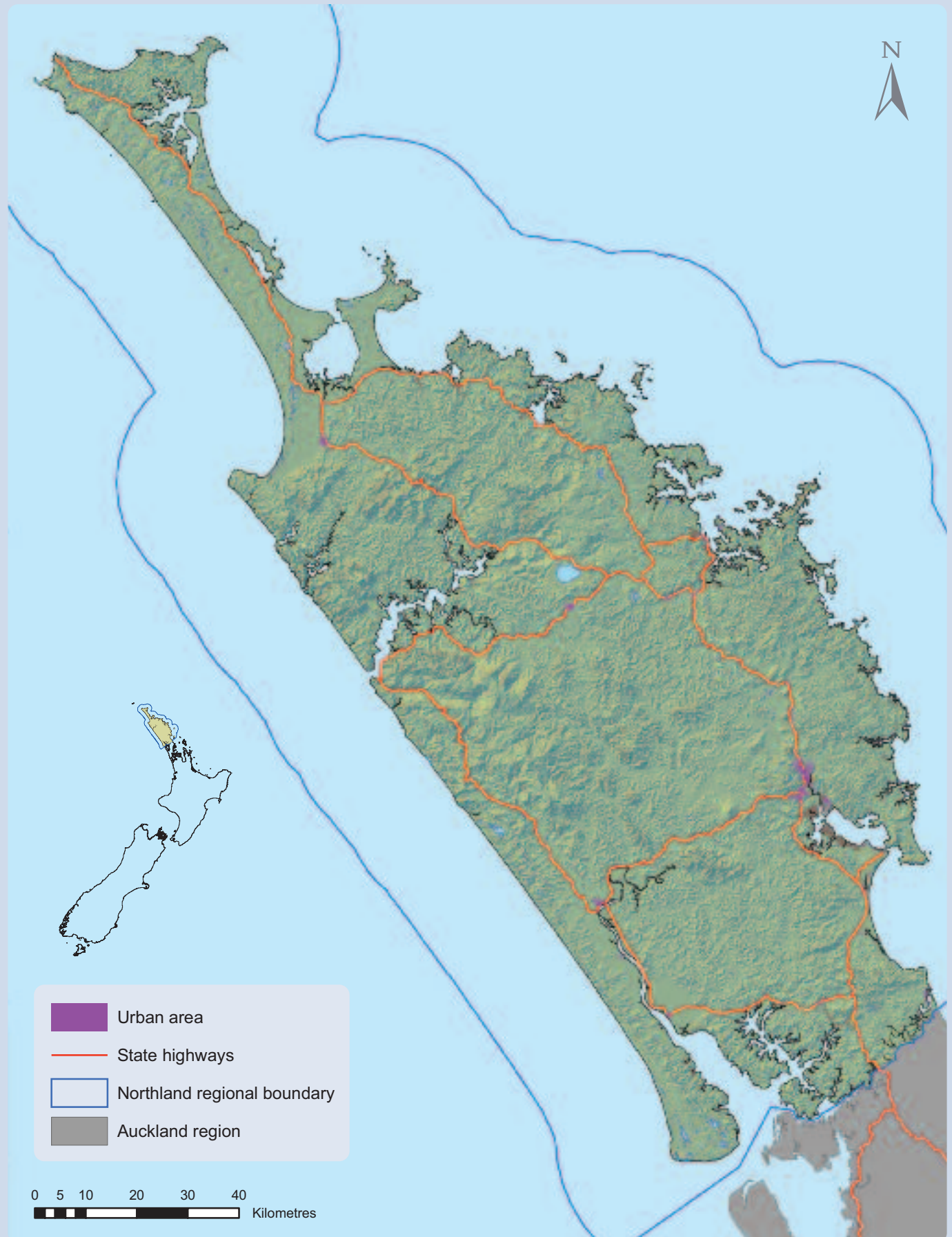
The Strategies will take effect from the date adopted by resolution of the NRC and will remain in force for five years from that date.

1.5 Area of Effect

The Strategies apply to the entire Northland region. The Northland region (Figure 1, overleaf) refers to the land, rivers, lakes and coastal marine area that lie within the administrative boundaries of the Northland Regional Council.

INTRODUCTION

Figure 1: Northland region.



2. PEST MANAGEMENT ROLES

A number of agencies and individuals have responsibilities for pest management. These are generally set out by the Biosecurity Act. The following parties, in addition to the NRC, have been identified and are of relevance in the management of pests:

- The public.
- Individuals (including landowners, occupiers and those who occupy the coastal marine area).
- Territorial authorities.
- The Crown.
- Roding authorities.
- Rail corridor occupiers.

2.1 The Northland Regional Council

The NRC is involved in pest management to give expression to local community interests, to promote the social, economic, environmental and cultural wellbeing of communities in the present and for the future; and to reflect regional variations in pests, pathways and environments. Regional Councils also carry out devolved functions where best placed to achieve national outcomes. The NRC is the management agency responsible for implementing these Regional Pest Management Strategies.

2.2 Public

The public has an interest in reducing the impacts of pests. Public awareness, behaviour, participation and support are fundamental to effective pest management. Ultimately, central and local government are accountable to national and local communities.

2.3 Individuals (Landowners/Occupiers)

Pest management is an individual's responsibility in the first instance because generally occupiers contribute to the pest problem and in turn benefit from the control of pests. The term occupier has a wide definition under the Biosecurity Act and includes:

- a. In relation to any place physically occupied by any person, means that person; and
- b. In relation to any other place, means the owner of the place; and
- c. 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.

Under the Biosecurity Act, place includes: any building, conveyance, craft, land or structure and the bed and waters of the sea and any canal, lake, pond, river or stream.

In aquatic environments, pest problems are more likely to arise through transient activities, such as vessel movements. The public/individual generally has a limited ability to identify and respond to aquatic pests in many cases.

2.4 Territorial Authorities

There are three territorial local authorities in the Northland region:

- Far North District Council.
- Kaipara District Council.
- Whāngārei District Council.

Territorial local authorities are required to control pests on land that they occupy in accordance with the strategy rules. Where relevant the NRC believes there is benefit in developing management plans with territorial local authorities to limit the spread of pests and facilitate effective pest management.

2.5 The Crown

The Crown has an interest in protecting the national interest, ensuring the pest management system is equitable, efficient and achieves the best overall outcomes for New Zealand and delivering public services. The Crown also has obligations under the Treaty of Waitangi and international treaties. The Crown is also a landowner and protects the public's interest in the land of the Crown.

2.6 Roding Authorities

The construction and maintenance of roads can exacerbate pest problems by creating establishment sites and by spreading pests via machinery, equipment and materials. Roads are recognised as corridors for the spread of pest plants, while the construction and maintenance of bridges and structures in water bodies can introduce marine or freshwater pests. The Biosecurity Act allows the option of making either roding authorities or neighbouring landowners responsible for road verge pest control.

In Northland the responsibility for roadside verge control for all formed roads will be the responsibility of the roding authority, in common with other Pest Management Strategies in New Zealand. Responsibility for pest control on unformed roads will lie with the land occupier who physically occupies the land. The NRC believes there is benefit in developing management plans with road controlling authorities to limit the spread of pests and facilitate effective pest management.

2.7 Rail Corridor Occupiers

Rail corridors can exacerbate pest problems by creating establishment sites and by spreading pests via machinery, equipment and materials. Rail corridors also act as pathways for the spread of pest plants, while the construction and maintenance of bridges and other structures in water bodies can introduce and spread marine or freshwater pests. The NRC believes there is benefit in developing management plans with rail corridor occupiers to limit the spread of pests and facilitate effective pest management.

3. PEST MANAGEMENT

Classifying pests into categories makes it easier to understand the potential risks and impacts of those pests. The NRC has used an 'invasion curve model' to help classify pests and guide decision making on pest management options.

3.1 Invasion Curve

The invasion curve is a simple descriptive model (Figure 2; derived from Williams, 1997) that demonstrates basic pest population dynamics and can be used to help guide strategy objectives and management programmes for individual pests. There is a strong relationship between where a pest sits on the invasion curve and the likelihood of controlling it.

The invasion curve has four stages which can be explained as follows:

1. **Absent:** these pests have not yet established in Northland, or all known sites have been eradicated. The most effective form of management is to continue to exclude them.
2. **Lag stage:** this is the initial slow establishment stage. Pest numbers are low, the rate of population increase is slow and distribution is limited. The most cost effective option during this stage may be eradication, to prevent further establishment.
3. **Explosion stage:** the explosion stage occurs once a pest has adapted to its environment and has reached a population base that allows rapid growth in population size and range. At this stage it is not realistic or cost effective to eradicate the pest, but it may be possible to prevent further spread through containment.
4. **Established stage:** this stage occurs when the rapid growth in population size and range slows as the pest fills most of its available habitat. At this stage, pests can only be suppressed to mitigate their impacts.

3.2 Pest Classifications

The following pest classifications describe the various pest management approaches to be used in Northland. These classifications are generally based upon where a pest sits on the invasion curve.

Exclusion

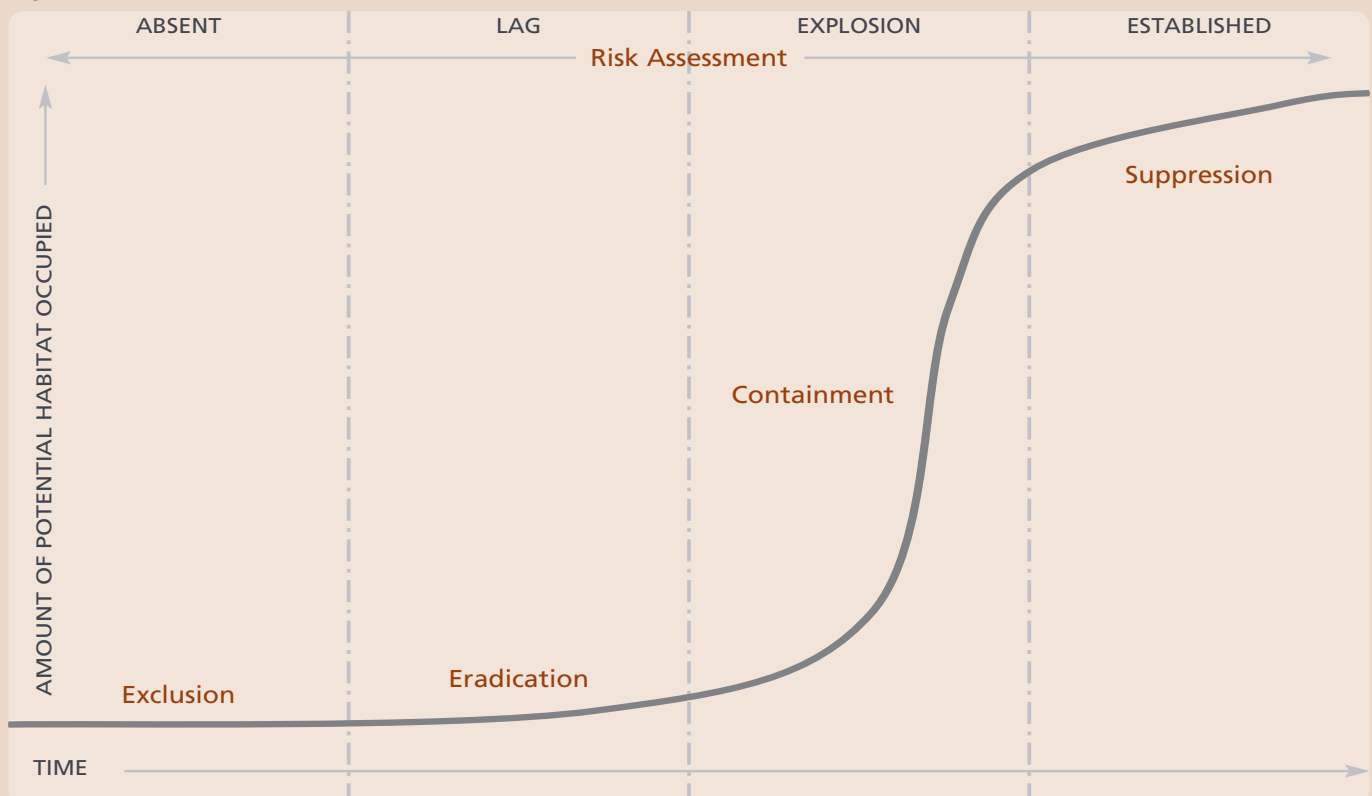
Exclusion pests are potential pests which are not known to have established in Northland or have previously established and all known sites have been eradicated. These pests all have the potential to establish in the region, and are capable of causing adverse effects. The intention is to prevent the pests in this category from entering and establishing within Northland over the life of the strategy.

The NRC will work cooperatively with other agencies to undertake surveillance, research and raise public awareness of exclusion pests to prevent their establishment in the region. If an "Exclusion Pest" is found in the region, the NRC will work cooperatively with other agencies to take all practical steps to achieve eradication.

Eradication

This classification is applied to pests that are present in low numbers or limited distribution within the Northland region, and have the potential to have serious negative impacts on the community or the environment. The intention is to remove all individuals of these pests from the region, and eliminate the possibility of any further reproduction or propagation within the region. Eradication is only likely to be possible if the infestation is found when the populations are very small and the distribution is limited.

Figure 2: Invasion curve model.



Control of Eradication pests will usually be carried out by the NRC and its contractors or, with agreement, by other agencies. However, if specified within the RPMS, control of particular eradication pests will be the responsibility of the land occupiers or users of space in the CMA. The NRC will undertake surveillance and research, provide advice and raise public awareness of eradication pests to assist with eradicating them from the region.

Containment

This classification is applied to pests that are established in the region but are not widespread. These pests are present in the region at numbers and distributions that mean eradication is not possible or cost effective. The intention is to prevent the spread of these species beyond a defined containment area.

The NRC will provide advice, information and raise public awareness of pathways and vectors to try to reduce the spread of Containment pests. The NRC will support programmes to reduce the distribution and density of containment pests within the Northland region. The NRC will also ensure land occupiers or users of space in the CMA comply with strategy rules designed to prevent the spread of a containment pest. Where specified, the NRC will undertake the control of large infestation sites and “sources” of pests.

Suppression

Suppression pests are those pests that are widespread in suitable habitat throughout the region. The intention is to reduce pest densities so that impacts on the community and the environment are decreased.

The NRC will provide advice and information to land occupiers or users of space in the CMA to assist with management of Suppression pests. The NRC will also ensure land occupiers or users of space in the CMA are acting as good neighbours by complying with strategy rules regarding pest density levels and/or boundary control distances. The NRC will support programmes to reduce the distribution and density of Suppression pests within the Northland region.

Risk assessment

This classification is applied to pests which are of potential concern to the region, but little is known about the distribution or the risks posed to Northland. The intention is to improve understanding about the pest and its distribution, so that the pest can be classified and managed appropriately when the strategy is reviewed.

The NRC will undertake surveillance, research and raise public awareness of Risk assessment pests to assist with classifying these pests and managing them appropriately. The NRC will provide advice and information to the public, and will support initiatives to minimise any adverse impacts they have. If surveillance indicates that a Risk assessment pest poses a threat to the region, and eradication is achievable, control may be carried out by the NRC and their contractors or, with agreement, by other agencies.

3.3 Pest Management Methods

The classification of a pest on the invasion curve helps guide strategy objectives and management programmes for individual pests. The main management methods are described as follows:

Surveillance: surveillance involves the development and implementation of regional surveillance plans with a particular focus on pathways, vectors and areas of significance. Information about pest distribution and impacts will be collected and analysed through surveys and reports from the public and other agencies. Surveillance also includes routine monitoring of pest management operations.

Surveillance for potential pests can be difficult and the NRC will work with Ministry of Agriculture and Forestry Biosecurity New Zealand (MAFBNZ) and other agencies to develop appropriate surveillance programmes which complement national programmes.

Incursion Response: this involves responding to the invasion of a newly arrived pest in the region. Eradication will be attempted in conjunction with relevant Crown agencies and stakeholders where practicable.

NRC Response: pest control will be carried out by the NRC and their contractors or, with agreement, by other agencies. NRC response will only be used where it is the most cost effective management option and/or the pest requires specialist expertise in identification and control.

Education: the NRC will provide information about pests, impacts, and pest management through publicity campaigns, publications, events and advice. The NRC will also provide training to relevant staff and stakeholders in the identification and control of certain pests.

Research: the NRC will work cooperatively with other agencies where further research is needed to identify management measures, potential impacts, pathways and/or behaviours.

Occupier Control (voluntary and regulatory): the RPMS may encourage or require occupiers to control certain pests. Control classes are:

- Total control - occupiers are required to kill all individuals of certain pests wherever they occur on the property.
- Boundary control - occupiers are required to control certain pests within an appropriate distance of the property boundaries.
- Quarry control - owners or occupiers of quarries and metal stockpile areas are required to control certain pests within operational areas. Operational areas include overburden soil storage stockpiles, pits and faces, extraction areas, raw material stockpiles, processing areas, product stockpiles, haulways and other vehicle routes.
- Roadside control - road controlling authorities are required to progressively control certain pests from the region’s formed road reserves, following an approved programme.

Rules: the RPMS contains rules which are enforceable under the Biosecurity Act. These rules may require land occupiers or users of space in the CMA to control certain pests. Non compliance with Strategy rules may be determined by complaints or inspections. Failure to comply with a Notice of Direction issued in relation to a breach can result in control being undertaken at the expense of the occupier. Prosecution through the Courts can also be used if necessary.

Site-led: the site-led method can take two forms; Community Pest Control Areas and High Value Areas. This strategy also aims to grow the gains which have been made through community-led pest control by linking existing schemes and increasing the area of protected private land in Northland.

- **Community Pest Control Areas (CPCA):** this involves the NRC assisting local communities, interest groups and/or stakeholders to address pests within a given area. Each proposal for establishing a CPCA is assessed in terms of the feasibility of control, level of ongoing public/stakeholder support and the economic, environmental or cultural benefit likely. Each CPCA proposal must be put to the NRC, along with staff recommendations. If the NRC approves establishment of the scheme, the NRC carries out the initial knockdown of pests that threaten particular values identified by a community group for a defined control area. NRC may also supply subsidised resources for ongoing control operations. Once the pest population density has been reduced to a predetermined level (i.e. pests no longer pose a threat to the identified values and/or a level at which it is practical for the land occupier or the group to control), the land occupiers and/or any associated group, assumes responsibility for maintenance. Where applicable, Biosecurity Officers will require CPCA members to control the selected pests under the enforcement provisions of the Biosecurity Act.
- **High Value Areas:** this approach targets areas of high biodiversity, cultural, recreational or economic value with a view to managing the threat of pests on these values. This requires identification of high value areas in conjunction with occupiers, stakeholders and other Crown Agencies. Surveillance, pest prevention management and incursion response plans will be developed in partnership with these parties. Where new pest incursions are detected, local eradication will be attempted where practicable. The role of the NRC will depend on the high value area, the role of other agencies, stakeholders and the community. However, it is likely that the role of the NRC will be similar to that in a CPCA, and will be subject to approval by NRC decision.

Biological Control: biological control involves the introduction of a pest's natural predators and/or competitors. Biological control agents are often insects or pathogens and must pass stringent testing before they can be used in New Zealand. This is a long term type of pest management, and can be very cost effective.

Unwanted Organisms:

- An '**unwanted organism**' is defined in the Biosecurity Act 1993 as any organism a Chief Technical Officer² believes capable of causing unwanted harm to any natural and physical resource or human health. Unwanted organisms are subject to the rules in sections 52 and 53 of the Act, which prohibit the release, spread, sale or breeding of the pest organism. All unwanted organisms are notifiable and must be reported to MAFBNZ.

- A '**notifiable organism**' is any organism which has been declared as such by Order in Council. The Biosecurity Act requires that every person who:
 - Suspects an organism that is a notifiable organism is present in any place in New Zealand; and
 - Believes that it is not established in that place; and
 - Believes that a Chief Technical Officer is not aware of its presence, must report the organisms' presence to a Chief Technical Officer.
- The **National Plant Pest Accord (NPPA)** is a cooperative agreement between Regional Councils and government departments with biosecurity responsibilities (e.g. MAFBNZ, DOC). Under the NPPA, all signatory Regional Councils will undertake surveillance at plant nurseries and other commercial outlets, to prevent the propagation, sale and/or distribution of an agreed list of pest plants. The NPPA list is dynamic, and changes periodically. A full list of unwanted organisms and the plants listed in the NPPA is available on the MAFBNZ website.

Section 100 Biosecurity Act 1993: section 100 enables Regional Councils to respond to the arrival of an unwanted organism whether the pest is identified in the RPMS or not. However, section 100 only applies where:

- Approved by Council resolution;
- Applied to an unwanted organism;
- The organism can be eradicated or controlled effectively within three years;
- The cost is less than that prescribed by the Governor General by Order in Council;
- The control is unlikely to result in significant monetary loss to any person other than those who contributed to the presence or spread of the unwanted organism by failing to comply with the Biosecurity Act or any Pest Management Strategy.

Responses to pests which are not unwanted organisms must be addressed through other means such as site-led programmes.

3.4 Monitoring

As the management agency responsible for implementing the strategies, the Northland Regional Council is required to prepare operational plans for each strategy (section 85, Biosecurity Act). As such, operational plans will be prepared for the plant, animal and marine strategies. The plans will be reviewed annually, and amended as necessary, for the duration of the strategies.

Annual reports on the implementation of the strategies will also be prepared and the results recorded in the Annual or Long Term Community Plans as appropriate. Annual reporting will include monitoring the extent to which the objectives of the strategies are being achieved. Monitoring will include assessing and reporting on progress made towards meeting the objectives of species-led (Figure 3) and site-led programmes (Figure 4).

² A Chief Technical Officer means a person appointed a Chief Technical Officer by the Director General under section 101 of the Biosecurity Act.

Figure 3: Northland region species-led programmes.

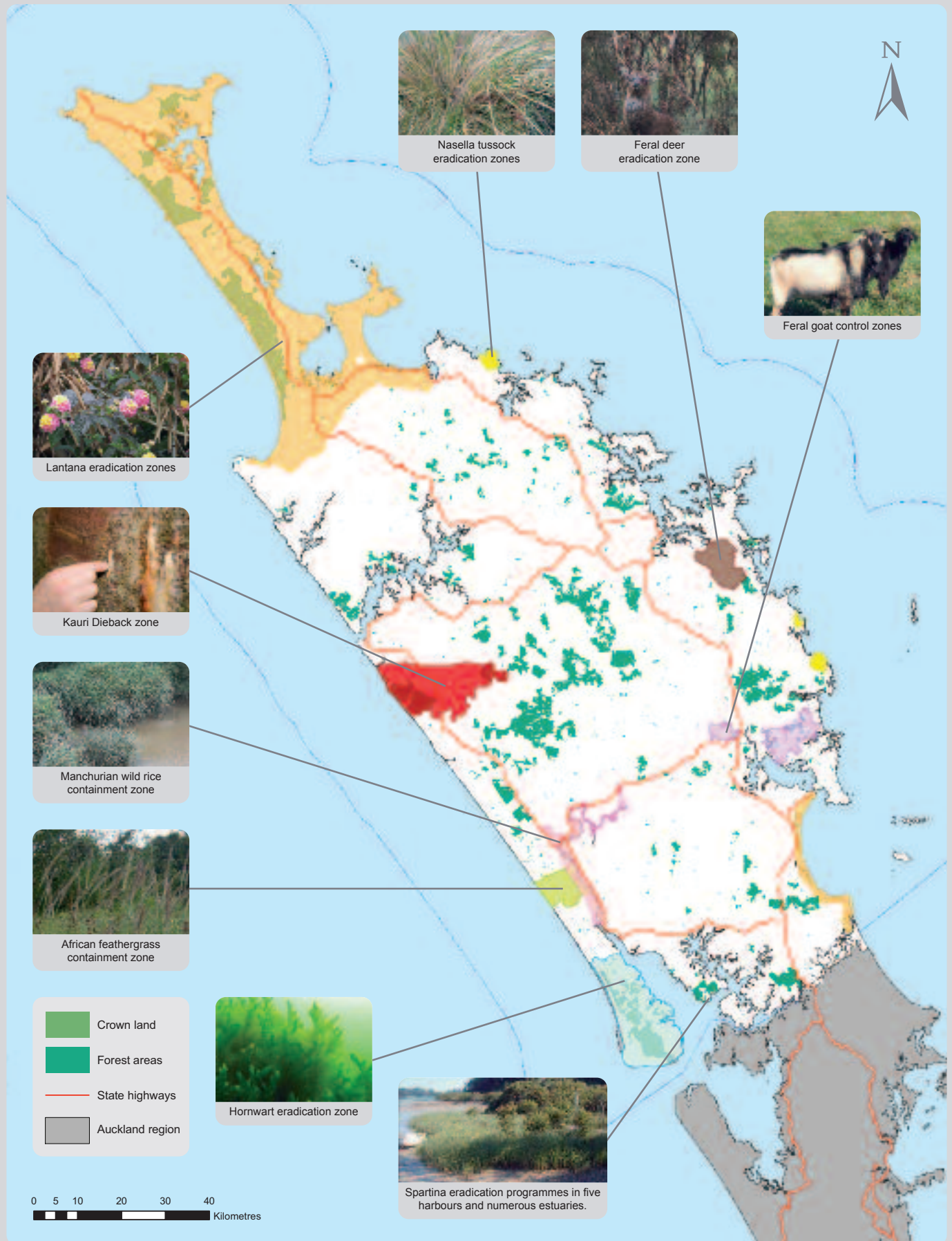
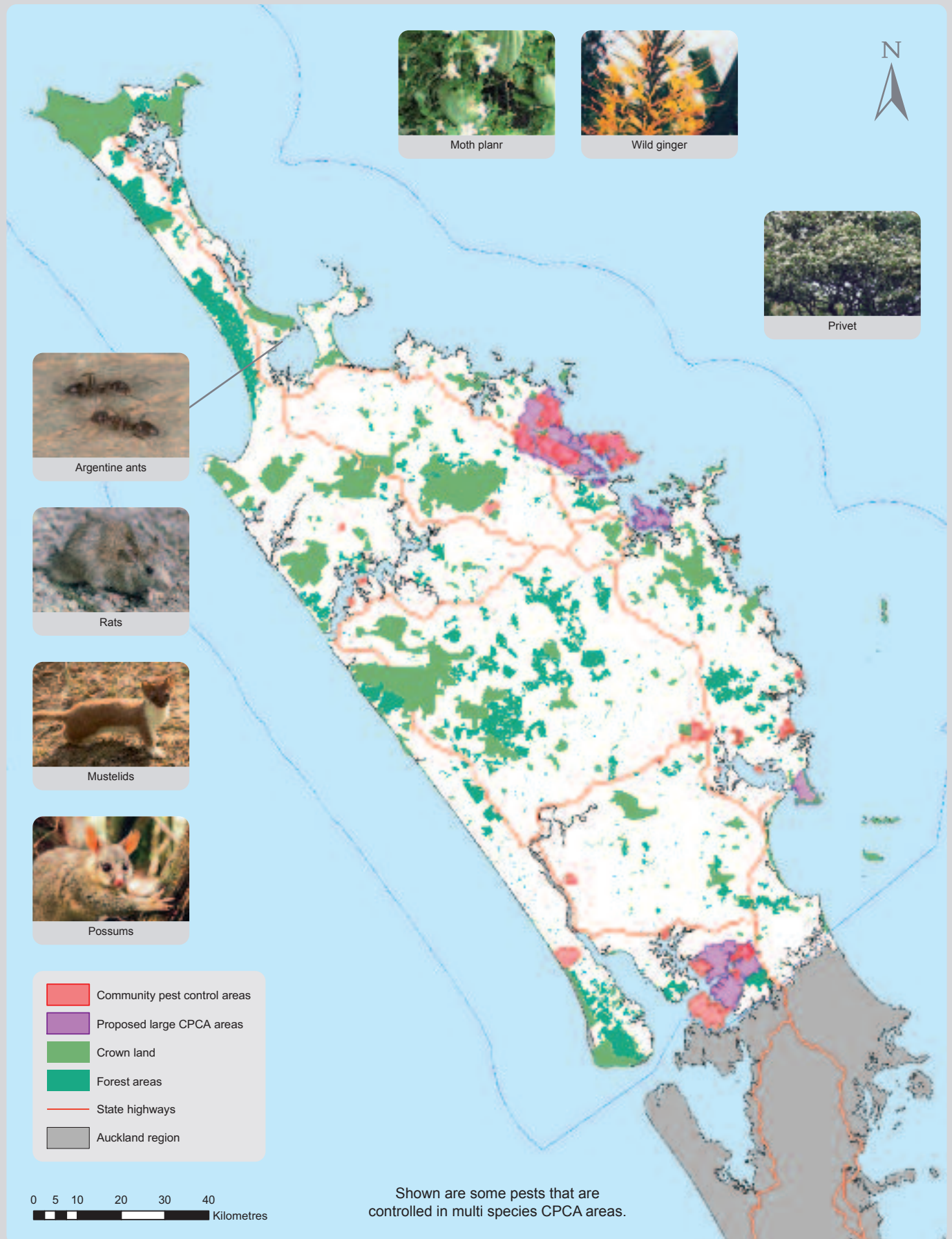


Figure 4: Northland region site-led programmes.



4. PLANT PEST MANAGEMENT STRATEGY

The plant pests included in the strategy all cause, or have the potential to cause, adverse impacts on Northland's environmental, economic, cultural and recreational values.

Common Name	Scientific Name	Pest Classification	Page
African feather grass	<i>Pennisetum macrourum</i>	Containment	26
Akebia	<i>Akebia quinata</i>	Eradication	19
Alligator weed	<i>Alternanthera philoxeroides</i>	Suppression	36
Asiatic knotweed	<i>Fallopia japonica</i> ,	Exclusion	13
Bathurst bur	<i>Xanthium spinosum</i>	Containment	28
Californian thistle	<i>Cirsium arvense</i>	Containment	29
Cape tulip	<i>Moraea flaccida</i>	Exclusion	13
Cathedral bells	<i>Cobaea scandens</i>	Exclusion	13
Climbing spindle berry	<i>Celastrus orbiculatus</i>	Eradication	19
Eelgrass	<i>Vallisneria australis</i> , <i>V. spiralis</i>	Eradication	19
Entire marshwort	<i>Nymphoides geminata</i>	Exclusion	14
Evergreen buckthorn	<i>Rhamnus alaternus</i>	Eradication	20
Fringed water lily	<i>Nymphoides peltata</i>	Exclusion	14
Giant hogweed	<i>Heracleum mantegazzianum</i>	Exclusion	14
Giant knotweed	<i>Fallopia sachalinensis</i>	Exclusion	13
Giant reed	<i>Arundo donax</i>	Containment	30
Gorse	<i>Ulex species</i>	Suppression	36
Gravel groundsel	<i>Senecio skirrhodon</i>	Suppression	37
Holly-leaved senecio	<i>Senecio glastifolius</i>	Exclusion	15
Houttuynia	<i>Houttuynia cordata</i>	Exclusion	15
Hydrilla	<i>Hydrilla verticillata</i>	Exclusion	15
Johnson grass	<i>Sorghum halepense</i>	Exclusion	16
Lantana	<i>Lantana camara</i> , <i>all varieties</i>	Containment	31
Manchurian wild rice	<i>Zizania latifolia</i>	Containment	33
Mexican feather grass	<i>Nassella tenuissima</i>	Eradication	20
Mickey mouse plant	<i>Ochna serrulata</i>	Eradication	20
Mile-a-minute	<i>Dipogon lignosus</i>	Eradication	21
Monkey musk	<i>Mimulus guttatus</i>	Eradication	21
Nardoo	<i>Marsilea mutica</i>	Eradication	21
Nassella tussock	<i>Nassella trichotoma</i>	Eradication	25
Nodding thistle	<i>Carduus nutans</i>	Containment	29
Old man's beard	<i>Clematis vitalba</i>	Eradication	22
Phragmites	<i>Phragmites australis</i>	Exclusion	16
Pampas	<i>Cortaderia jubata</i> and <i>C.selloana</i>	Suppression	37
Privet	<i>Ligustrum species</i>	Suppression	38
Purple loosestrife	<i>Lythrum salicaria</i>	Exclusion	16
Pyp grass	<i>Ehrharta villosa</i>	Exclusion	17
Ragwort	<i>Jacobaea vulgaris</i>	Suppression	39
Royal fern	<i>Osmunda regalis</i>	Eradication	22
Salvinia	<i>Salvinia molesta</i>	Eradication	22
Senegal tea	<i>Gymnocoronis spilanthoides</i>	Eradication	23
Skeleton weed	<i>Chondrilla juncea</i>	Exclusion	17
Spartina	<i>Spartina alterniflora</i> , <i>S. anglica</i> , <i>S. x townsendii</i>	Eradication	23
Water hyacinth	<i>Eichhornia crassipes</i>	Eradication	23
Water poppy	<i>Hydrocleys nymphoides</i>	Eradication	24
White bryony	<i>Bryonia cretica</i> subsp. <i>dioica</i>	Exclusion	17
Wild ginger	<i>Hedychium flavescens</i> and <i>H. gardnerianum</i>	Suppression	40
Yellow flag iris	<i>Iris pseudacorus</i>	Eradication	24
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4.1 Exclusion Plants

Exclusion plant pests are potential pests which are not known to have established in Northland or that have previously established and all known sites have been eradicated. These plant pests all have the potential to establish in the region, and are capable of causing adverse effects. Many of these plants are listed as unwanted organisms under the Biosecurity Act 1993. The intention of the strategy is to prevent these plant pests from entering and establishing within Northland over the life of the strategy.

Objectives, Methods and Rules for Exclusion Plants

The objectives, methods and rules for the exclusion plants apply to all plant species in this category.

Objectives (Five Year)

- To prevent the exclusion plant pests becoming established in Northland.
- To raise public awareness of the economic, biodiversity, social and cultural impacts of plant pests and encourage reports of sightings.
- To prohibit the sale/distribution of the exclusion plant pests.

Pest Management Methods

Surveillance:

- NRC will develop and implement a regional surveillance plan in conjunction with MAFBNZ, stakeholders, and other Crown agencies such as DOC, with a particular focus on pathways, vectors and areas of significance.
- Reported sightings will be investigated and response implemented.

Incursion Response:

- Eradication of infestations of the exclusion plant pests will be attempted by the NRC in conjunction with relevant Crown agencies and stakeholders, where practicable.

Education:

- NRC will provide training to relevant NRC staff and stakeholders in the identification of plant pests to assist in surveillance.
- NRC will provide advice, and attend community meetings and field days.
- NRC will run publicity campaigns to educate the wider public about plant pests.

Research:

- NRC will work cooperatively with other agencies where further research is needed to identify management measures, potential impacts, pathways and/or behaviours.

Rules

1. No person shall sell, offer for sale, propagate, breed or multiply any exclusion plant pest within the Northland region.
2. No person shall knowingly possess, distribute, transport or release any exclusion plant pest (including any seeds or live vegetation) within the Northland region.
3. Every person who sees any exclusion plant pest, or suspects the presence of any exclusion plant pest, shall immediately report the sighting to the NRC or MAFBNZ.

A breach of these rules, without reasonable excuse, is an offence under Section 154(r) of the Act.

ASIATIC KNOTWEED GIANT KNOTWEED

(Fallopia japonica, F. sachalinensis)

Asiatic knotweed is an upright, shrublike herbaceous perennial that can rapidly grow to 3m in height. It has red-purple shoots which appear early in spring but, as the canes grow, the leaves unfurl and the plant turns green. The mature canes are hollow and have a characteristic pattern of purple speckles. The leaves are long, triangular (15 x 10cm) and pointed at the tip, with a flattened leaf base. In late summer it produces masses of creamy white flowers.

Giant knotweed is similar to Asiatic knotweed but is taller. Both species grow in shrubland and riparian areas. Once established, both species can form dense stands that shade and crowd out all other vegetation, displacing native flora and fauna.



Bradley Kriebelhaus, USDA Forest Service, Bugwood.org

CAPE TULIP

(Moraea flaccida)

Cape tulip is a perennial herb in the iris family. It produces shoots annually in winter, and dies back to an underground corm in early summer. Plants grow to 90cm tall, with a single strap-like leaf and a branched flower stalk. Flowers are 6-petalled, usually salmon pink with a band of deeper colour near the base of the petals, with or without a yellow centre. Flowers are usually 5cm across. The seeds are produced in narrow, green capsules, up to 5cm long.

All parts of Cape tulip are poisonous (even when dead and dried). Symptoms of poisoning include gastroenteritis, thirst, paralysis, blindness and heart and kidney failure. Cape tulip has the potential to establish dense colonies over wide areas of pasture, and could have a serious economic impact on agriculture if it became widely established.



Andrew Massyn

CATHEDRAL BELLS

(Cobaea scandens)

Also known as: cup and saucer vine

Cathedral bells is a fast-growing perennial vine. It has bell-shaped flowers that are green when young but turn purple once pollen is shed. Capsules are hard, oval and usually 5.5-8.5 cm long. They split into sections to release numerous flat, winged seeds. Cathedral bells grows in forest margins, roadsides, riverbanks, gardens and open areas, and grows in a wide range of soils and climates. The vines can grow over trees and shrubs, forming a dense canopy and smothering desirable plants.



Jonathan Boov, ARC

ENTIRE MARSHWORT

(Nymphoides geminata)

Also known as: marshwort, floating heart

Entire marshwort is a bottom-rooted, perennial, water lily-like plant. It has branched running stems, several metres long. The stems lie just beneath the water surface, producing groups of leaves, roots and flowers. The leaves are 30-80mm long, broadly ovate and smaller than the leaves of other water lilies. Entire marshwort has bright-yellow flowers with five petals and hair-like margins, which sit above the water surface on long stalks that grow in pairs. Flowers are produced from November through to April. Entire marshwort rapidly colonises shallow water, forming dense mats which block waterways and smother other aquatic plants.



Trevor James, AgResearch

FRINGED WATER LILY

(Nymphoides peltata)

Also known as: entire marshwort, yellow floating heart

Fringed water lily is very similar to marshwort, but its leaves are frequently purple underneath and have scalloped margins. The flowers are golden-yellow, 3-4cm across with five petals, and are held above the water surface on long stalks. The flower edges are distinctively fringed and solid. It also produces fruit, which is a capsule up to 2.5cm long containing numerous seeds. These seeds are flat, oval and about 3.5mm long, with hairy edges. Fringed water lily has the potential to colonise waterways, forming dense mats, impeding drainage and restricting water activities.



Trevor James, AgResearch

GIANT HOGWEED

(Heracleum mantegazzianum)

Also known as: wild rhubarb, cartwheel flower, wild parsnip, cow parsnip

Giant hogweed is a perennial that grows 4-6m in height. It has stout dark-reddish-purple stems, and spotted leaf stalks with sturdy bristles which contain a toxic sap. The stems and stalks are hollow and the stems are 5-10cm in diameter. Giant hogweed has extremely large leaves (up to 1.5m) and tuberous root stalks. When the plant is two to three years old it produces large umbrella-like clusters of greenish-white flowers. It usually grows on the banks of rivers or creeks.

Giant hogweed is poisonous to humans. Touching it, or exposure to dust from weed-eating, can irritate skin and cause blisters and swelling. The toxin actually causes photosensitisation so that the skin reacts badly to sunlight. It also outcompetes and replaces native plants.



Terry English, USDA APHIS PPO, Bugwood.org