



REGIONAL PEST MANAGEMENT PLAN

2018-2038



I hereby certify that this is a true and correct copy of the Hawke's Bay Regional Pest Management Plan, made on 1 February 2023 being the date the common seal of the Hawke's Bay Regional Council is fixed to the plan in accordance with Section 77(1) of the Biosecurity Act 1993.

The Hawke's Bay Regional Pest Management Plan will be publicly notified on 13 February 2023 and commences on 14 February 2023.



Seal Number: 4534

Signed under the Seal of the
Hawke's Bay Regional Council
in the presence of:

G. Ormsby

.....

Chairman

[Signature]

.....

Chief Executive

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Foreword

I write this introduction to the new Hawke's Bay Regional Pest Management Plan 2019-2039 with great anticipation. This Plan reflects the hard work and input from many members of the community. It is both future facing and built on the successes and unmet aspirations of earlier Strategies.

Much of Hawke's Bay's wealth and value economically, culturally and environmentally is founded on our natural habitat. Biosecurity and biodiversity activities that Council undertakes in partnership with our community make a significant contribution to restoring and enhancing this foundation.

Since the development of Council's first Pest Management Strategy in July 1996, significant benefits have accrued to the region's economy from pest plant and animal control.

Although over the past 15 years approximately 80% of Council's biosecurity resource has focussed on pests affecting agricultural production, there have been significant biodiversity gains arising from the delivery of these programmes. It is important to recognise these gains, including the Possum Control Area (PCA) programme, which now spans over 700,000ha of the region. In 2016 central government launched Predator Free 2050 with the goal of eradicating predators (possums, rats and stoats) from our nation by 2050. The success of the PCA programme is built on the efforts by our rural community over two decades and it has provided a foundation for PF 2050 in this region.

The response from relieving our native species from predation and browsing pressures has been noticed across the region, with increased numbers of tui, kereru and bellbird, expansion of whitehead colonies and flowering and fruiting of tree species. Our Biosecurity team is now working with over 70 community groups and private land owners on biodiversity focussed pest control programmes, including the management of stoats, rodents, feral cats, feral goats, purple ragwort, boneseed, cathedral bell, old man's beard, banana passionfruit, and blue passion flower to mention a few. The team works in close partnership with organisations including the Department of Conservation, QEII, Forest and Bird and Fish and Game. Iwi, hapū and Marae are significant contributors with an emerging leadership role building upon post treaty settlements.

The new plan also places more emphasis on opportunities for our community to participate in pest initiatives at large scale. Predator control and feral goal management are two examples of this, where programmes will be integrated more effectively with other large scale Council initiatives – particularly those that relate to catchment management and land management. While Hawke's Bay Regional Council will have an important role, an 'all hands on the deck' response is truly needed for us to effectively manage biosecurity threats and significantly improve our region's biodiversity.

In the past the majority of Biosecurity activities have been funded by the rural community. This Plan and the programmes proposed recognise that some programmes deliver increased biodiversity improvement – a crucial benefit to our entire community. Consequently, funding sources for those programmes have been changed through the Long Term Plan to better reflect this greater public good.

In commending this plan to you, I am confident that it positions us well to meet our future biosecurity and biodiversity challenges.



Tom Belford
Hawke's Bay Regional Council Councillor

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1 Kupu Whakataki / Introduction

1.1 Āta Mātai Orotā ki Te Matau-a-Māui / Pest Management in Hawke's Bay

Pest management is an important part of the sustainable management of natural resources in Hawke's Bay. The Hawke's Bay Regional Council (Council) manages risks posed by pests and other organisms through its Biosecurity programme. The Hawke's Bay Regional Pest Management Plan (Plan) is one element of this programme and establishes the regulatory basis for pest management in Hawke's Bay.

In the course of carrying out its functions under the Biosecurity Act 1993, and setting funding under Local Government Act 2002 Long Term Plans and Annual Plans, Council will often be in a position where it is necessary to balance priorities for managing impacts from unwanted organisms based on limited resources. Priorities for management will need to be set taking into account the following matters:

- The level of impact or potential impact on significant biodiversity, or primary production, values, including an evaluation of the quantifiable and non-quantifiable costs and benefits;
- Any positive or negative effects on cultural values;
- Provision for a focus on public funding for exclusion or eradication of unwanted organisms, followed by management for containment or control, and finding the right balance; and
- Re-allocation of funding to more effective uses, such as pathway management and site led programmes, that protect significant cultural, biodiversity or production values, taking into account the costs and benefits of alternative actions.

1.2 Te whāinga o te Mahere / Purpose of the Plan

Regional councils have a mandate under Part 2 of the Biosecurity Act 1993 (the Act) to provide regional leadership in activities that prevent, reduce, or eliminate adverse effects from harmful organisms that are present in their region. Council therefore has this leadership role in the Hawke's Bay region.

The purpose of the Hawke's Bay Regional Pest Management Plan (RPMP or Plan) is to provide for the efficient and effective management or eradication of specified harmful organisms in the Hawke's Bay Region. It builds on the 2013 Strategy and previous pest management programmes.

The purpose of the Plan is to:

- minimise the actual or potential adverse or unintended effects associated with those organisms; and
- maximise the effectiveness of individual actions in managing pests through a regionally coordinated approach.

Many organisms in the Hawke's Bay region are considered undesirable or a nuisance. This Plan only addresses pests where voluntary action is insufficient due to the nature of the pest or the related costs and benefits of individual action or inaction. The Act specifies criteria that must be met to justify such intervention.

Once the RPMP has commenced, it will empower Council to exercise the relevant advisory, service delivery, regulatory and funding provisions available under the Act to deliver the specific objectives identified in Part Two of this Plan.

1.3 Te Pānga / Coverage

The Plan operates within the administrative the boundaries of the Hawke’s Bay region and covers a total area (land and sea) of 1,419,153 hectares (see *Figure 1 below*).

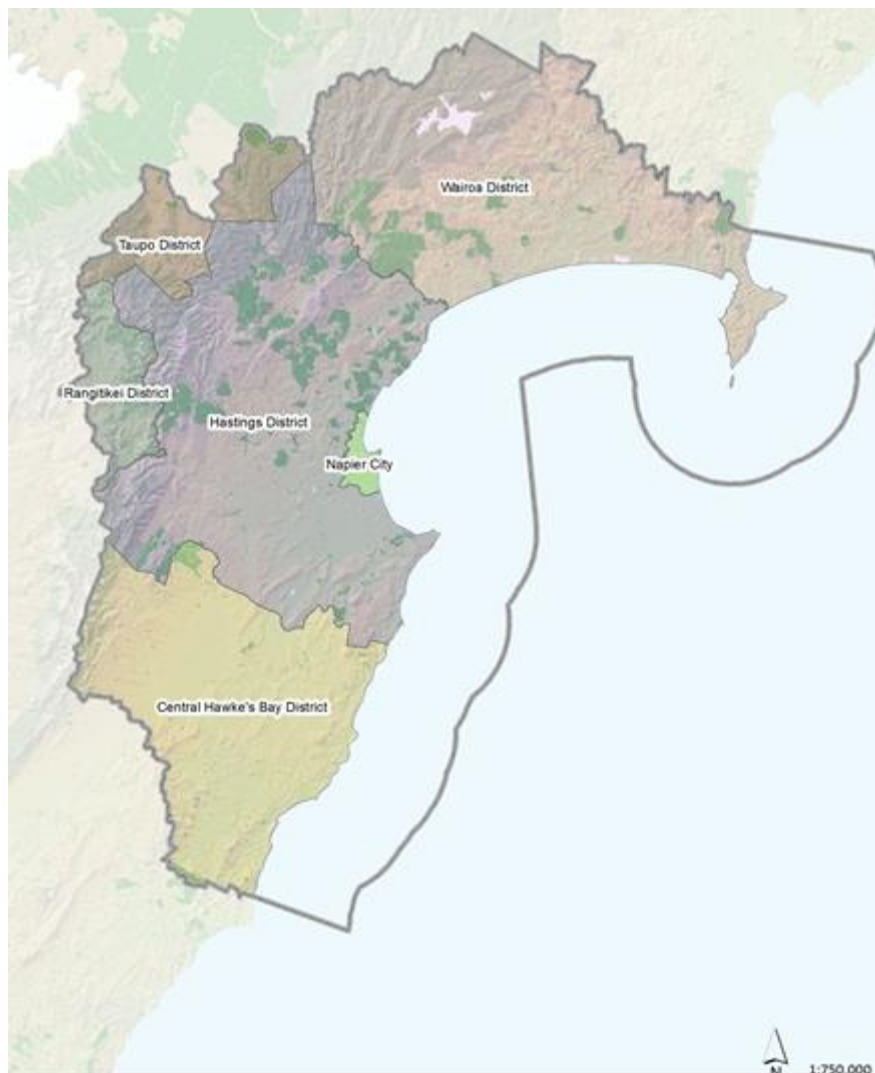


Figure 1: Map of Hawke’s Bay Regional Council Area

1.4 Wā kawenga / Duration

The Plan will take effect on the date it becomes operative, under s77 of the Act. It is proposed to remain in force for a period of 20 years from this date. The RPMP may cease at an earlier date if the Council declares by public notice that the RPMP has achieved its purpose. A review of the RPMP as a whole must be undertaken after 10 years from the date of commencement. This review may result in the RPMP being revoked, amended or unchanged.

1.5 Hononga ki te Ao Māori / Relationship with Māori

One specific purpose of an RPMP under the Act is to provide for the protection of the relationship between Māori and their ancestral lands, waters, sites, wāhi tapu, and taonga, and to protect those

aspects from the adverse effects of pests. Tangata whenua as kaitiaki are also a key strategic partner in regional biosecurity delivering a range of social, cultural, economic and environmental outcomes for our region. Tangata whenua carry out significant pest management through their primary sector economic interests and as land owners and/or occupiers.

Over the duration of this plan, Council will seek to build a stronger relationship with tangata whenua and build on how this plan can better achieve their goals and aspirations for pest management. Māori involvement in biosecurity is an important part of exercising kaitiakitanga. Pest management will play an important role in protecting wāhi tapu and taonga, restoring the mauri of whenua and wai māori, and enhancing the well-being of local communities. Successful pest management is holistic in nature and recognises the interconnectedness of people and the environment. To achieve these outcomes for the rohe, all must work together. The Mana Whakahono ā Rohe sets out a template that could be used in achieving this. Collaborative work programmes to be undertaken that will assist with this relationship building and link to this plan are the development of a cultural framework and survey of taonga sites through the Biodiversity Action Plan and the expansion of the Predator Free Hawke's Bay project, where hapū and iwi will be more closely engaged into RPMP initiatives including those related to predator control. These programmes are likely to include hapū cadetships, processes that relate to wāhi taonga site identification and knowledge transfer.

Post settlement groups interact with Council in varying ways. The Council is committed to meeting all of its Treaty obligations in implementing the RPMP.

HB Regional Planning Committee

The Hawke's Bay Regional Planning Committee was established by the Hawke's Bay Regional Planning Committee Act 2015. The committee make recommendations to Council to ensure the effective implementation of plans, processes, research, monitoring and enforcement to satisfy the requirements of the Resource Management Act 1991, National Policy Statements, National Environmental Standards and relevant associated legislation.

Māori Committee

The Māori Committee includes members appointed by various Māori groups and three elected Councillors. The committee makes recommendations to Council on matters of relevance affecting Māori people of the region and helps fulfil the Māori consultative undertaking of Council, particularly with regard to the principles of the Treaty of Waitangi Te Tiriti o Waitangi. Council has presented key Regional Pest Management Plan updates to the Maori Committee.

The LGA requires Council to recognise and respect the Crown's responsibilities under the Tiriti o Waitangi - Treaty of Waitangi. It also requires councils to maintain and improve opportunities for Māori to contribute to decision-making processes and includes supporting tangata whenua. These responsibilities and requirements were met while preparing this plan and will continue after it takes effect. This Plan is one of the avenues to build synergy and co-operation between Māori organisations and Hawke's Bay as partners in managing the region's natural resources.

Deed of Commitment

Council has a Deed of Commitment with recognised groups with tangata whenua interests in the Hawke's Bay region which have been mandated to negotiate a comprehensive settlement of their respective historical Treaty of Waitangi claims. It states that "The tangata whenua of Hawke's Bay and the HBRC care deeply about Hawke's Bay and its environment. We all have responsibilities around the management of resources that we believe are best met by working together."

2 He rauhanga korero ā-mahere, ā-ture, ā-rautaki / Planning and statutory background

2.1 Whakapapa o te Rautaki / Strategic background

Pest management influences, or is influenced by, the way land and water are used and managed. Several planning or operational activities contribute to the overall efficiency in reducing the impact from pests on the region's economic, environmental, social and cultural values. Such activities are both within and external to the Council.



Figure 2: Strategic relationships of the Regional Pest Management Plan

Pest management in the Hawke's Bay region is mandated under the Biosecurity Act 1993. It is also complemented by a number of plans, policies and strategies of the Council. Land owners and/or occupiers and the wider community, either as beneficiaries or exacerbators or both, complete the regional partnership. Actions by neighbouring regional councils and Crown agencies may also support regional pest management outcomes.

2.1.1 Te tarāwaho ārai koiora a te kaunihera / Council's biosecurity framework

Regional pest management sits within a biosecurity framework for the Hawke's Bay region, which includes this Plan, the Hawke's Bay Biodiversity Strategy and the Hawke's Bay Strategic Plan. Land owners and/or occupiers and the wider community, either as beneficiaries or exacerbators or both, complete the partnership.

Hawke's Bay Biodiversity Strategy

The [Hawke's Bay Biodiversity Strategy](#) is a non-regulatory community document with the aim of halting biodiversity decline. It is the first time in our region's history that we have collectively taken stock of what's going on, and agreed that something better needs to be done. The Strategy has a critical success factor – it engenders a common spirit and goodwill to goals that all parties agree are important. The Strategy is a guide to inform our community in their biodiversity efforts. While it is voluntary to participate in the initiatives proposed, the organisations involved are committed to improving biodiversity.

The first two objectives of the Strategy relate to the biodiversity we want to protect – native species and native habitats – and have an ultimate goal to achieve this by 2050. The remaining objectives are related to the human aspects needed for biodiversity gains – effective partnerships, community involvement and the integration of Māori values into biodiversity goals. To ensure that Hawke's Bay's biodiversity is enhanced, healthy and functioning, biodiversity activities undertaken throughout the region need to be aligned towards common goals.



Figure 3: Council's biodiversity framework

2.1.2 Te tarāwaho ārai koiora i waho o te kaunihera / Biosecurity framework outside Council

An effective biosecurity framework works both within a region and at a national level. Neighbouring regional pest plans and pathway management plans and national legislation, policies and initiatives influence the RPMP. The plans and strategies of territorial authorities may have complementary influence. As a result, an RPMP is an integral cog in a secure biosecurity framework to protect New Zealand’s environmental, economic, social and cultural values from pest threats.



Figure 4: External Biosecurity Instruments

2.2 Rauhanga ā-ture / Legislative background

Regional councils undertake local government activities and actions under several legislative mandates. While managing pests is not dependent on one particular statute, its effectiveness is connected to the purpose of the particular statute. All regional councils in New Zealand prepare and operate regional pest management plans under the Biosecurity Act 1993.

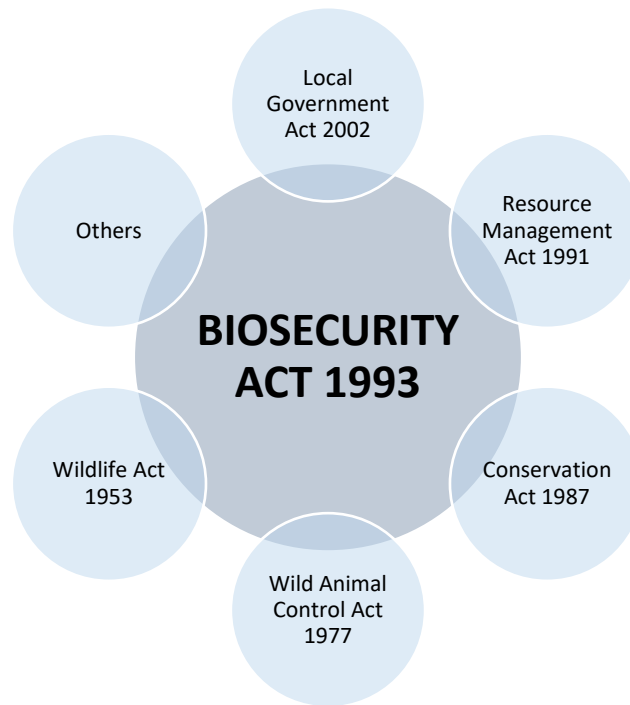


Figure 5: Biosecurity legislation

2.2.1 Ture Ārai Koiora 1993 / Biosecurity Act 1993

A regional council can use the Biosecurity Act to exclude, eradicate or effectively manage pests in its region, including unwanted organisms. A regional council is not legally obliged to manage a pest or other organism to be controlled, unless it chooses to do so. As such, the Act's approach is enabling rather than prescriptive. It provides a framework to gather intervention methods into a coherent system of efficient and effective actions.

A number of amendments to the Act have occurred since 1993. Changes of relevance to regional pest management, and particularly advanced through the Biosecurity Law Reform Act 2012, include:

- Regional Pest Management Strategies are to be renamed Regional Pest Management Plans. Provision has also been made for explicit pathway management plans in addition to specified pest management plans.
- The Crown will be bound to the requirements of the "Good Neighbour Rules" specified in a RPMP. Such rules apply to all land occupiers within the area over which the rules apply but they can only address pest spread across a property boundary.
- Provision has been made in the Act for a National Policy Direction and the Ministry for Primary Industries has exercised that provision. As a result, RPMP's must be consistent with the NPD. Therefore:
 - Objectives must follow a prescribed content;
 - Management outcomes must align with one of 5 programmes: Exclusion, Eradication, Progressive Containment, Sustained Control or Site Led;
 - Benefits and costs must be analysed in a prescribed manner and must be documented; and
 - The construction of Good Neighbour Rules must address stipulated criteria.
- A mandatory plan review need not occur before 10 years. Minor, specific or full reviews can take place at any time if necessary.

There are three sections of the Act that are particularly pertinent to regional councils: Part 2 outlines the functions, powers and duties of a regional council, including its leadership role; Part 5 sets out the prerequisites for pest management plan formulation; and Part 6 provides a menu of regulatory implementation powers that can be accessed.

Part 2: Functions, powers and duties in a leadership role

Regional councils are mandated under Part 2 (functions, powers and duties) of the Act to provide regional leadership for biosecurity activities, primarily within their jurisdictional areas.

Section 12B(1) sets out how regional councils provide leadership. It includes ways that leadership in pest management issues can help to prevent, reduce or eliminate adverse effects from harmful organisms. Some of these activities include helping to develop and align RPMPs and regional pathway management plans in the region, promoting public support for managing pests, and helping those involved in managing pests to communicate and cooperate to make programmes more effective, efficient, and equitable.

Section 13(1) sets out powers that support regional councils in this leadership role. These are:

- powers to establish (eg., appoint a management agency for a plan; implement a small-scale management programme);
- powers to research and prepare (eg., gather information; keep records; prepare a proposal to activate an RPMP);
- powers to enable (eg., giving councils the power to monitor pests to be assessed, managed or eradicated); and
- powers to review (eg., not allow an operational plan; review, amend, revoke or replace a plan).

Part 5: Managing pests and harmful organisms

Part 5 of the Act specifically covers pest management. Its primary purpose is to provide for harmful organisms to be managed effectively or eradicated. A harmful organism is assigned pest status if included in a pest management plan (also see the prerequisites in s69–78 of the Act). Part 5 includes the need for ongoing monitoring to determine whether pests and unwanted organisms are present, and keeping them under surveillance. Part of this process is to develop effective and efficient measures (such as policies and plans) that prevent, reduce, or eliminate the adverse effects of pests and unwanted organisms on land and people (including Māori, their kaitiakitanga and taonga). Part 5 also addresses the issue of who should pay for the cost of pest management.

Part 6: Administering an RPMP

Once operative, an RPMP is supported by parts of Part 6 (as nominated in the plan) that focus on the voluntary and mandatory actions of a regional council. For example, a regional council must assess any other proposal for an RPMP, must prepare an operational plan for any RPMP (if the management agency for it), and must prepare an annual report on the operational plan.

Changes to the Act since 1993

The Act has been amended since 1993, including through the Biosecurity Law Reform Act 2012. Important changes are:

- legislative (eg., being able to bind the Crown to stated Good Neighbour Rules (GNR) within a pest management plan, or to rules within a pathway management plan);
- structural (eg., giving regional councils a clear regional leadership role in managing pests; adding pathway management to the suite of pest management programmes; linking programmes with stated intermediate outcomes and programme objectives; using consistent terms in pest management programmes);

- compliance related (eg., setting out the extra requirements under the NPD that must be complied with; introducing greater transparency of risk assessment in the analysis of benefits and costs);
- procedural (eg., allowing funding, roles, and responsibilities related to small-scale management programmes to be delegated; allow a partial review (including adding a pest or pathway management plan) to be done at any time); and
- consultative (eg., increasing the flexibility in public consultation).

2.2.2 Ture Tiaki Rawa Taiao 1991 / Resource Management Act 1991

Regional councils also have responsibilities under the Resource Management Act 1991 (RMA) to promote the sustainable management of 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 sets out the functions of regional councils in relation to the maintenance and enhancement of ecosystems in the CMA of the region (s30(1)(c)(iiia)), the control of actual or potential effects of use, development or protection of land for certain specified purposes (s30(1)(d)(v)) and the establishment, implementation and review of objectives, policies and methods for maintaining indigenous biological diversity (s30(1)(ga)).

The focus of the RMA is on managing effects of activities on the environment through regional policy statements, regional and district plans, and resource consents. The RMA, along with regional policies and plans, can be used to manage activities so that they do not create a biosecurity risk or those risks are minimised. While the Biosecurity Act is the main regulatory tool for managing pests, there are complementary powers within the RMA that can be used to ensure the problem is not exacerbated by activities regulated under the RMA.

The Biosecurity Act cannot over-ride any controls imposed under the RMA, for example, bypassing resource consent requirements.

2.2.3 Ture Kāwanatanga ā-Rohe 2002 / Local Government Act 2002

The purpose of the Local Government Act 2002 (LGA) is to provide “a framework and powers for local authorities to decide which activities they undertake and the manner in which they will undertake them”. The LGA currently underpins biosecurity activities through the collection of both general and targeted rates. While planning and delivering pest management objectives could fall within powers and duties under the LGA, accessing legislation focused on managing pests at the regional level is the most transparent and efficient approach. The Council is mandated under s11(b) of the LGA to perform the funding function, and s11(b) provides for Council to perform duties under Acts other than the LGA.

2.2.4 Ture Tiaki Kararehe Mohoao 1977 (Ture Whakatika i te Ture Tiaki Mohoao (1997) me te Ture Kararehe Puihi 1953 / Wild Animal Control Act 1977 (and Wild Animal Control Amendment Act 1997) and the Wildlife Act 1953

Activities in implementing this Plan must comply with other legislation. Two such Acts are the Wild Animal Control Act 1977 (and Wild Animal Control Amendment Act 1997) and the Wildlife Act 1953, (both administered by the Department of Conservation). Particular relevant requirements are noted below.

- (a) The Wild Animal Control Act 1977 controls the hunting and release of wild animals, such as feral deer, goats and pigs, and regulates deer farming and the operation of safari parks. It also gives local authorities the power to destroy wild animals under operational plans that have the Minister of Conservation’s consent.

- (b) The Wildlife Act 1953 (WL Act) controls and protects wildlife not subject to the WAC Act. It identifies which wildlife are not protected (eg., mustelids, possums, wallabies, rooks, feral cats), which are to be game (eg., mallard ducks, black swan), and which are partially protected or are injurious.

2.2.6 Ētahi atu ture / Other legislation

Other legislation (such as the Reserves Act 1977 and the Conservation Act 1987) contains provisions that support pest management within a specific context. The role of regional councils under such legislation is limited to advocacy. As regional councils have a specific role under the Biosecurity Act, only taking on an advocacy role would be of little use. The National Animal Identification and Tracing Act 2012 (NAITA) establishes an animal identification and tracing system that provides for the rapid and accurate tracing of deer and cattle for the purpose of improving biosecurity management. Among other things, to meet NAIT requirements, all persons in charge of deer or cattle must ensure all deer and cattle are tagged with approved ear tags, are registered, and have records kept of the animal's movements.

2.3 Te hono ki ētahi atu Mahere Āta Mātai Orotā / Relationship with other Pest Management Plans

An RPMP must not be inconsistent with:

- (i) any national pest management plan or RPMP that is focused on the same organism; or
- (ii) any regulation.

The Hawke's Bay region shares a boundary with Gisborne District Council, Bay of Plenty Regional Council, Waikato Regional Council and Horizons Regional Council. There are no known inconsistencies with other pest management plans on the same organism or any pathway management plan. It is in the interests of efficient and effective pest management that the pest management objectives between neighbouring councils are not inconsistent with each other. In developing this Plan, the Council has given regard to the aims and objectives of the pest management strategies of these neighbouring councils. Where possible, the Council will align its work programmes with neighbouring regional councils to maximise efficiencies in pest control. An example of this is Hawke's Bay working collaboratively with Horizons and Greater Wellington Regional Councils in managing rooks.

2.4 He Hononga ki te Ahunga o te Kaupapa Here ā-Motu / Relationship with the National Policy Direction

The National Policy Direction (NPD) became active on 17 August 2015. The stated purpose of the NPD is to ensure that activities under Part 5 of the Act (Pest Management) provide the best use of available resources for New Zealand’s best interests, and align with each other (when necessary), to help achieve the purpose of Part 5. Table 1 below sets out the NPD requirements and the steps taken to comply with them.

Table 1: NDP Requirements

| NPD REQUIREMENTS | STEPS TAKEN TO COMPLY |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programme is described | Checked that the types of programmes (described in section 5) comply with clause 4 of the NPD. |
| Objectives are set | Checked that the contents of section 6 comply with clause 5 of the NPD. |
| Benefits and costs are analysed | Analysed the costs and benefits (see clause 6 of the NPD). That analysis is contained in the companion document Cost Benefit and Impact Assessment for the Proposed Regional Pest Management Plan for Hawke’s Bay. |
| Funding rationale is noted | Checked the funding rationale described in section 10 has been developed in line with clause 7 of the NPD. |
| Good neighbour rules (GNRs) are described | GNRs have been developed in line with clause 8 of the NPD. |

3. Kawenga me ngā herenga / Responsibilities and obligations

3.1 Te tari whakahaere / The management agency

The Hawke's Bay Regional Council is the management agency responsible for implementing the RPMP.

Pest management in Hawke's Bay is a shared responsibility and, while Hawke's Bay Regional Council will be the management agency, pest management will be undertaken by many different stakeholders, agencies, community groups and individuals. This approach will result in effective and enduring pest management outcomes for the region.

Under section 100B(1) of the Act, Hawke's Bay Regional Council as the management agency must prepare an operational plan within three months of the commencement date of the Plan; review the operational plan annually, and amend it if needed.

3.2 Whakaeatanga me te āta panga rīhiti / Compensation and disposal of receipts

The RPMP does not provide for compensation to be paid to any persons meeting their obligations under its implementation. However, should the disposal of a pest or associated organism provide any net proceeds, a person will be paid disbursement in the manner noted under section 100I of the Act.

3.3 Te hunga whai pānga / Affected parties

3.3.1 Ngā kawenga o te hunga nō rātau te whenua me ngā kainoho o aua whenua / Responsibilities of owners and/or 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 Act and includes:

- the person who physically occupies the place; and
- the owner of the place; and
- any agent, employee, or other person acting or apparently acting in the general management or control of the place.

Under the 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.

Owners and/or occupiers must manage pest populations at or below levels specified in the rules. If they fail to meet the rules' requirements, they may face legal action. In some instances, owners and/or occupiers must report pests to the Council. No person shall sell, propagate, distribute or keep pests.

An owner and/or occupier cannot stop an authorised person from entering a place, at any reasonable time, to

- find out whether pests are on the property;
- manage pests; or
- ensure the owner and/or occupier is complying with biosecurity law.

While the owner and/or occupier may choose the methods they will use to control any pests, they must also comply with the requirements under other legislation (e.g. Hawke's Bay Regional Council's Resource Management Plan Rule 9 and 10 (discharge of agrichemicals), Resource Management Act and/or the Hazardous Substances and New Organisms Act 1996).

This Plan treats all private land equitably and emphasises the responsibilities and obligations of all land owners and/or occupiers, including Māori. Council acknowledges the complex and variable relationships of Māori land ownership and occupation. This includes multiple owners (including lessees) or a range of corporate management systems under the [Companies Act 1993](#) or [Te Ture Māori Whenua Act 1993](#). Where owners and/or occupiers are unknown, the Maori Land Court; or the Registrar of Companies may help to identify and communicate with them.

3.3.2 Tari kāwanatanga / Crown agencies

Four central government agencies (including State Owned Enterprises) have been identified as being significant beneficiaries or exacerbators of pest management in the Hawke's Bay Region. These are Department of Conservation, New Zealand Railways Corporation (Kiwi Rail), New Zealand Transport Agency and Land Information New Zealand. Pursuant to Section 5 and Section 69 (5) of the Act, the Act binds Crown agencies to the extent that they will be liable to meet obligations or costs associated with a good neighbour rule, or action under a plan to enforce a good neighbour rule. In addition to implementing good neighbour rules, HBRC will also continue to pursue and maintain formal and informal relationships with Crown agencies to achieve the objectives of this Plan. As they are not Crown agencies in the strict sense, State Owned Enterprises can be bound by any rule under the Plan. In some circumstances it may be appropriate for the Council and a Crown agency/SOE to negotiate an agreement of specific actions and timeframes to bring about compliance with the Plan, or otherwise achieve the outcomes of the Plan (through alternatives to meeting the rule framework). In these instances, a Written Management Agreement will be drafted and signed between Council and a Crown Agency. The Written Management Agreement may set out a range of matters, including (where applicable) any exemption granted in accordance with the exemption process detailed in Section 8.3 of the Plan. Written Management Agreements are discussed in further detail in Section 3.3.5. Where a Written Management Plan has been agreed and is adhered to it will meet the Crown agencies obligations under this plan.

3.3.3 Ngā Kaunihera ā-rohe / Territorial Authorities

Six territorial authorities are wholly or partly contained within the Hawke's Bay region. They are: Wairoa, Hastings, Taupo, Rangitikei and Central Hawke's Bay District Councils, and Napier City Council.

Each territorial authority will be bound by the rules in this Plan (with the exception of situations where adjoining occupiers of road reserves are deemed responsible in accordance with Section 3.3.4.). Each territorial authority will be responsible for meeting its costs of complying with this Plan.

3.3.4 Ko ngā whenua kua rāhuitia hei rori, hei ara tereina rānei / Road reserves and railway corridors

Road reserves include the land on which the formed road lies and the verge area that extends to adjacent property boundaries. The Act allows the option of making either roading authorities (NZ Transport Agency and district/city councils) or adjoining land occupiers responsible for pest management in road reserves (see s6(1) of the Act). Similarly, railway corridors include the land on which the formed railway track lies and the verge area that extends to adjacent property boundaries.

As such, the Hawke's Bay Regional Council has decided that, for the purpose of this Plan, roading authorities are responsible for controlling pests on road reserves that they occupy. Where the road reserve boundary is unknown this will be taken as 10m from the road centreline.

Areas where roading authorities are responsible for controlling pests includes:

- rest areas;
- weigh pits and stockpile areas;
- road reserves where road works have contributed to the establishment of named pests;
- road reserves adjacent to land where the landowner is undertaking programmed pest management;
- any other area where it is unreasonable to expect adjoining landowners to control pests (eg. steep topography).

Except where a rule prevents occupier control, adjacent landowners are responsible for controlling pests on road reserves in the following situations:

- unformed paper roads that they occupy, or are contiguous to the land that they occupy;
- on land beyond 10 metres, of the road centreline where the road reserve boundary is unknown;
- where fences encroach onto a surveyed road reserve, the occupier adjoining the road reserve shall be responsible for pests within that fenced area;
- where adjacent occupiers do not support the use of toxins/chemicals to control pests (eg. organic farming practices), the occupier adjoining the road reserve shall be responsible for pest control in the road reserve as well.

Similarly, railway corridors include the land on which the formed railway track lies and the verge area that extends to adjacent property boundaries. Where the railway boundary is unknown this will be taken as 10m from the railway centreline.

3.3.5 Tuhinga Whakaaetanga Whakahaere / Written Management Agreements

A Written Management Agreement is a documented pest management agreement that describes the levels of service for management of pests. They are written usually as an alternative to achieving the specifications contained in that rule on the level of pest clearance or timing of the delivery of the service. Key elements of a Written Management Agreement will likely include but limited to:

- a map showing the known distribution of the pest;
- the control works to be undertaken (including physical and/or chemical control methods);
- identify an area/s within which the Council will undertake a search and/or control works;
- state any pathway management requirements to be followed;
- state any restrictions placed on the property e.g. restrictions on production of hay/silage.

The intent of a Written Management Agreement is to meet the objective by reducing the spread of that pest from the place(s) that they occupy through a pragmatic approach. Hawke's Bay Regional Council Biosecurity Manager or their delegate must be satisfied that the Written Management Agreement will meet that objective.

4 Whakamātua Kaiao / Organism status

4.1 Rārangi orotā / Organisms declared as pests

The organisms listed in Table 2 are classified as pests. The table also indicates which management programme or programmes will apply to the pest and if a Good Neighbour Rule (GNR) applies.

Attention is also drawn to the statutory obligations of any person under s52 and s53 of the Act. Those sections ban anyone from selling, propagating or distributing any pest, or part of a pest, covered by the RPMP. Not complying with s52 and s53 is an offence under the Act, and may result in the penalties noted in s157(1).

Table 2: Organisms classified as pests

| COMMON NAME | SCIENTIFIC NAME | PROGRAMME | GNR | PAGE |
|---------------------------|-------------------------------------------------------------------------------------|-------------------------|------------|------|
| PLANTS | | | | |
| African feather grass* | <i>Cenchrus macrourus</i> | Eradication | | 34 |
| Alligator weed* | <i>Alternanthera philoxeroides</i> | Exclusion | | 28 |
| Apple of Sodom | <i>Solanum linnaeanum</i> | Progressive Containment | | 43 |
| Australian sedge | <i>Carex longebrachiata</i> | Progressive Containment | | 44 |
| Bathurst bur | <i>Xanthium spinosum</i> | Sustained Control | | 73 |
| Blackberry | <i>Rubus fruticosus</i> agg. | Sustained Control | | 74 |
| Cathedral bells* | <i>Cobaea scandens</i> | Eradication | | 35 |
| Chilean needle grass* | <i>Nassella neesiana</i> | Sustained Control | | 57 |
| Cotton thistle | <i>Onopordum acanthium</i> | Progressive Containment | | 44 |
| Darwin's barberry* | <i>Berberis darwinii</i> | Progressive Containment | | 45 |
| Goats rue | <i>Galega officinalis</i> | Eradication | | 35 |
| Gorse | <i>Ulex europaeus</i> | Sustained Control | | 74 |
| Japanese honeysuckle | <i>Lonicera japonica</i> | Progressive Containment | | 45 |
| Marshwort* | <i>Nymphoides geminata</i> | Exclusion | | 29 |
| Noogoora bur | <i>Xanthium strumarium</i> | Exclusion | | 29 |
| Nassella tussock* | <i>Nassella trichotoma</i> | Progressive Containment | | 47 |
| Nodding thistle | <i>Cardus nutans</i> | Sustained Control | | 75 |
| Old man's beard* | <i>Clematis vitalba</i> | Progressive Containment | Yes | 47 |
| Phragmites* | <i>Phragmites australis</i> | Eradication | | 36 |
| Purple loosestrife* | <i>Lythrum salicaria</i> | Eradication | | 36 |
| Privet (Chinese and tree) | <i>Ligustrum sinense, L. lucidum</i> | Sustained Control | | 59 |
| Ragwort | <i>Jacobaea vulgaris</i> | Sustained Control | | 75 |
| Saffron thistle | <i>Carthamus lanatus</i> | Progressive Containment | | 49 |
| Senegal tea* | <i>Gymnocoronis spilanthoides</i> | Exclusion | | 30 |
| Spartina | <i>Spartina alterniflora, S. anglica, S. gracilis, S. maritime, S. x townsendii</i> | Exclusion | | 30 |
| Spiny emex | <i>Emex australis</i> | Eradication | | 37 |
| Variiegated thistle | <i>Silybum marianum</i> | Sustained Control | | 75 |
| Velvetleaf* | <i>Abutilon theophrasti</i> | Progressive Containment | | 50 |
| White-edged nightshade* | <i>Solanum marginatum</i> | Eradication | | 37 |
| Wilding Conifers | <i>Ref glossary pg 102</i> | Progressive Containment | Yes | 52 |
| Woolly nightshade* | <i>Solanum mauritianum</i> | Progressive Containment | | 50 |
| Yellow bristle grass | <i>Setaria pumila</i> | Sustained Control | | 61 |
| Yellow water lily* | <i>Nuphar lutea</i> | Eradication | | 38 |

| ANIMALS | | | |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------|---------------|
| Feral cat | <i>Felis catus</i> | Sustained Control | 68 |
| | | Site-led | 85 |
| Feral deer (incl. hybrids) | <i>Cervus elaphus, C. nippon, C. dama</i> | Site-led | 85 |
| Feral goat | <i>Capra hircus</i> | Sustained Control | Yes 62 |
| | | Site-led | 86 |
| Feral pig | <i>Sus scrofa</i> | Site-led | 86 |
| Hedgehog | <i>Erinaceus europaeus</i> | Site-led | 86 |
| Mustelids (ferret, stoat, weasel) | <i>Mustelo furo, M. ermine, M. nivalis</i> | Sustained Control | 68 |
| | | Site-led | 87 |
| Poosum | <i>Trichosurus vulpecula</i> | Eradication | 39 |
| | | Sustained Control | Yes 65 |
| | | Site-led | 87 |
| Rabbit | <i>Oryctolagus cuniculis</i> | Sustained Control | 71 |
| Rat (Norway and ship) | <i>Rattus norvegicus, R. rattus</i> | Site-led | 87 |
| Rook* | <i>Corvus frugilegus</i> | Eradication | 41 |
| Wallaby (Bennett's, dama, parma, brush-tailed rock and swamp)* | <i>Macropus rufogriseus rufogriseus, M. eugenii, M. parma, Petrogale pencillata, Wallabia bicolor</i> | Exclusion | 31 |
| MARINE | | | |
| Mediterranean fanworm** | <i>Sabella spallanzanii</i> | Exclusion | 31 |
| Clubbed tunicate | <i>Styela clava</i> | Exclusion | 31 |
| PHYTOSANITARY | | | |
| Apple black spot | <i>Venturia inaequalis.</i> | Sustained Control | 80 |
| Codling moth | <i>Cydia pomonella</i> | Sustained Control | 81 |
| European canker | <i>Neonectria ditissima</i> | Sustained Control | 81 |
| Fireblight | <i>Erwinia amylovora</i> | Sustained Control | 82 |
| Lightbrown apple moth (Leafroller) | <i>Epiphyas postvittana</i> | Sustained Control | 82 |

* Unwanted organisms (as declared by a Chief Technical Officer)

** Notifiable organism (s45 Biosecurity Act)

4.2 Ētahi atu kaiao ka āta mātaitia / Other organisms that may be controlled

The organisms specified as pests under this Plan are those that are capable of causing significant 'adverse effects' on one or a number of values encompassing economic wellbeing, the environment, human health, enjoyment of the natural environment, or the relationship between Māori, their culture and traditions, and their ancestral lands, waters, sites, wāhi tapu, and taonga. It is also possible to specify 'any other organisms intended to be controlled' but not accorded pest status.

There are many further organisms capable of causing some adverse effects, particularly to biodiversity values. However, a number pose a sufficient future risk to warrant being watch-listed for ongoing surveillance or future control opportunities. Therefore, their placement in an 'Organisms of Interest' (Ooi) category is considered prudent.

Ooi are not accorded pest status, but may be managed through initiatives such as the Ecosystem Prioritisation programme, site-led control and sites of ecological importance.

Table 3: Organisms of Interest

| COMMON NAME | SCIENTIFIC NAME |
|--------------------------------|-------------------------------------------------|
| Argentine ant | <i>Linepithema humile</i> |
| Australian tubeworm | <i>Ficopomatus enigmaticus</i> |
| Banana passionfruit | <i>Passiflora 'Tacsonia' subgroup</i> |
| Boneseed | <i>Chrysanthemoides monilifera</i> |
| Broom | <i>Cytisus scoparius</i> |
| Canada goose | <i>Branta canadensis</i> |
| Chilean flame creeper | <i>Tropaeolum speciosum</i> |
| Climbing spindle berry | <i>Celastrus orbiculatus</i> |
| Darwin's ant | <i>Doleromyrma darwiniana</i> |
| Douglas fir | <i>Pseudotsuga menziesii</i> |
| Blue morning glory/convolvulus | <i>Ipomoea indica</i> |
| Eastern rosella | <i>Platycercus eximius</i> |
| Feral goose | <i>Anser anser</i> |
| Feral pigeon | <i>Columba livia</i> |
| Hare | <i>Lepus europaeus</i> |
| Horehound | <i>Marrubium vulgare</i> |
| Hornwort | <i>Ceratophyllum demersum</i> |
| Lesser calamint | <i>Calamintha nepeta</i> |
| Magpie | <i>Gymnorhina tibicen</i> |
| Mothplant | <i>Araujia hortorum</i> |
| Pampas | <i>Cortaderia selloana</i> |
| Parrot's feather | <i>Myriophyllum aquaticum</i> |
| Pink ragwort | <i>Senecio glastifolius</i> |
| Purple ragwort | <i>Senecio elegans</i> |
| Reed sweet grass | <i>Glyceria maxima</i> |
| Wasp German and European | <i>Vespula germanica Vespula vulgaris</i> |
| Water celery | <i>Apium nodiflorum</i> |
| Wild cotoneaster | <i>Cotoneaster glaucophyllus, C. franchetii</i> |

4.3 Koiora kāore i te pīrangitia / Unwanted Organisms

An unwanted organism is any organism that's capable of causing harm to natural or physical resources (like forests and waterways) or human health. A number of introduced pests in New Zealand are classed as unwanted. Undaria and wallabies are just two examples – they both have the potential to cause serious environmental harm if allowed to spread throughout New Zealand. Under the Biosecurity Act 1993, it's an offence to breed, sell or release these organisms.

Some of these unwanted organisms are subject to national action under the National Interest Pest Response (NIPR) programme managed by Ministry for Primary Industries (MPI). With the exception of phragmites, none of the other eight species subject to the NIPR are known to be present in Hawke's Bay. Phragmites is included in this Plan (under the eradication programme) as part of the collective assistance being provided by the Council to the NIPR programme. For the most up-to-date list of Unwanted Organisms, visit the [MPI website](#).

The National Pest Plant Accord (NPPA) currently targets 113 plant species all of which are declared Unwanted Organisms. NPPA is a cooperative agreement between the Nursery and Garden Industry Association, regional councils and government departments with biosecurity responsibilities. It seeks to prevent the sale and/or distribution of the specified plants where either formal or casual horticultural trade is the most significant way of spreading the plants in New Zealand. The most up-to-date list of Accord species is also available on the MPI website. A description of the NPPA can be found in Section 2.3.4.

An unwanted organism is banned from sale, propagation and distribution in accordance with sections 52 and sections 53 of the Act. Any other control measures are the responsibility of the respective government departments, unless a regional council has been specifically asked and has agreed to undertake such work.

5 Tarāwaho whakahaere kaupapa koiora orotā / Pest management framework

5.1 Ngā Whāinga / Objectives

Objectives have been set for each pest or class of pests. As required by the NPD, the objectives include:

- the particular adverse effect/s (s54(a) of the Act) to be addressed;
- the intermediate outcomes of managing the pest;
- the geographic area to which the objective applies;
- the level of outcome, if applicable;
- the period for achieving the outcome; and
- the intended outcome in the first 10 years of the Plan (if the period is greater than 10 years).

5.2 Hōtaka Āta Mātai Orotā / Pest management programmes

One or more pest management programmes will be used to control pests and any other organisms covered by this Plan. The types of programme are defined by the NPD and reflect outcomes in keeping with:

- the extent of the invasion; and
- whether it is possible to achieve the desired control levels for the pests.

The intermediate outcomes for five programmes are described below.

1. Exclusion Programme: to prevent the establishment of the subject, or an organism being spread by the subject, that is present in New Zealand but not yet established in an area.
2. Eradication Programme: to reduce the infestation level of the subject, or an organism being spread by the subject, to zero levels in an area in the short to medium term.
3. Progressive Containment Programme: to contain or reduce the geographic distribution of the subject, or an organism being spread by the subject, to an area over time.
4. Sustained Control Programme: to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.
5. Site-led Pest Programme: that the subject, or an organism being spread by the subject, that is capable of causing damage to a place is excluded or eradicated from that place, or is contained, reduced, or controlled within the place to an extent that protects the values of that place.

5.3 Ngā tikanga mat ua hei whakahaere kaupapa orotā / Principal measures to manage pests

The principal measures used in the RPMP to achieve the objectives are in four main categories. Each category contains a suite of tools to be applied in appropriate circumstances.

1. Requirement to act

Land owners and/or occupiers or other persons may be required to act where RPMP rules dictate:

- (a) pests are to be controlled;
- (b) Written Management Agreements are to be prepared and submitted.

The development of a Written Management Agreement will enable an occupier to set out how the management agreement is intended to meet the objectives of the Plan over which the infestation lies. Council will approve plans where they believe that the land occupier has adequately provided for the containment of the infestation in accordance with the Plan. If a land occupier has an agreed Written Management Agreement with Council and is actively carrying out their requirements under this management agreement, they will not receive a written direction from an Authorised Person.

Approved pest plant management agreements may qualify for a subsidy under the incentive scheme.

- (c) the presence of pests is to be reported;
- (d) actions are to be reported (type, quantity, frequency, location, programme completion); or
- (e) pests are not to be spread (propagated, sold, distributed), and pathways are to be managed (eg., machinery, gravel, animals).

2. Council inspection

Inspection by Council may include staff:

- (a) visiting properties or doing surveys to determine whether pests are present, or rules and management programmes are complied with, or to identify areas that control programmes will apply to (places of value, exclusion zones, movement control areas);
- (b) managing compliance to regulations (rule enforcement, action on default, prosecution, exemptions);
- (c) taking limited control actions, where doing so is effective and cost efficient; or
- (d) monitoring effectiveness of control.

3. Service delivery

Council may deliver the service:

- a) where it is funded to do so through approved management plans;
- b) on a user pays basis;
- c) where, at its discretion, it chooses to assist land occupiers in controlling the pest;
- d) by providing control tools, including sourcing and distributing biological agents, provisions (eg., traps, baits, chemicals) or subsidies.

4. Advocacy and education

Council may:

- a) provide general purpose education, advice, awareness and publicity activities to land owners and/or occupiers and the public about pests and pathways (and control of them);
- b) encourage land owners and/or occupiers to control pests;
- c) facilitate or fund community and land owners and/or occupier self-help groups and committees;
- d) help other agencies with control, advocacy, and the sharing or sourcing of funding;
- e) promote industry requirements and best practice to contractors and land owners and/or occupiers;
- f) encourage land owners and/or occupiers and other persons to report any pests they find or to control them; or
- g) facilitate or commission research.

5.4 Ngā Ture / Rules

Rules play an integral role in securing many of the pest management outcomes sought by the Plan. They create a safety net to protect land owners and/or occupiers from the effects of the actions or inactions of others where non-regulatory means are inappropriate or do not succeed. Importantly, amendments to the Act arising from the Biosecurity Law Reform Act 2012 now make the Crown bound by those rules identified as **Good Neighbour Rules** in RPMPs.

Section 73(5) of the Act prescribes the matters that may be addressed by rules, and the need to:

- (i) specify if the rule is to be designated as a 'Good Neighbour Rule';
- (ii) specify if breaching the rule is an offence under the Act;
- (iii) specify if an exemption to the rule, or any part of it, is allowable or not; and
- (iv) explain the purpose of the rule.

Rules can apply to owners and/or occupiers or to a person's actions in general.

The NPD and accompanying guidance notes provide extra requirements to include in the rules of a new GNR. Of particular note, the GNR will:

- (a) identify who the GNR applies to—either all owners and/or occupiers, or a specified class of owner and/or occupier;
- (b) identify the pest to be managed;
- (c) state that the pest must already be present on the owner's and/or occupier's land;
- (d) state that the owner and/or occupier of the adjacent or nearby land must, in the view of the management agency, be taking reasonable measures to manage the pest on their land; and
- (e) (if relevant) state the particular values or uses of the neighbouring land that the pest's spread affects, and that the GNR is intended to address.

6 Whakamārama i ngā hōtaka Orotā me ngā mahere / Pest descriptions and programmes

Section 6 lists the pests to be managed under the Plan according to the programme(s) to which they are assigned, together with the plan's objectives for each pest and the principle measures (including rules) to be used to achieve the objectives.

6.1 Ngā orotā ka āta mātaingia i raro i ngā hōtaka whakakore / Pests to be managed under exclusion programmes

The pests listed in Table 4 below are not known to be present in the Hawke's Bay region and preventing their establishment is considered to be of benefit to the region. These pests have the potential to establish in Hawke's Bay and may cause adverse effects on production/economic wellbeing and environmental values. These pests can displace other species, impacting pasture and native species. The impact to production or native ecosystems warrant the prevention of their establishment in the region.

Table 4: Pests under exclusion programmes

| COMMON NAMES | SCIENTIFIC NAME |
|---------------------------------------------------------------|-----------------------------------------------------------------------------|
| Alligator weed | <i>Alternanthera philoxeroides</i> |
| Marshwort | <i>Nymphoides geminata</i> |
| Noogoora bur | <i>Xanthium strumarium</i> |
| Senegal tea | <i>Gymnocoronis spilanthoides</i> |
| Spartina | <i>Spartina</i> spp. |
| Wallaby (Bennett's, dama, parma, brush-tailed rock and swamp) | <i>Macropus</i> spp., <i>Petrogale pencillata</i> , <i>Wallabia bicolor</i> |
| Mediterranean fanworm (sabella) | <i>Sabella spallanzanii</i> |
| Clubbed tunicate (invasive sea squirt, styela) | <i>Styela clava</i> |

6.1.1 Alligator weed

Description

Alligator weed is a perennial aquatic or terrestrial herb with long, fibrous roots. Stems root at nodes, are up to 10 m long, usually pink, soft, hollow, creep along ground or float on water with tips standing upright and form dense stands or rafts. Dark green, waxy leaves (3-13 x 1-4 cm) are opposite. White clover-like flowers in 1-2 cm diameter clusters appear from December to February, but no seed is produced.

Adverse effects

Rapidly forms dense mats over water and margins, with roots down to 2 m deep. Stem sections break and root readily. Tolerant of 30% sea water, high temperatures, high pollutant levels, grazing, and other damage but intolerant of frost. Reproduces from stem sections only. Water flow, contaminated diggers, soil movement, dumped vegetation, machinery, eel nets, livestock, boats and trailers all spread fragments into new catchments, pastures, cropping land, waste places and drains.



Source: Weedbusters

6.1.2 Marshwort

Description

Marshwort is a perennial aquatic plant with floating, bright green, heart-shaped leaves (up to 10cm across, and slightly longer than wide) with often pinkish undersides and stems (stolons) that are long and branched, and float just below the water surface. Leaves, roots and flowers grow in clusters from nodes along the stem. Roots are suspended in deeper water. Flowers (25-35 mm wide) with five bright yellow petals with fringed wing margins are produced from November to April, held above the water on long (7cm) stalks, with each stalk bearing about 2-7 flowers. Seeds have not been observed in NZ.



Source: Weedbusters

Adverse effects

It grows rapidly, forming dense floating mats of foliage that fill waterways. Rapidly colonises shallow water, forming dense mats impeding drainage and shading out other aquatic plants, blocking access to water and interfering with recreational activities. It is also able to invade land in an adapted growth form. It causes adverse effects to waterways and impacts conservation and environmental values.

6.1.3 Noogoora bur

Description

Noogoora bur is an annual herb, either single stemmed and tall (up to 2.5 m) or very branched and spreading depending on competition. Its leaves are dark green, sometimes mottled purple and similar in shape to grape leaves. The stems have short coarse hairs. Flowers are inconspicuous and the fruit are woody burs covered in hooked spines. Each bur contains two seeds and each plant can produce many hundreds of burs. Burs have air pockets around the spines which allow them to float.



Source: Waikato Regional Council

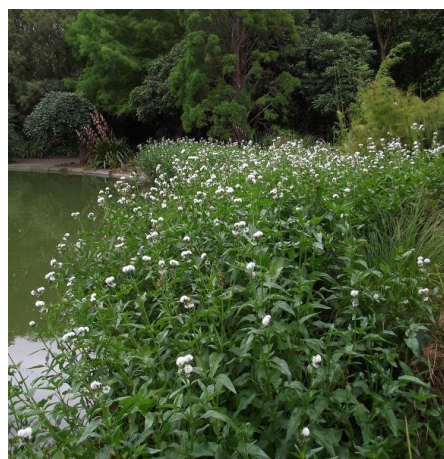
Adverse effects

This plant is highly competitive, causes significant losses in many crops and displaces pasture species. The seeds are poisonous to stock, particularly pigs and cattle and the burs easily contaminate sheep's wool and reduce fleece quality. Plants carry fungal diseases capable of infecting horticultural plants.

6.1.4 Senegal tea

Description

Senegal is a perennial aquatic herb growing to 1< m high with finely fibrous roots and ability to also grow aerielly from stem nodes. Hollow, inflated, floating stems (1-1.5 m long and 5-10 mm diameter at first, increasing to 20 mm with age) become prostrate and branching and take root at nodes. Dark green, slightly waxy, lance-shaped leaves (50-200 x 25-50 mm) are paired with opposite stalks joined at stem, and have serrated edges. From November to April, clover-like flowerheads are produced with many thin white 'petals' (florets), followed by yellow-brown seeds (5 mm diameter). Produces few seeds, but they are long-lived. Dormant over winter and dies back to rootstock if chilled, but re-sprouts in spring.



Source: Weedbusters

Adverse effects

Roots and seeds in shallow water and damp ground, matures and grows quickly, forms dense mats and scrambles over other species that live on the water margins. Tolerates warm to hot temperatures, partial drying of stems and root crowns, most soils and water nutrient levels. Excludes all other species in marginal and shallow freshwater habitats and forms mats over deep water. Prevents seedlings of native species establishing, causes flooding, and rotting vegetation ruins water quality.

6.1.5 Spartina

Description

Spartina is a perennial, clump-forming grass growing to 1 m tall with rhizomes and fibrous roots and erect stems (4-9 mm diameter) with many brownish leaf sheaths. Alternate leaves (5-45 by 4-15 mm) are deeply wide-ribbed on upper surface and have ligules (1-3 mm long). Seed heads are occasionally seen, and occasionally produced at some sites. It colonises the bare inter-tidal zone where it forms dense clumps and traps sediment. Spartina tolerates all weathers and temperatures, fire, grazing, and other damage.



Source: Weedbusters

Rhizomes spread slowly and broken fragments re-sprout easily. Livestock, propellers, nets and similar can dislodge rhizome fragments, which are then spread by tidal and current movement. They also spread through intentional planting. Spartina can survive long-term at sea, which means that it can travel long distances with the currents.

Adverse effects

Spartina traps sediment, raising the level of the ground above the high tide mark and destroying the inter-tidal zone and habitat. Other weedy grasses succeed spartina, creating dry 'meadows'. It can reduce large estuaries and shallow harbours to thin drains surrounded by rough pasture, adversely affecting environmental values, resulting in an immense loss of biodiversity.

6.1.7 Wallaby

Description

Wallabies are kangaroo-like marsupial animals standing 0.5m (dama)-1.5m (Bennett's) tall with tails as long as half their height. They range in weight from approximately 5kg to in excess of 20kg. Their fur colour varies from grey to reddish brown.

Adverse effects

Wallabies are capable of causing significant adverse environmental effects. These include preventing the regeneration of native bush, depletion of forest understorey and possible impacts on water quality. They can damage tall tussock grasslands, including the inter-tussock vegetation which can become depleted with a consequent increase in bare ground and higher risk of soil erosion. Pasture and feed crops are grazed, particularly in situations where suitable wallaby cover is adjacent. Exotic forests can be damaged especially in their establishment stage.



Source: Department of Conservation

6.1.8 Mediterranean fanworm and clubbed tunicate

Description

a) The adult Mediterranean fanworm is a sessile tube-dwelling worm species with a prominent crown (fan) of brightly coloured (orange, purple and white) bands of feeding tentacles. Mediterranean fanworm's outer tube is tough and flexible and often muddy in appearance. In some instances, there can be other organisms growing on the surface of the tubes. It produces conspicuous amounts of mucus.

There are many native fanworms that look similar; however, with a tube length of up to 800 mm, the Mediterranean fanworm is larger than any other comparable worms in New Zealand.

b) Clubbed tunicate has a long, club-shaped body on a tough stalk. Its surface is leathery, ruffled, and nobby. They can be brownish-white, yellowish-brown, or reddish-brown and ugly in appearance. Sometimes referred to as a 'solitary' sea squirt because each individual has its own stalk and adheres separately to a substrate.

It is known to grow rapidly overseas, reaching densities of up to 500-1500 individuals per square metre. They can live for up to two years and grow up to 160mm long.

While Clubbed tunicate are hermaphrodites they have to have more than one to reproduce because the male and female sex organs mature at different times to avoid self-fertilisation. They release eggs and sperm into the water, where eggs are fertilised. The resultant larvae can float freely for 1-3 days before settling and attaching themselves to a hard surface (e.g., rocks, wharf pylons, marine farm ropes).



*Mediterranean Fanworm
Source: Northland Regional Council*



*Clubbed tunicate
Source: Matt Conmee, Northland Underwater
Technical Services*

Adverse effects

Both organisms are highly invasive and quickly form dense beds competing with native species for food and space. As a result, existing species can be squeezed out and new generations prevented from re-establishing. They also interfere with the nutrient flow in the water column.

Their ability to securely adhere to most hard surfaces enables them to readily foul boat hulls, fishing equipment and aquaculture structures. Boats moving from or through infested areas provide a ready pathway for accelerated spread.

Objective 1

Over the duration of the Plan, exclude the establishment of:

- a) Mediterranean fanworm and clubbed tunicate in marine waterways, and
 - b) Alligator weed, marshwort, noogoora bur, Senegal tea, spartina and wallaby within the land or aquatic environments
- of the Hawke's Bay region in order to protect the region's environmental values and economic well-being.

Principal measures to be used

Appropriate measures drawing on **requirement to act, council inspection, service delivery, advocacy and education** activities described in section 5.3 of the Plan will be used to achieve the Objective.

Considerable emphasis will be placed on developing partnerships with other organisations and community groups that hold expertise or interest in protecting the environment, and in particular the marine space.

Plan Rule 1

The operator of a vessel entering the waters of the Hawke's Bay Regional Council (Figure 6) must ensure the hull (includes hull area, niche areas and wind and water line) or any structure or navigation aid of any origin, is sufficiently cleaned and antifouled so that there is no more than a slime layer and/or goose barnacles.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation

This rule is to prevent human activity introducing Mediterranean fanworm, clubbed tunicate and other unwanted organisms or pests into the region via a fouled hull. Boat hulls are considered the primary vector for spreading these pests.

If you're the operator of a vessel planning to enter Hawke's Bay waters (Figure 6), you must clean and antifoul your vessel's hull and niche areas. Ensure they are free of biofouling and that your antifouling paint has been applied in accordance with the coating manufacturer's instruction, is in good condition and working effectively.

During your stay, you must clean hull and niche areas when your vessel has been stationary for periods of time.

Please refer to the Anti-fouling and In-water Cleaning Guidelines (2013) on the Ministry for Primary Industries website which provide overarching guidance for in-water cleaning activities.

An operator or the person in charge of a vessel must take all reasonable steps to comply with this rule. Any vessel that does not meet the requirements of this rule is likely to be directed to take action to mitigate the risk.

It is recommended that you keep your biofouling management information in one place, e.g. the vessel's logbook. This will help to show you have been managing your biofouling.

International vessels that will be staying in New Zealand waters for up to 20 days, and only visiting approved Places of First Arrival, remain under and must abide by the rules of the Craft Risk Management Standard: Biofouling. However International vessels staying for 21 days or more, or visiting non-approved Places of First Arrival, must abide by the coastal plan rules of the relevant regional council/unitary authority, following completion of MPI biosecurity inspections in accordance with the CRMS. International vessels arriving in New Zealand waters have additional obligations under the Craft Risk Management Standard: Biofouling on Vessels Arriving to New Zealand (May 2014).

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

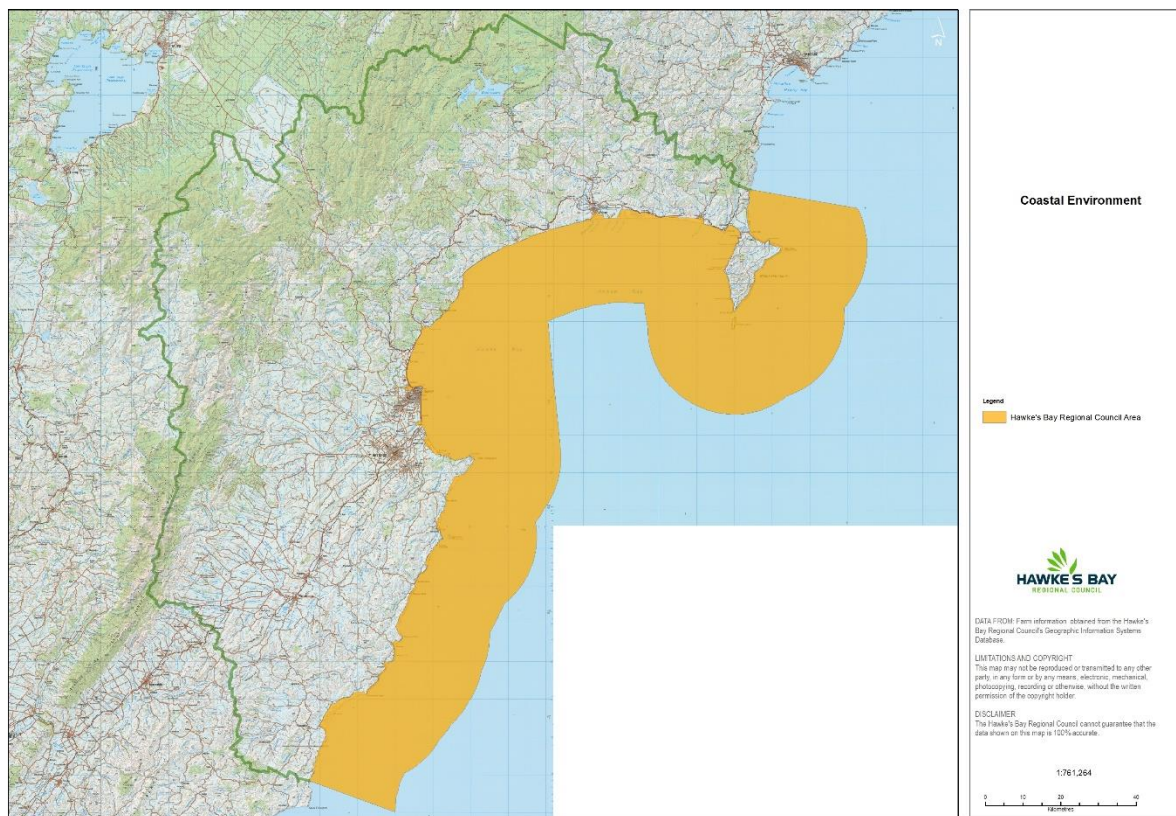


Figure 6: Waters of the Hawke's Bays Regional Council

6.2 Ngā orotā ka āta mātaitia i raro i ngā hōtaka haepapa / Pests to be managed under eradication programmes

There are a number of pests in the Hawke's Bay region where eradication is possible. These pests are listed in Table 5 below.

Table 5: Pests under eradication programmes

| COMMON NAME | SCIENTIFIC NAME |
|------------------------|------------------------------|
| PLANTS | |
| African feather grass | <i>Cenchrus macrourus</i> |
| Cathedral bells | <i>Cobaea scandens</i> |
| Goats rue | <i>Galega officinalis</i> |
| Phragmites | <i>Phragmites australis</i> |
| Purple loosestrife | <i>Lythrum salicaria</i> |
| Spiny emex | <i>Emex australis</i> |
| White-edged nightshade | <i>Solanum marginatum</i> |
| Yellow water lily | <i>Nuphar lutea</i> |
| ANIMALS | |
| Possum | <i>Trichosurus vulpecula</i> |
| Rook | <i>Corvus frugilegus</i> |

6.2.1 African feather grass

Description

African feather grass was first recorded in New Zealand in 1940, and was introduced as an ornamental grass for gardens. It is a robust, rhizomatous, perennial grass that forms dense tussocks up to 2m high. It resembles a small pampas grass when not flowering. African feather grass flowers from November to April. The yellow/purple flowers are distinctive, forming a narrow cylindrical stem up to 30cm long with barbed bristles sticking out from the spike.

It spreads either by seeds or by advancing its stout rhizomes. It is spread by gravel distribution, wind, water, clothing, the hair or wool of animals, cultivation and machinery. It tolerates a wide range of conditions, but prefers damp situations in swamps and along the berms of rivers.



Source: Weedbusters

The known distribution of African feather grass in Hawke's Bay is presently limited to farmland in the Maraekakaho and Ngaruroro River berm areas (approx. 1260ha)

Adverse effects

Its extensive root system makes it difficult to remove and it produces large amount of seeds. The plant can spread quickly, crowding out other low growing plant species. It can adversely impact environmental values in wetlands, waterbodies, coastal areas and tussock landscapes. It can also adversely impact economic prosperity.

6.2.2 Cathedral bells

Description

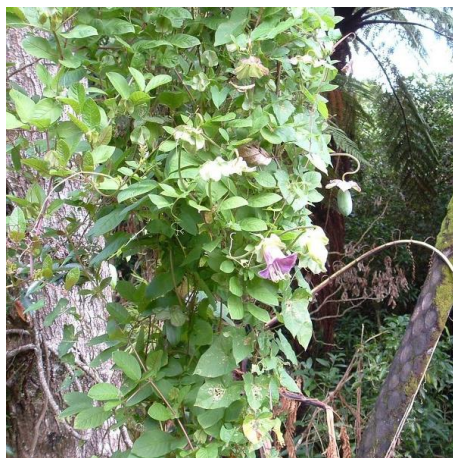
Cathedral bells is an evergreen, perennial, climbing vine to 6m tall, with angled stems and hook-like tips. Leaves are arranged alternately on stems, and are made up of 3 pairs of oval leaflets (including small basal pair) that are dark green above, whitish below, with branched tendrils that are purplish when young and woody at the base. Midrib has twining tendrils.

Bell-shaped flowers (6-7cm long) are produced from December to May that are green and smelly when young and become deep purple. These develop into green oval pods (55-85mm long) containing winged seeds (10-15mm). Germination can occur throughout most of the year. Seed is carried a short distance by wind, but most spread is through dumped vegetation, soil and water movement or scrambling habit. Garden escapes are a common source of spread.

Current infestation is limited to approximately 1 hectare occupying 10 small sites across the region.

Adverse effects

Cathedral bells' smothers all plants up to medium to high canopy level and prevents the establishment of native plant seedlings. The plant is therefore capable of causing significant adverse effects to environmental values.



Source: Weedbusters

6.2.3 Goats rue

Description

Goats rue is a fast growing perennial, colony-forming, leguminous woody herb, which can grow up to 2m. tall. It has lilac or pink flowers that grow in bunches on spikes of 30cm or longer. Seed production is prolific and viability remains for long periods. While seed mainly falls near the parent plant, dispersal by water, gravel distribution and stock also occurs.

The plant is spindly when young but usually grows into dense clumps with tall stems which die back during autumn. Goats rue is a very robust plant, can tolerate severe frosts and is considered unpalatable to stock.

To date, the distribution of goats rue is limited to the southern North Island, and in Hawke's Bay it is found along roadsides and railway lines at Eskdale, Omakere and Tikokino (approx. 34ha).



Source: Weedbusters

Adverse effects

The plant is capable of invading many habitats and crowds out other vegetation. Production and biodiversity values are therefore threatened.

6.2.4 Phragmites

Description

Phragmites australis, or common reed, is a wetland plant. It is widely distributed, ranging all over Europe, Asia, Africa, America and Australia but not New Zealand. However, the origin of the species is unclear. It was harvested for use in thatching in Britain.

An erect, rhizomatous, perennial grass, 2-4 m high. Vigorous rhizomes can grow to 2m deep, with 40% of the plant underground. Its stems are hollow stems and the smooth flat leaf blades extend to 60cm in length. The leaf margins are rough, leaf sheaths overlap and the ligule has a fringe of long hairs. The plant produces brownish or purplish feathery-shaped flowerheads that are 20-50 cm long, but does not set seed and it dies back in winter.



Source: Weedbusters

Phragmites grows in marshes and swamps, along streams, lakes, ponds, ditches and wet wastelands. It also tolerates moderate salinity.

There are currently 120 known sites in Hawke's Bay, with its extent being limited to streams and drains in and around the Napier City urban area, Havelock North and Puketitiri.

Adverse effects

The plant has a high degree of adaptability, competitive ability, obstructive qualities, and potential to invade native vegetation and is difficult to manage. Phragmites is considered to cause serious adverse effects on environmental and conservation values. It also impacts infrastructure through restricting or blocking water flow in drainage systems.

6.2.5 Purple loosestrife

Description

Purple loosestrife is an erect, hairy, summer-green perennial herb, 1-2m tall. With a taproot and fibrous roots it forms dense surface mats and produces up to 50 stems per rootstock. The much-branched stems are 4-8 sided, pink at base and die off in winter. Narrow lanceolate to elliptic leaves, 20-100 mm long by 5-25mm wide are usually paired.

From December to February a showy, densely hairy flowerhead spike, 20-25cm long, is produced, made up of purple-magenta flowers with 5-6 petals, which are followed by blackish seed capsules 3-5mm long. Seed is spread by the movement of water and contaminated machinery, soil, livestock and hay.



Source: Weedbusters

Purple loosestrife rapidly invades damp ground and shallow water. It overtops native species with dense bushy growth, is long-lived and produces millions of long-lived, highly viable seeds from an early age. Tolerates hot or cold conditions and low to high nutrient levels in the water, but is intolerant of salt water.

To date, it has been found at one small site at Te Pohue.

Adverse effects

It causes adverse effects on environmental values because of its ability to exclude all other species and destroy wetland and marginal habitats.

6.2.6 Spiny emex

Description

Spiny emex is a hairless semi-prostrate annual herb with a stout taproot. Leaves are dull green and a similar shape to dock; forming a rosette in early growth then branching later. Flowers are inconspicuous at the base of leaf stems, and develop into hard fruit (burs) that ripen from green to brown.

Burs are woody and approximately 7mm long. Each bur has three sharp spikes. When they are shed they lie with one spike pointing upwards enabling attachment to shoes, tyres and animal feet. Burs can float on water and spread along water courses. It produces long-lived seed which can remain viable for up to 8 years (based on overseas evidence).

The plant grows in sandy or loamy soils in coastal areas. It invades pasture, crops, lawns and waste places and can tolerate temperate to subtropical climates.



Source: Weed Futures

The current known distribution of spiny emex is limited to two properties at Whakaki and between Napier and Bay View.

Adverse effects

While it is a relatively weak competitor, being out-competed by grasses and legumes, its ability to invade habitats where environmental conditions such as drought or unseasonal rains modify pasture composition make it a threat. The seeds cause hoof lameness to stock.

6.2.7 White-edged nightshade

Description

White edged nightshade is a spiny, much branched, perennial shrub, growing up to 5m tall and forms dense thickets. It has woody stems, white to light blue flowers, and yellow-green berries about 4cm in diameter. The berries are poisonous to stock and humans. Leaf margins are pale but its most distinguishing features are spines on both sides of the leaves and thorns on the stems. Its seed is spread by attaching to sheep fleeces, through birds eating its berries, and by machinery.

The plant grows in poor rough scrub-covered country, on roadsides and wastelands and bush margins. It prefers warm, sunny situations.



Source: Auckland Council

White edged nightshade was first discovered in the region in 1984 on one property at Eskdale. It remains restricted to approximately 120ha.

Adverse effects

This plant can form dense impenetrable thickets and invade poor open pasture and other open areas creating a threat to stock and human health.

6.2.8 Yellow water lily

Description

Yellow water lily is a perennial aquatic plant, with both floating and submerged leaves. Floating leaves are oval, up to 30cm long by 40cm wide, with a deep indent at one end. Leaves are tough, leathery and dark green. Stout, tuber-like rhizomes up to 10cm in diameter grow on the bottom to a depth of 3m. Stalked, solitary buttercup-like 4-6cm diameter flowers rise well above the leaves. Flowers have a strongly alcoholic aroma, hence the common name 'brandy bottle'. Fruit are 2-3cm long, green, and flask-shaped and contain hundreds of long-lived viable seeds.



Source: NIWA

To date, yellow water lily has only been found at two isolated spots – Horseshoe Lake at Patangata, and a nearby farm dam. It can be spread via the transport of rhizomes and seeds on boats and machinery.

Adverse effects

The plant grows from the water's edge into slow-running water up to 2m deep, and can invade permanent water of lakes and slow-flowing streams over mud and silt. Fast growing, along with its massive rhizomes that hold nutrient stores, enables it to outcompete all other aquatic plants.

Objective 2

Over the duration of the Plan, destroy all infestations of African feather grass, cathedral bells, goats rue, phragmites, purple loosestrife, spiny emex, white-edged nightshade and yellow water lily, prior to seed set, within the Hawke's Bay region to prevent adverse effects on economic well-being and the environment.

It is unlikely that eradication will be complete within the duration of the plan. For many of the pest plants, seed banks exist and may take up to 50 years to be exhausted.

Principal measures to be used

The Council will take responsibility for undertaking the eradication programme for pests included in eradication programmes. Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.2.9 Possums

Background

Possums cause significant adverse impacts across a range of values within the Hawke's Bay region and have been the subject of a substantial community investment to minimise these pest impacts over the last two decades. The eradication of possums on farmland will allow these adverse impacts to cease and provide a significant opportunity for the community to shift resources currently applied to possum control towards controlling predator pests such as mustelids, feral cats and rats. Large scale control of these additional predator pests will allow the region to realise a much greater range of economic and environmental benefits while minimising additional costs to the community.



Description

The Australian brushtail possum is a nocturnal marsupial introduced and liberated in New Zealand by private individuals and acclimatisation societies between 1837 and 1898 to establish a fur trade. Possums were accorded various levels of protection until 1947. When it became clear that the environmental damage inflicted by them far outweighed any profit made from their skins, this protection was lifted.

Possums in New Zealand occur as two colour types, blacks and greys. Adult male blacks vary from rich red-brown to brown, the females have a darker or black-brown fur. Adult male greys are often strongly rufous in the neck and shoulders while the greys often have a distinct silver tinge in the fur.

Size and weight are dependent on habitat. In good conditions adult possums can weigh between 3-5kg. Their life span is about nine years. Possums reach reproductive maturity at approximately two years of age. Usually females rear three young every two years.

Possums can be found throughout Hawke's Bay. They are generally found in bush/pasture margins as these provide a plentiful supply of food and suitable habitat.

Adverse effects

Possums are considered the major animal pest in New Zealand. In farming areas, they spread bovine tuberculosis to beef and dairy cattle, and to farmed deer, damage crops and orchards, kill poplars and willows planted to control hill-country erosion and stabilise riverbanks, and eat pasture. In exotic forest plantations they kill young trees and stunt the growth of older trees by ring-barking them or breaking the uppermost branches. In native vegetated areas, possums cause severe damage by altering habitats important to native animals and birds. Tree species that are palatable to possums (e.g. rata, kamahi, and pohutukawa) become much reduced or locally extinct, and are replaced by plants that are less palatable such as tree ferns and pepperwood. As well as altering the composition of native forests and competing with native fauna, possums also prey directly on native insects and birds.

Process for forming a Possum Eradication Area

A Possum Eradication Area is created once written agreements have been entered into with 75% or more of the total proposed land area. The Council will undertake possum eradication work within the entire Possum Eradication Area. Once possum eradication commences, land occupiers within the area are required to comply with the Hawke's Bay Regional Possum Control Technical Protocol (PN 4969).

A Possum Eradication Area is defined as an area identified as a Possum Eradication Area within the Hawke's Bay Regional Possum Control Technical Protocol (PN 4969). All Possum Eradication Areas will be mapped and inserted into this Protocol once the 75% land area threshold has been reached and initial control work has been completed within the area.

Once the Council has given notice to affected land occupiers and in the NZ Gazette that this Protocol has been amended to include an additional map, the map will have legal effect as part of the Hawke's Bay Regional Pest Management Plan 2018 - 2038. Therefore occupiers within that mapped area will be required to comply with the requirements within the Protocol after 75% or more have agreed to participate and from the date specified in the letter to land occupiers and the Gazette notice.

This Technical Protocol is incorporated by reference into the Hawke's Bay Regional Pest Management Plan 2018 – 2038.

Objective 3

Over the duration of the Plan, eradicate possums within those areas identified as Possum Eradication Areas in accordance with the Hawke's Bay Regional Possum Control Technical Protocol (PN 4969), to minimise adverse effects on environmental values and economic well-being within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawing on **requirement to act, council inspection, service delivery, advocacy and education** activities described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 2

All occupiers within a Possum Eradication Area identified in the Hawke's Bay Regional Possum Control Technical Protocol (PN 4969) shall maintain possum eradication status in accordance with that Protocol.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to protect the investment in possum eradication on their property by ensuring possums do not re-establish threatening the economic well-being and environmental values being protected.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act

6.2.10 Rooks

Description

Rooks are large, black birds with a violet-blue sheen. They are 30-50cm long and fly with slow wing-beats displaying ragged wing-tips. Rooks nest in rookeries, comprising up to 150 nests and several hundred birds. Rookeries are usually built in pines, eucalyptus or oak trees; poplars and walnut trees are also utilised for nesting. 2-5 eggs per female are laid each year, fledglings are able to fly in 30 days. Populations can increase rapidly if left uncontrolled.



Source: NZ Birds Online

The birds are native to Britain and Europe and were introduced by early settlers and liberated by acclimatisation societies throughout New Zealand between 1862 and 1873. They were introduced to control pasture pests, but their usefulness for this purpose is now considerably outweighed by the damage caused to agricultural crops and soils. Rooks are easily disturbed and can become very wary and bait shy. This makes control difficult and can lead to rookeries fragmenting with birds colonising new areas.

Rooks have been present throughout the Hawke's Bay region. During the 1980's and 1990's, the total population was reduced significantly as a result of poisoning operations. A survey during 1998 showed that there were approximately 109 occupied rookeries, with a total of 2,754 nests and 9,600 rooks. Today, rook numbers are estimated to be less than 3000 in the region, with a total of 278 active nests treated in 2016/17.

Adverse effects

For the majority of the year, rooks feed in small groups on soil invertebrates. However, they switch to maize, peas, squash, green feed and cereal crops at sowing and post emergent times, often causing extensive damage to these crops.

Rooks are included in this Plan to prevent damage to production values and economic well-being arising from crop damage.

Objective 4

Over the duration of the Plan, destroy all active rook nests within the Hawke's Bay region to prevent adverse effects on economic well-being and the environment.

It is unlikely that eradication will be complete within the duration of the Plan. Rook numbers may still be present even though their capacity to breed is prevented and it may take up to 30 years to eradicate all birds.

Principal measures to be used

The Council will take responsibility for undertaking the eradication programme for pests included in eradication programmes. Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 3

Other than under the instruction or supervision of an authorised person, no person shall:

- (a) poison, capture or trap any rook; or
- (b) discharge any firearm at any rook; or
- (c) discharge any firearm at or within 500 metres of any tree containing a rookery; or
- (d) damage, disturb or interfere in any way with a rookery.

A breach of this rule or any part thereof creates an offence under section 154N (19) of the Act.

Explanation

The purpose of this rule is to prevent humans hindering the control of rooks. The birds are wary and require a settled environment for successful control. They are also easily dispersed.

Plan Rule 4

No person may move or interfere with any article or substance left at a place by an authorised person in accordance with this Plan for the purpose of:

- (a) confirming the presence, former presence, or absence of rooks; or
- (b) managing or eradicating any rooks;

other than in accordance with the direction or under the supervision of an authorised person.

A breach of this rule is an offence under section 154 (19) of the Biosecurity Act 1993.

Explanation

The purpose of this rule is to prevent humans interfering with rook control tools.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.3 Ngā orotā ka āta mātaitia i raro i ngā hōtaka āta tāmi / Pests to be managed under progressive containment programmes

There are a number of pests that are well established in the Hawke's Bay region but their present infestation levels are still low enough for those levels to be reduced region-wide through the progressive containment programme. In some cases it will result in fewer sites infested or in others the overall density of the pest will reduce over a 10 year duration period. These pests are listed in Table 6 below.

In some instances the long term outcome (greater than 10 years) for pests under these programmes remains eradication.

Table 6: Pests under progressive containment programmes

| COMMON NAME | SCIENTIFIC NAME |
|-----------------------|-----------------------------|
| PLANTS | |
| Apple of Sodom | <i>Solanum linnaeanum</i> |
| Australian sedge | <i>Carex longebrachiata</i> |
| Cotton thistle | <i>Onopordum acanthium</i> |
| Darwin's barberry | <i>Berberis darwinii</i> |
| Japanese honeysuckle* | <i>Lonicera japonica</i> |
| Nassella tussock | <i>Nassella trichotoma</i> |
| Old man's beard* | <i>Clematis vitalba</i> |
| Saffron thistle | <i>Carthamus lanatus</i> |
| Velvetleaf | <i>Abutilon theophrasti</i> |
| Wilding Conifers | Ref glossary pg 102 |
| Woolly nightshade | <i>Solanum mauritianum</i> |

* within zones specified in Figures 7, 8 & 9

6.3.1 Apple of Sodom

Description

Apple of Sodom is a strong, spiny, woody, perennial shrub growing up to a metre or more tall. It is a native of North Africa. Leaves and branches have stout prickles. Flowers are mauve or violet followed by green and white mottled globular berries (25mm in diameter), which ripen to yellow. Leaves are egg shaped to oblong up to 9cm long by 7cm wide, deeply and irregularly divided into lobes with shallowly waved margins.

Large numbers of seeds are produced from the berries which spread by birds and animals. The seeds germinate and sprout mid spring till the end of summer. It occupies frost-free coastal areas and invades poor pasture and scrub margins. The known distribution is centred on the Bay View area, stretching from Napier to Tangoio. It is bounded inland by a line from Waipunga Road across to Seafield Road (approx. 3,162ha).



Source: Auckland Council

Adverse effects

Forms dense thickets in coastal areas, excluding low-growing native species. Seed dispersal by birds adds to the threat characteristics.

6.3.2 Australian sedge

Description

Australian sedge is a strong, harsh, perennial, tussock forming sedge growing 30-90cm tall. New leaves grow from inside the leaf sheath. They are about 5mm wide, Y-shaped in cross-section and with sharp edges, appearing yellowish towards tips. Its flowering stems are triangular in cross-section and sharply angled. The seed head is a drooping panicle with green to pale brown seeds hanging at ends of long, thin, cotton-like filaments. Flowers are grouped in catkin-like spikes that hang at the end of long, thin nodding stalks. The seed is a small, smooth triangular nut. The plant normally flowers and seeds from October to February. Australian sedge is distinguishable from other species of *Carex* in New Zealand by the way it shoots from the bottom of the original stalk with its distinctive flowers/seed head.



Source: Auckland Council

Australian sedge prefers land which is seasonally dry and is well suited to the climate and soils of Hawke's Bay. It invades disturbed scrub, regenerating forest and short tussock grasslands, but does not compete successfully with vigorous, well managed pastures. Australian sedge is a prolific seeder, but the seeds are relatively heavy and most fall close to the parent plant. Animals may spread seeds. The leaves are generally not palatable to stock. Once established it can be difficult to control.

Infestations in Hawke's Bay occur throughout the Wairoa District.

Adverse effects

Suppresses native plants and seedlings along scrub and forest margins, and remains an obstruction under regenerating canopy. Crowds out low-growing native species in tussock grasslands. It is a fire hazard and harbours rats and mice.

6.3.3 Cotton thistle

Description

Cotton thistle is a prickly biennial thistle standing up to 3m tall and 1.5m wide. It has spiny grey velvety leaves and stems covered with white cottony hairs. The flowers are dark pink, lavender or purple, globe shaped and 2.5-6cm in diameter.

The plant invades light broken ground in low rainfall areas and on lightly grazed, low fertility pastoral land. It also occupies shingle flats, roadsides, agricultural areas, grasslands, riparian zones, scrub/shrublands, and waterways. Because of its extremely hairy leaf it is very difficult to control using chemical methods and can tolerate commonly used hormone sprays. It can also tolerate droughts.



Source: Hawke's Bay Regional Council

Cotton thistle is primarily spread by wind, however its plumed seeds can also be dispersed by attachment to clothing and animal fur. Seeds may also be transported by water and in hay and machinery. Its distribution in the Hawke's Bay region is presently limited to the Maraekakaho area, and between Napier, Bay View and Oamaru (approx. 1660ha).

Adverse effects

Large stands are impenetrable to stock and so pasture is displaced. Plants are drought resistant and can spread rapidly, as seeds are primarily dispersed by wind. Seed heads can become entangled in wool and fibre, devaluing fleeces and injuring those handling stock and fleece. The plants contaminate cereal crops in the nearby vicinity.

6.3.4 Darwin's barberry

Description

Darwin's barberry is an evergreen, spiny, yellow-wooded shrub (less than 4m tall) with woody and densely hairy stems that have tough, 5-pronged, needle-sharp spines. Its hairless, glossy, dark green leaves are 10-30 long and 5-15mm wide and usually spiny-serrated along edges. It is not unlike holly in appearance. Hanging clusters of 7cm long deep orange-yellow flowers 5-7mm diameter appear from July to February followed by oval, purplish-black berries 5-7mm in diameter with a bluish-white surface.



Source: Weedbusters

This long-lived hardy plant tolerates moderate to cold temperatures, damp to dry conditions, high wind, salt, shade, damage and a range of soils. It is not browsed by stock. Birds and possibly possums eat the berries and subsequently spread the seeds. Berries are also occasionally spread by soil and water movement.

Darwin's barberry is known to infest Gwavas & Puketitiri in the Hawke's Bay region.

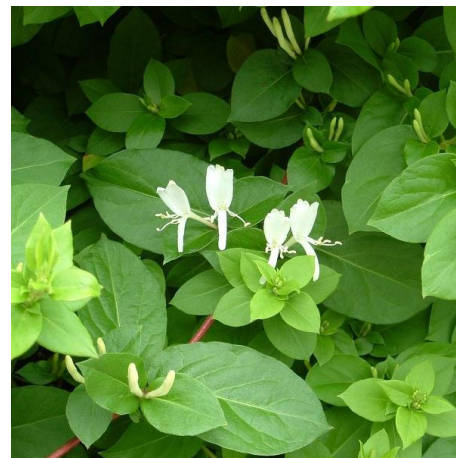
Adverse effects

It is capable of threatening the purity of indigenous forest by invading intact and undisturbed stands, forming impenetrable thickets. Older plants can flower and produce seeds in the shade and so perpetrate the production of fresh seed. Regardless, the potential invasion of new habitat is much greater than this suppression.

6.3.5 Japanese honeysuckle

Description

Japanese honeysuckle is a vigorous, evergreen, perennial, woody, climbing vine. Stems are purplish, long, tough and hairy, and twine in a clockwise direction. Leaves are oval, stalk-less or on short stalks and in opposite pairs. Flowers are sweetly-scented, tubular and coloured white, ageing to yellow. It flowers from September to May. Fruit are small black berries, glossy, egg shaped and 5-7mm in diameter. Seeds are approximately 2mm in diameter.



Source: Weedbusters

The plant inhabits roadsides, riverbanks, fences and hedges, shelterbelts, disturbed forest and forest edges. As it is palatable to stock it is generally only found in retired areas, usually around the margins of fences. It tolerates moderate shade, frost, salt, damage, wet or dry, most soils, and high to low temperature.

The major infestations of Japanese honeysuckle in the Hawke’s Bay region occur from the Esk valley to northern Wairoa. It is dispersed mainly by birds, and possibly by possums, roading machinery, dumped vegetation, soil and fill.

Adverse effects

Forms dense, long-lived masses that climb over and smother most plants from ground to medium canopy height. Damage is most severe in young or regenerating bush and can lead to canopy collapse.

The Japanese honeysuckle containment area (Figure 7 below) encompasses Lake Tūtira and Tūtira Regional Park. The regional park has an important function as a sustainable land use demonstration area which has had thousands of trees planted by school students, community groups, organisations, and HBRC staff volunteers. Lake Tūtira was also one of the Annual Plan 2017-18 six Hotspots sites. This containment area has been in place for 11 years, protecting the investment undertaken by the community.

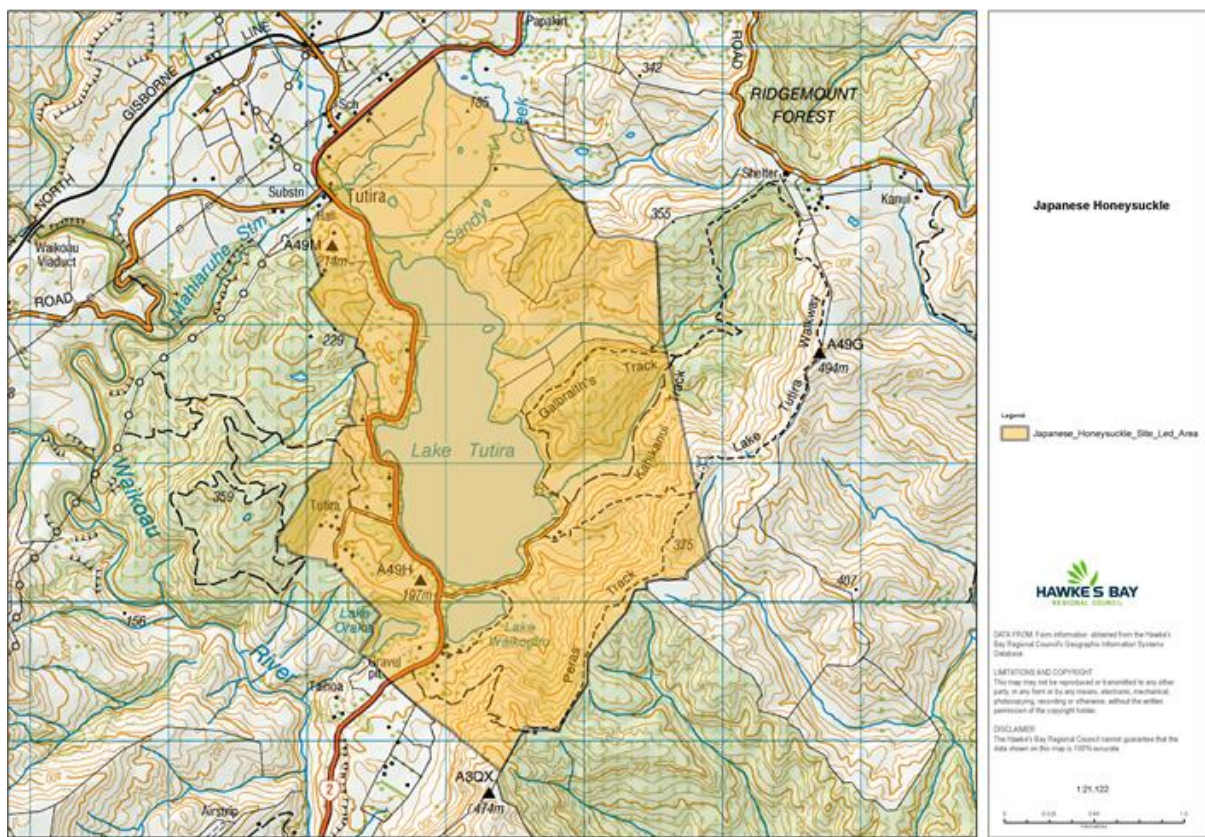


Figure 7: Japanese honeysuckle containment area

6.3.6 Nassella tussock

Description

Nassella tussock is a perennial tussock-like grass with dense, fibrous, tough roots. The leaves on young plants are erect, but older plants have a drooping habit. It is very similar in appearance to native tussocks, which makes identification difficult. Mature plants are up to 0.5m high and 1m across. Purple flowers occur from October to December. The numerous flower heads are in the form of open-branched panicles that are erect when young but weep over the tussock when mature. Each mature plant produces up to 100,000 seeds per year.



Source: Weedbusters

Nassella tussock will grow almost anywhere, but is most commonly found on dry, low fertility land, sunny slopes, dry spurs and knobs, and stony riverbeds. The seed straw is readily carried by strong wind and can travel many kilometres. It is also distributed by water, stock and machinery, or on the bark of milled trees. Regular inspection of areas cleared of nassella tussock is therefore necessary to prevent re-establishment.

Intensive control measures over 30 years have prevented the spread of nassella tussock, with the two known sites in the region being Tangoio and the lower Tukituki area. Plant numbers at these sites are now low. Any failure to remove all nassella tussock plants before seeding perpetuates the problem as the amount of seed produced by a mature plant, and the mechanism of wind dispersal of the seed contribute to a high potential for spreading. By preventing seeding, and given the present limited distribution of nassella tussock in the Hawke's Bay region, an opportunity exists to progressively reduce plant incidence.

Adverse effects

The plant is capable of completely depleting a grassland sward, both native and exotic. It is indigestible if eaten by livestock and seeds spoil the fleece of sheep.

6.3.7 Old man's beard

Description

Old man's beard is a deciduous, perennial vine that grows up to 5m per year. Older vines are woody, often brown or grey, although young vines are ribbed and often purple in colour. The leaf is composed of five leaflets. Loosely branched inflorescences of creamy-white flowers (2-3 cm across) are produced from December to May, which then produce conspicuous fluffy greyish-white seed heads in autumn, winter and early spring. Each plant produces more than 10,000 seeds per m². Seed has an awn that enables it to bury into the soil for germination.



Source: Weedbusters

The seeds are dispersed by birds, wind, water or gravel distribution. It can also grow from stem fragments. Old man's beard uses other plants for support and forms a dense canopy that deprives the support plants of sunlight and

eventually kills them. Its habitat is typically scrubland, wasteland, riverbanks, hedgerows and native bush margins.

Old man's beard is widespread south of State Highway 5 in Hawke's Bay. Council do not believe that the benefits of control in this area would outweigh the costs imposed on land occupiers in requiring them to control old man's beard. However, Council do see the value in working in a partnership with the Department of Conservation in preventing old man's beard from establishing in the Kaweka and Ruahine Ranges. As shown in Figure 8, a 500m buffer zone has been created along the edge of the Kaweka and Ruahine Ranges of which the good neighbour rule will apply. Council will pay for initial control of the plant within this buffer area, upon forming an agreed work programme with the Department of Conservation.

North of State Highway 5 in Hawke's Bay, old man's beard is not so widespread. Significant investment in controlling the plant has been undertaken in this area and Council believes that it is still worthwhile to require land occupiers to maintain to zero density within this area (Figure 9 below). There are a large number of native bush fragments throughout this landscape that would be negatively impacted by Old man's beard if left unmanaged.

The old man's beard Progressive Containment area boundary is defined by State Highway 5 from the region's western boundary to its junction with State Highway 2, then along State Highway 2 from its junction with State Highway 5 to the Esk River, then down the Esk River from the State Highway 2 bridge to the sea as shown in Figure 9.

Adverse effects

Forms dense, heavy, permanent masses that can smother and kill all plants to the highest canopy. It also prevents recruitment of replacement plants, particularly native species.

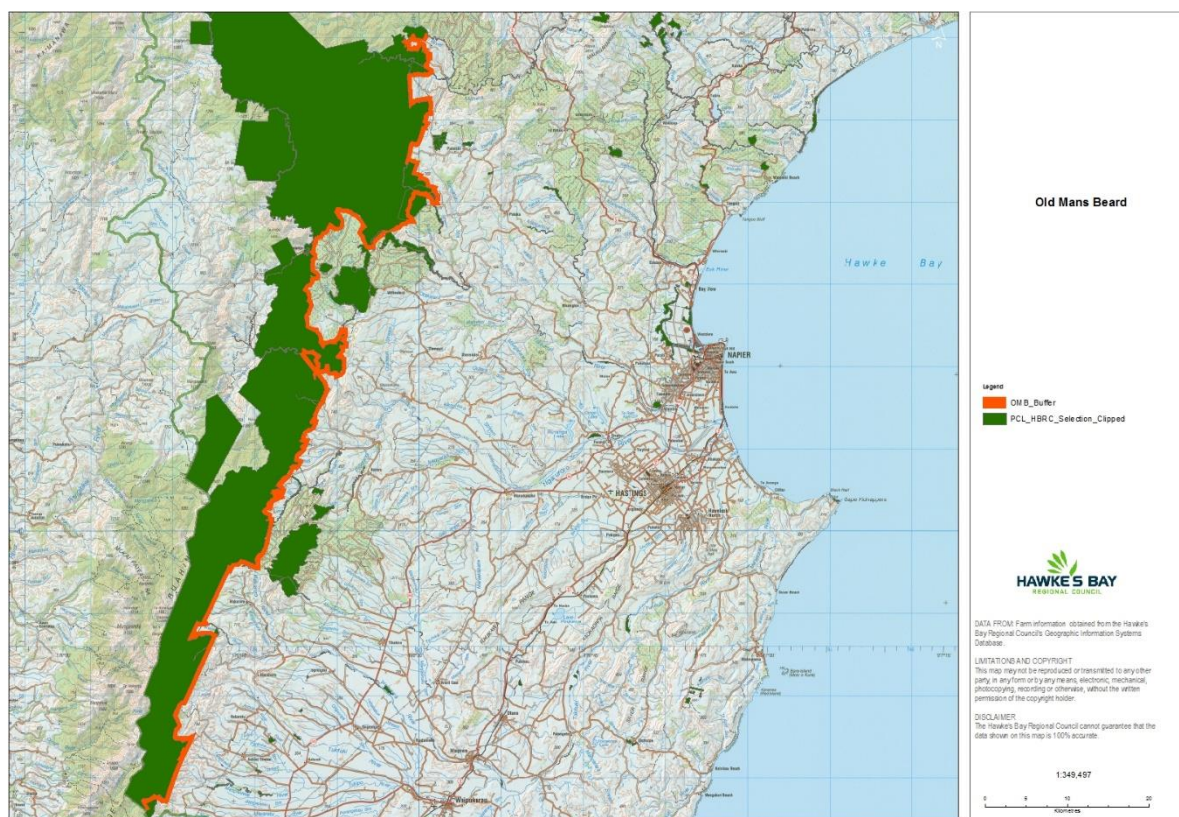


Figure 8: Old man's beard Kaweka and Ruahine Ranges buffer area (red). DOC administered land (green).

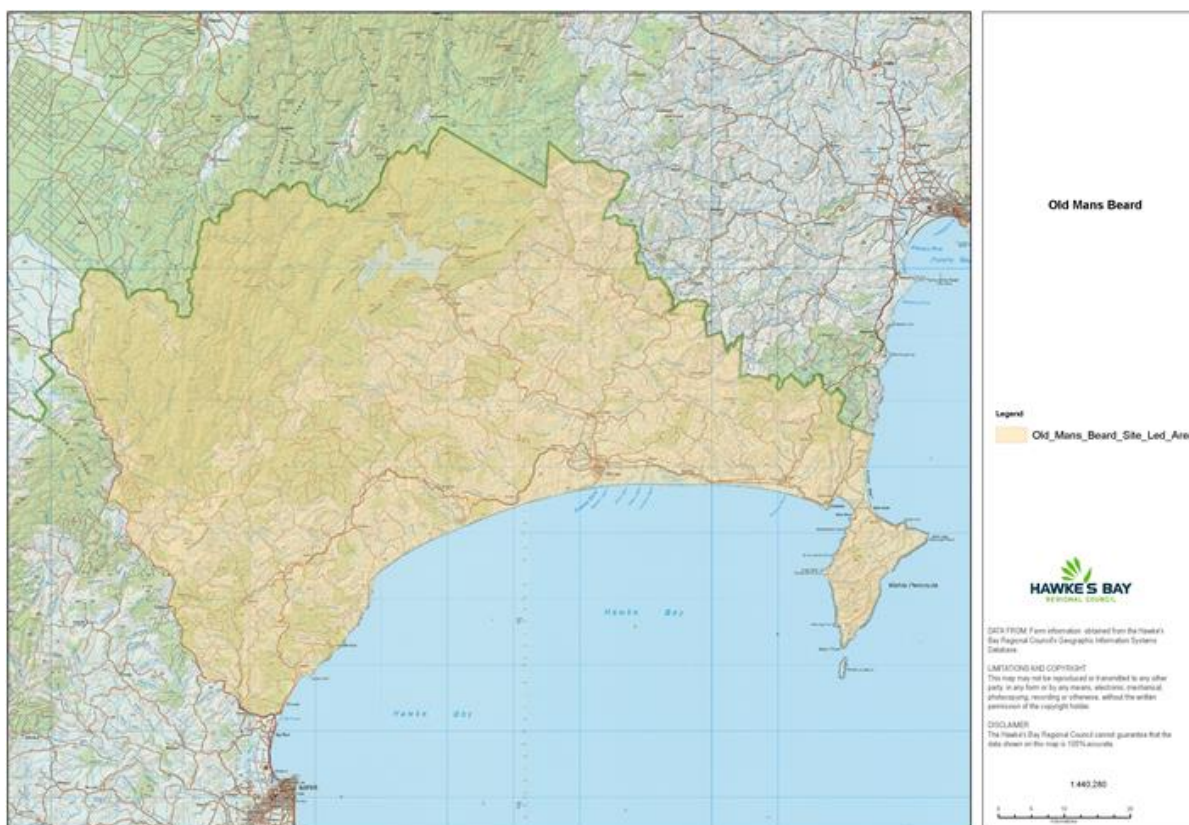


Figure 9: Old man's beard containment area

6.4.8 Saffron thistle

Description

Saffron thistle is an annual, spiny, glandular, woolly plant, which often looks like it is covered in spider webs because of its fine tangled fibres. Its multiple woody stems grow to about 1m high which mat together to form small impenetrable thickets. The flowers are bright yellow.

Saffron thistle occurs predominantly in disturbed, open sites in grasslands, pastures, and agricultural lands, especially grain fields. Prefers seasonally dry, heavily-grazed pastures, particularly areas with 400-600mm annual rainfall. Seed dispersal is mainly by stock wool or hair, machinery, and water. Generally the seeds are not dispersed by wind, as they are too heavy.

Saffron thistle occurs as small infestations scattered throughout the region, including Crownthorpe, Bay View, Putorino, Sherenden, Wairere, Havelock North, Maraekakaho, Waipawa, Porangahau, Kahuranaki, and Paki Paki.

Adverse effects

Saffron thistle invades space in weakened pastures and once established prevents grazing access for animals. It also germinates readily in cultivated ground. It therefore poses a threat to production values and economic well-being and is included in the Plan for those reasons.



Source: Marlborough District Council

6.3.9 Velvetleaf

Description

Velvetleaf is a tufted, multi-tillered upright annual broad-leaved plant that grows 50-2000 cm high. The leaves are large, heart-shaped and are velvety to the touch. It has buttery-yellow flowers about 3cm across. Flowering commences in the spring and continues through to autumn.

The seed head is a cylindrical 'spike' 2.5-10 cm long, characterised by 7-10 bristles emerging from below each floret. The plant has distinctive seedpods with 12 to 15 segments in a cup-like ring. Each seedpod is about 2.5cm in diameter.

Velvetleaf is a relatively new introduction to the region and can occupy bare ground along roadsides and in pasture (e.g. pugging, wheel tracks), including areas that have recently been sprayed. Partially drought tolerant, but requires moist conditions to germinate. Grows best where rainfall exceeds 500mm/year or in areas with high soil moisture (e.g. ephemeral drains). There are only two known sites in the region, Pakipaki and Tutira.

Adverse effects

Velvetleaf is a serious cropping weed, potentially affecting many arable crops by competing for nutrients, space, and water. It is declared an Unwanted Organism in New Zealand. Its effect on indigenous biodiversity are unlikely but unknown as at this stage. Due to its preference for sites with fertile and cultivated soils, the risk of occurring in and competing with indigenous vegetation is possibly quite low.



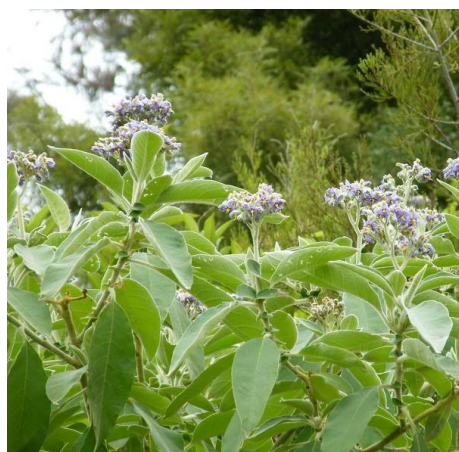
Source: Waikato Regional Council

6.3.10 Woolly nightshade

Description

Woolly nightshade is a spreading perennial shrub or small tree growing up to 4-5m tall. Its grey-green, ovate leaves are large, up to 25 cm long by 10 cm wide, pointed at both ends and covered in thick furry hairs. They produce an unpleasant smell when crushed. It has small lilac flowers in clusters and produces green berries that are dull yellow when ripe. Flowering continues for most of the year.

It grows in open locations, forest and plantation margins, scrub and waste land. In Hawke's Bay, woolly nightshade is mainly found in the more temperate urban areas. It is primarily found in urban areas across approximately 8,800ha.



Source: Weedbusters

Adverse effects

This plant is allelopathic (produces toxins that poison the soil), forming dense, often pure, stands that outcompete most other species. It also inhibits and slows regeneration of native plant species. Woolly nightshade is poisonous and handling the plants can cause irritation and nausea.

Objective 5

Over the duration of the Plan, progressively contain and reduce the geographic distribution or extent of:

- a) Apple of Sodom, Australian sedge, cotton thistle, Darwin's barberry, nassella tussock, saffron thistle, velvetleaf and woolly nightshade within the Hawke's Bay region, and
- b) Japanese honeysuckle within the containment area shown in Figure 7, and
- c) Old man's beard within the Kaweka and Ruahine Ranges buffer area (Figure 8) and containment area (Figure 9)

to prevent adverse effects on economic well-being and the environment of the Region.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective. The Council will take responsibility for undertaking the progressive containment programme for nassella tussock.

Plan Rule 5

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier of land shall:

- a) destroy all Apple of Sodom, Australian sedge, cotton thistle, Darwin's barberry, nassella tussock, saffron thistle, velvetleaf and woolly nightshade plants on their land; and
- b) destroy all Japanese honeysuckle plants on their land within the containment area defined in Figure 7; and
- c) destroy all old man's beard plants on their land within the Kaweka and Ruahine Ranges buffer area (Figure 8) and containment area (Figure 9).

A breach of this rule is an offence under section 154N (19) of the Biosecurity Act 1993.

Explanation

The reason for this rule is to prevent the spread of the plants to land that is currently free of infestations and to progressively increase the extent of clear land.

Advice note

Old man's beard: Council will pay for initial control of old man's beard within the Kaweka and Ruahine Ranges buffer area (Figure 8), upon forming an agreed work programme with the Department of Conservation.

Velvetleaf: Although there are currently only two known populations of velvetleaf in the Hawke's Bay region, due to the current national distribution of velvetleaf, multiple vector pathways and the longevity of its seed, eradication is unlikely in the short to medium term. Successful eradication of velvetleaf needs to be coordinated nationally. Velvetleaf has been included in this Plan to equip Council with the required powers under the Biosecurity Act 1993 to respond immediately in the event of new velvetleaf areas being discovered in the Hawke's Bay region. Ministry for Primary Industries is the lead agency for the management of velvetleaf. It is not Council's intention to replace MPI as the lead agency.

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Plan Rule 6

Note: This is designated a Good Neighbour Rule

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier, on receipt of a written direction from an Authorised Person, shall destroy all old man's beard on the land that they occupy within 500 metres of the adjoining property boundary where the occupier of the adjoining property is managing old man's beard across their property.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to manage the spread of old man's beard causing unreasonable costs to the adjacent occupier where active old man's beard management is being undertaken by that occupier.

Advice note

Council will administer the rule upon receiving a written complaint from the adjacent land occupier. This rule only applies when old man's beard is spreading to an adjoining property that is actively managing old man's beard. If a land occupier has an agreed old man's beard Written Management Agreement with Council and is actively carrying out their requirements under this management agreement, they will not receive a written direction from an Authorised Person.

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154 (O) of the Act.

6.3.11 Wilding Conifers

Description

Wilding conifers are defined as any introduced conifer tree, including (but not limited to) any of the species listed in Table 7, established by natural means, unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of.

One of the key challenges associated with the management of wilding conifers is that while wilding conifers are a pest, planted conifers are a valuable resource. This highlights the importance of recognising the considerable value of planted and responsibly managed conifers, and clearly distinguishing these from naturally regenerated wilding conifers that can pose a threat to a range of environmental, economic, aesthetic, recreational, and other values. The wilding conifer definition incorporates all ten of the most spread-prone conifer species, but specifically applies only to those trees that are naturally regenerated, rather than intentionally planted. For the purposes of this programme, a forest plantation is an area of 1 hectare or more of predominantly planted trees.



Contorta pine
Source: New Zealand Plant Conservation Network, John Smith-Dodsworth

Table 7: Listed wilding conifer species

| COMMON NAME | SCIENTIFIC NAME |
|---------------------------------------|-----------------------------------|
| Douglas fir | <i>Pseudotsuga menziesii</i> |
| Contorta pine or lodgepole | <i>Pinus contorta</i> |
| Scots pine | <i>Pinus sylvestris</i> |
| Dwarf mountain pine and mountain pine | <i>Pinus mugo and P.unicinata</i> |
| Bishops pine | <i>Pinus muricata</i> |
| Maritime pine | <i>Pinus pinaster</i> |
| Ponderosa pine | <i>Pinus ponderosa</i> |
| Corsican pine | <i>Pinus nigra</i> |
| European larch | <i>Larix decidua</i> |
| Radiata Pine | <i>Pinus radiata</i> |

Wilding conifers are usually found in alpine and sub-alpine areas hence their presence in the Kaweka Ranges, the upland Rangitaiki areas and along the western margins of the region. Owing to their hardiness, wilding conifers have been used as a shelter belt species in the southern Rangitaiki area.

Adverse effects

Wilding conifers can have significant impacts on native ecosystems, particularly those with low-stature vegetation. Wilding conifers grow faster and taller than low-stature native plants and so can shade out many of these species. Where there is dense wilding conifer growth, this can lead to local extinction of native plant communities, the drying of wetlands and riparian areas, and resulting impacts on native fauna through the loss of habitat. Soil and soil fauna are also altered when wilding conifers replace native ecosystems.

Most wilding conifer species do not pose a significant threat to established native forests, however Douglas fir has a higher shade tolerance than other introduced conifer species and consequently wilding Douglas fir is able to spread into shrublands, regenerating native forest and mature forest where there are canopy gaps and a relatively sparse understory.

Wilding conifers can adversely affect amenity and landscape values, particularly where the valued landscapes are characterised by extensive low-stature vegetation such as high country tussock grasslands. These landscapes are important for tourism and large-scale landscape changes could impact on this. Dense wilding conifer spread can lead to the blocking and/or changing of valued views and vistas, and can impede access to, and enjoyment of, recreational areas.

In areas where there is long-term, seasonal soil moisture deficits, dense wilding conifers can contribute to reductions in surface water flows, potentially impacting on water availability and aquatic ecosystems. Wilding conifers can also increase the risk posed by wild fires.

In areas of extensive pastoral farming, wilding conifer infestations adversely impact economic well-being by reducing available grazing land and limiting future land use options due to the high costs of control.

Contorta (lodgepole) pine, Scots pine, dwarf mountain pine and mountain pine

Wilding conifers often occur as a result of seed spread from planted conifer trees. It can be difficult to successfully control or manage the spread of wilding conifers over the long term if the seed source is not removed or appropriately managed and contained. This set of conifers has very limited commercial value and they are also highly invasive. It is therefore important to specify these organisms as pests in their own right, in addition to being pests under the wilding conifer definition

in their naturally regenerated state. This is to prevent new plantings of these species, as well as enabling regulatory controls requiring removal of these species in situations where they are planted but pose a wilding conifer spread risk as a result of the spread of their seed.

Contorta in particular, is the most invasive introduced conifer species and represents a significant proportion of all wilding conifers and original sources of wilding conifer spread, therefore it will be managed region-wide.

Scots pine, dwarf mountain pine and mountain pine are not currently known to be established and causing wilding conifer issues in the ranges of Hawke’s Bay. A progressive containment area has been created (*Figure 10*) to prevent these conifers from establishing in high risk areas.

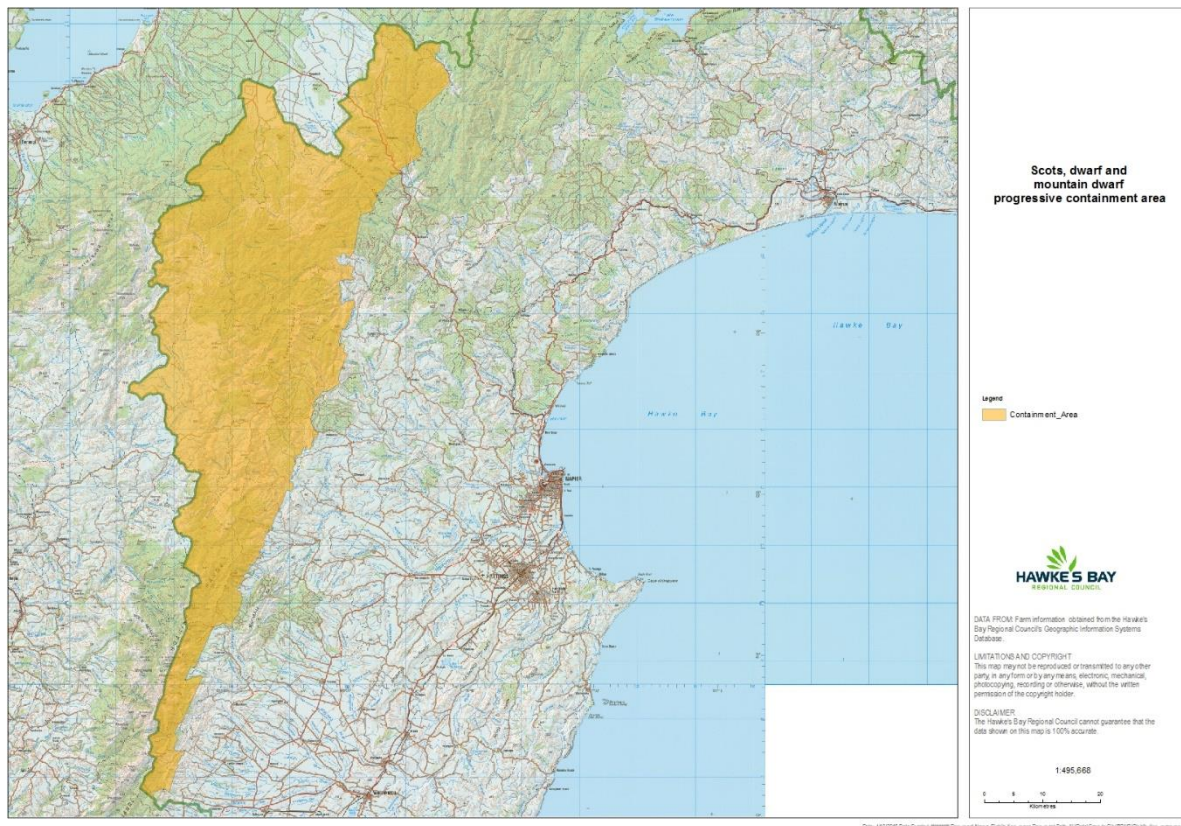


Figure 10: Scots pine, dwarf mountain pine and mountain pine progressive containment area

Objective 6

Over the duration of the Plan, progressively contain and reduce the geographic distribution and extent of:

- a) wilding conifers and contorta within the Hawke’s Bay region; and
- b) Scots pine, mountain pine and dwarf mountain pine within the area shown in Figure 10.

to reduce adverse effects on economic well-being and the environment.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 7

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier of land shall:

- a) destroy all contorta plants on their land prior to cone bearing; and
- b) destroy all Scots pine, mountain pine and dwarf mountain pine on their land within the containment area defined in Figure 10 prior to cone bearing; and
- c) destroy all wilding conifers present on land they occupy prior to cone bearing, if
 - I. The wilding conifers are located within an area which has had control operations carried out to destroy wilding conifers or any other planted conifer species that were causing the spread of wilding conifers; and
 - II. The control operations were publicly funded (either in full or in part).

A breach of this rule is an offence under section 154N (19) of the Biosecurity Act 1993.

Explanation of rule

The reason for paragraphs a) and b) of this rule is to prevent the spread of contorta, Scots pine, mountain pine and dwarf mountain pine to land that is currently free of infestations and to progressively increase the extent of clear land. The reason for paragraph c) is to ensure that new infestations of wilding conifers are prevented at sites where publicly funded operations to remove wilding conifers or any other planted conifer species have occurred. These programmes are in accordance with the NZ Wilding Control Management Strategy 2015 - 30 (the Strategy), which has the following objective: "To prevent the spread of wilding conifers, and to contain or eradicate established areas of wilding conifers by 2030".

Advice note

In producing a Written Management Agreement, Council will take into consideration if an occupier is participating in and or contributing to a Council managed or endorsed Wilding Conifer Management Plan, Strategy or Programme that specifies an approach for the progressive removal and/or management of the wilding conifers and other species identified in the Plan.

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Plan Rule 8

Note: This is designated a Good Neighbour Rule

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier, on receipt of a written direction from an Authorised Person, shall destroy all wilding conifers, Scots pine, mountain pine and dwarf mountain pines present on land they occupy within 200 metres of an adjoining property boundary prior to cone bearing, if the occupier of the adjoining property is taking reasonable steps to manage wilding conifers on their land, within 200 metres of the boundary.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to ensure that the spread of wilding conifers does not cause unreasonable costs to the occupiers of adjoining properties where the adjoining occupier is undertaking active wilding conifer management. As a Good Neighbour Rule, this is intended to apply to all land occupiers, including the Crown.

Advice note

Council will administer the rule upon receiving a written complaint from the adjacent land occupier. If a land occupier has an agreed Written Management Agreement with Council for the management of wilding conifers, and is actively carrying out their requirements under this management agreement, they will not receive a written direction from an Authorised Person.

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154 (O) of the Act.

6.4 Ngā orotā ka āta mātaitia i raro i ngā hōtaka whakamatua rōnaki / Pests to be managed under sustained control programmes

A number of pests are well established in the Hawke’s Bay, many of which have been subject to various control aspirations over time. While the spread of these pests between neighbouring properties remains the predominant risk, in some cases control within properties is still sought and warranted. The sustained control programme will at least hold populations to maximum acceptable limits over the period of the Plan.

Sustained control will apply under three separate circumstances as follows:

- A. within a property to protect values within that property; or
- B. within a boundary zone to prevent spread between properties; or
- C. within a pipfruit production property to protect values at adjacent or nearby pipfruit production properties (sustained phytosanitary control).

A Programmes within a property

While the pests listed in Table 8 are widespread across many properties in the region, sustained control remains necessary to protect significant areas that are still clear of infestations. Limiting populations to maximum acceptable limits also minimises the impact of their presence on production and environmental values.

Table 8: Pests under sustained control programmes within a property

| COMMON NAME | SCIENTIFIC NAME |
|--------------------------------------------------------------|---------------------------------------------------------|
| PLANTS | |
| Chilean needle grass | <i>Nassella neesiana</i> |
| Privet (Chinese and tree) | <i>Ligustrum sinense, L. lucidum</i> |
| Yellow bristle grass | <i>Setaria pumila</i> |
| ANIMALS | |
| Feral goat | <i>Capra hircus</i> |
| Possum (Australian brushtail possum) | <i>Trichosurus vulpecula</i> |
| Predators (Mustelids (ferret, stoat, weasel) and feral cats) | <i>Mustelo furo, M. ermine, M. nivalis, Felis catus</i> |
| Rabbits | <i>Oryctolagus cuniculis</i> |

6.4.1 Chilean needle grass

Description

Chilean Needle Grass is an erect, tufted, perennial grass that can grow to 1.2 m in height. Leaves are up to 5 mm wide, bright green and harsh. Flowers have a purple tinge and ripen into hard, sharp seeds with long twisting tails. Seeds are up to 10 mm long, with a hard, sharply-pointed head and a long, approximately 70 mm hair-like awn (tail). It is particularly difficult to identify in pasture, especially in the absence of flowering seedheads.

The plant is capable of seeding by 3 methods: aerial seeding, basal seeding (cleistogenes), and stem seeding. Aerial seeding is recognised by its panicle form (similar in



Source: Hawke's Bay Regional Council

appearance to oats). The flowering seed head grows from 20 cm to over a metre in height. Each seed is encased by two distinctly purple coloured glumes. The seed of the panicle has a long (7-10cms) green awn attached to it that darkens in colour when the seed is mature. On close inspection between the glumes the seed will be found. The seed is some 10-12mm long, dart shaped with a very sharp needle like point. The seeds of the panicle are mainly spread by attaching to the wool or hair of stock, machinery, water, hay or clothing.

Cleistogene seed is around 1mm in diameter and 2mm long with no awn. These seeds are initiated in autumn and are mature by the time the aerial seed head emerges. Stem seeds are found at the nodes between the leaf sheath and the stem and may or may not be awned. The seeds are between 0.5-1.0mm in diameter and 2-3mm long.

The plant can occur in natural forests, grasslands, scrub, waterways, and riparian areas, but grows best in dry open grassland habitats in low fertility areas. This makes many areas in Hawke's Bay prone to invasion. The plant is generally palatable to stock but becomes less palatable as it matures. Eradication of Chilean needle grass is difficult once the grass is established, as seeds remain viable for at least 25 years.

Chilean needle grass has been identified in summer dry areas of Hawke's Bay - west of Napier and at Puketapu, Havelock North, Maraekakaho, Poukawa, Waipawa, Waipukarau, Wakarara, Omakere and Porangahau (approx. 665ha).

Adverse effects

Agricultural productivity can be severely reduced by the replacement of palatable vegetation, injury to stock, reduction of produce quality and increased management costs. Seeds can cause pelt damage, and painful wounds both externally and internally when they move through skin into muscles. Carcasses are downgraded, blindness can occur and seeds can get into ears. Farm dogs can be similarly affected. Some sheep graziers in eastern Australia have been forced to switch to beef production.

Chilean needle grass is likely to invade native grasslands, where it can replace native plants, and alter invertebrate community composition.

Objective 7

Over the duration of the Plan, sustainably control Chilean needle grass within the Hawke's Bay region to ensure:

- a) that current infestations levels do not increase; and
- b) spread to other properties is prevented

in order to minimise adverse effects on production values.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Generally occupiers will carry out the control work, and manage the likely vector pathways, necessary to prevent Chilean needle grass spreading to other properties. In addition, Council may undertake operational programmes and facilitate or assist community initiative approaches.

Plan Rule 9

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier of land shall destroy all Chilean needle grass on land that they occupy.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to prevent Chilean needle grass from spreading to uninfested land.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Plan Rule 10

No person shall make hay/silage during the months from November to March from a paddock that has, or has had, Chilean needle grass present. No person shall move any goods contaminated with Chilean needle grass seed beyond their property boundary.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to prevent the transport of seed from infested properties to land free of the presence of Chilean needle grass. The highest risk for transport of seed is in hay/silage making machinery during the panicle seeding period which is November through to March.

6.4.2 Privet (Tree and Chinese)

Description

There are two common types of Privet. Tree privet and Chinese privet. Tree privet (*Ligustrum lucidum*) is a broad leaved, medium-sized, hairless shrub growing up to 10m in height. Both species are shade-tolerant but fire intolerant. The leaves are egg-shaped and are up to 12cm long. Chinese privet (*Ligustrum sinense*) is a more densely branched shrub growing up to 5m in height with smaller lightly hairy leaves up to 7cm long. Both species produce terminal clusters of white flowers with black or blue-black berries containing 100,000-10,000,000 seeds per bush or tree. Birds disperse the seed.



Chinese Privet
Source: Weedbusters

Privet can occupy lowland and coastal forest, mostly remnants and shrub land. It is mainly found in home gardens in the urban areas where it has been planted as a specimen shrub or as a hedge.

Adverse effects

It is capable of producing dense stands that prevent recruitment and displacing vulnerable shrub species. The berries are poisonous to humans and possibly to native fauna, especially insects. The pollen and scent of privet is believed to contribute to respiratory disorders such as asthma. However, research shows privet is not a strong allergen for most people.



Tree Privet
Source: Weedbusters

Objective 8

Over the duration of the Plan, sustainably control privet where necessary within the urban area in order to minimise any adverse effects on human health that are brought to the Hawke's Bay Regional Council's attention.

Principal measures to be used

Appropriate measures drawn from the requirement to act, council inspection, service delivery, advocacy and education described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 11

An occupier of land within the urban area will, upon receipt of a direction from an authorised person, destroy all Chinese or tree privet on their land.

For the purpose of this Plan Rule, the urban area is defined as any property accessed from a street with a permanent speed zone of 50km or less.

A breach of this rule creates an offence under section 154N (19) of the Act

Explanation of rule

The reason for this rule is to minimise adverse effects on human health for affected privet sufferers.

Upon receipt by Council of a doctor's certificate/positive blood test clearly showing a person to be suffering a privet allergy, Council will, within the urban area, destroy any isolated Chinese and tree privet plants within 50m of the residence or place of work of that person. If, upon inspection by Council, large numbers of plants exist, including as hedges, a direction will be served on the occupier to thoroughly prune to prevent flowering or destroy the plants.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.4.2 Yellow bristle grass

Description

Yellow bristlegrass is an annual, upright growing grass 25-45cm tall. In open pasture its first leaves often grow parallel to the ground. Leaves are hairless, twisted and slightly rough at the edges, and yellow-green to green in colour. The leaf sheath is flattened and hairless and often turns reddish purple. Its seed head is a cylindrical 'spike', 2.5–10cm long, with many densely packed spikelets. Each spikelet is surrounded by five to ten bristles, 5-8mm long which are green initially but later turn golden-brown. The known distribution of yellow bristle grass is along roadsides in the Wairoa district.



Source: AgPest

Adverse effects

This plant hardens off in autumn resulting in lower pasture quality, a problem particularly for milk and stock finishing producers. This represents an adverse impact on production and economic well-being and is therefore included in the Plan.

Objective 9

Over the duration of the Plan, manage yellow bristle grass vector pathways within the Hawke's Bay region to minimise spread to other properties in order to minimise adverse effects on production values.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Council will assist land occupiers by providing identification and information on management practices. Council will also manage likely vector pathways, such as roadside mowing and hay production, to minimise the grass spreading to other properties. In addition, Council may undertake operational programmes and facilitate or assist community initiative approaches.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.4.3 Feral goat

Description

Feral (or wild) goats vary in size and their colour can be white, black, brown or a combination of colours. Both sexes have horns. Adult males stand approximately 70 cm high and weigh 50-60 kg. Females are smaller. Females begin breeding at 6 months and can breed twice a year. Twins are common. Males can mate from 6 months old but are usually excluded by other males until 3-4 years of age. They inhabit and exploit a wide range of rural and forest habitats and favours steep, dry, sunny faces. Their diet is wide-ranging.



Adverse effects

On farmland, feral goats damage fences, graze pasture, transfer animal health issues, damage the structure of exotic plantings, and browse riparian plantings. In indigenous vegetation areas, feral goats alter the composition and structure of the under-storey, inhibit regeneration and often completely remove favoured food plants from an ecosystem. Long-term intensive goat browse can ultimately lead to forest collapse and have a direct impact on fauna species, sediment runoff and water quality. On the other hand, feral goats do provide some economic benefits to New Zealand. They are used as a management tool of woody weeds, particularly blackberry and gorse, in some hill country areas. Feral goats also have the potential to generate revenue from the production of meat and fibre. Some value is also attached to the opportunities goats provide for recreational hunting and the fact that they can be used as a source of bonus payments for farm staff.

Purpose of Feral Goat Coordinated Management Areas

Taking direction from the feral goat regional stakeholder group and the data gathered from a feral goat survey undertaken in 2011, a non-regulatory feral goat coordinated management area programme (CMA) was developed on the principal of voluntary co-ordinated management. Two CMAs were established: one at Maungaharuru (Boundary Stream) and one at Mahia Peninsula. Although these two programmes have resulted in significant reductions in feral goat numbers, landowners opting out at any stage has resulted in significant risk to the success of the programmes and safeguarding of ratepayer and stakeholder investment. Goats are also continuing to cause significant damage to native habitat and species across the Hawke's Bay region.

In comparison, the Hawke's Bay Regional Council has been controlling possums through its Possum Control Area (PCA) programme since 2000. There has been a very high level of support for the PCA programme, and a strong belief by land occupiers within the programme that it is providing value for money for programme participants. The programme has grown to over 700,000ha and is exceeding its target with an average residual trap catch (RTC) of 2.1% across all PCA programmes. Two key components that have been attributed to the success of this programme are the sign up process and the supporting regulatory role of the Biosecurity Act. Using this model, through creating binding Feral Goat Coordinated Management Areas, the community decides whether feral goat management is desired and is clear on the regulatory requirements they are committing to. The Biosecurity Act would then underpin the programme, protecting the investment made by Council, funding partners and land occupiers.

Process for forming a Feral Goat Coordinated Management Area

A Feral Goat Coordinated Management Area is created once written agreements have been entered into with 75% or more of the total land area. The Council will coordinate initial feral goat control work within the entire Feral Goat Coordinated Management Area. Once feral goats have been reduced to

low levels, occupiers within the area are required to maintain feral goats in accordance with this Protocol.

A Feral Goat Coordinated Management Area could be created anywhere in the Hawke's Bay region. Although not limited to, it is likely such an area would be 5,000ha or greater. Initial focus will be placed on protecting large-scale investment in afforestation. All Feral Goat Coordinated Management Areas will be mapped and stored by Council. Once the 75% land area threshold has been reached, Council has given notice to all affected land occupiers within the mapped area and initial control work has been completed within the area, Plan Rule 12 then becomes binding to all occupiers within the Feral Goat Coordinated Management Area.

Objective 10

Over the duration of the Plan, sustainably control feral goats on land contained within Feral Goat Coordinated Management Areas to zero density or to levels specified within a Written Management Agreement approved by Hawke's Bay Regional Council, to minimise adverse effects on environmental values and economic well-being within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawing on **requirement to act, council inspection, service delivery, advocacy and education** activities described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 12

An occupier within a Feral Goat Coordinated Management Area, shall maintain feral goat densities on their land to either zero density or to levels specified within a Written Management Agreement approved by Hawke's Bay Regional Council.

No person shall release from containment any goat in any part of the Hawke's Bay region.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to protect investment in feral goat control by ensuring zero density is achieved long term where economic well-being and environmental values are no longer threatened.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Plan Rule 13

Note: This is designated a Good Neighbour Rule

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier adjacent to a Feral Goat Coordinated Management Area, area of ecological importance or native planting shall, on receipt of a written direction from an Authorised Person destroy all feral goats on the land that they occupy within 500 metres of the adjoining property boundary where the occupier of the adjoining property is managing feral goats across their property as part of a Feral Goat Coordinated Management Area or in protecting an area of ecological importance or native planting.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to manage the spread of feral goats causing unreasonable costs to the adjacent occupier where active feral goat management is being undertaken by that occupier.

Advice note

Council will administer this rule upon receiving a written complaint from the adjacent land occupier. This rule only applies when feral goats are spreading to an adjoining property that is actively managing feral goats as part of a Feral Goat Coordinated Management Area or in protecting an area of ecological importance or native planting. If a land occupier has an agreed feral goat Written Management Agreement with Council and is actively carrying out their requirements under this management agreement, they will not receive a written direction from an Authorised Person.

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.4.4 Possums

Background

Hawke's Bay Regional Council has been controlling possums through its Possum Control Area (PCA) programme since 2000. There has been a very high level of support for the PCA programme, and a strong belief by most land occupiers within the programme that it is providing value for money for programme participants. The programme has grown to over 700,000ha and is exceeding its target with an average residual trap catch (RTC) of 2.3% across all PCA programmes. This success and landowner support has provided the foundation for further strengthening PCA benefits. The proposed PCA area is shown in Figure 11 below.



Description

The Australian brushtail possum is a nocturnal marsupial introduced and liberated in New Zealand by private individuals and acclimatisation societies between 1837 and 1898 to establish a fur trade. Possums were accorded various levels of protection until 1947. When it became clear that the environmental damage inflicted by them far outweighed any profit made from their skins, this protection was lifted.

Possums in New Zealand occur as two colour types, blacks and greys. Adult male blacks vary from rich red-brown to brown, the females have a darker or black-brown fur. Adult male greys are often strongly rufous in the neck and shoulders while the greys often have a distinct silver tinge in the fur.

Size and weight are dependent on habitat. In good conditions adult possums can weigh between 3-5 kgs. Their life span is about nine years. Possums reach reproductive maturity at approximately two years of age. Usually females rear three young every two years.

Possums can be found throughout Hawke's Bay. Their favoured are generally found in bush/pasture margins as these provide a plentiful supply of food and suitable habitat.

Adverse effects

Possums are considered the major animal pest in New Zealand. In farming areas, they spread bovine tuberculosis to beef and dairy cattle, and to farmed deer, damage crops and orchards, kill poplars and willows planted to control hill-country erosion and stabilise riverbanks, and eat pasture. In exotic forest plantations they kill young trees and stunt the growth of older trees by ring-barking them or breaking the uppermost branches. In native vegetated areas, possums cause severe damage by altering habitats important to native animals and birds. Tree species that are palatable to possums (e.g. rata, kamahi, and pohutukawa) become much reduced or locally extinct, and are replaced by plants that are less palatable such as tree ferns and pepperwood. As well as altering the composition of native forests and competing with native fauna, possums also prey directly on native insects and birds.

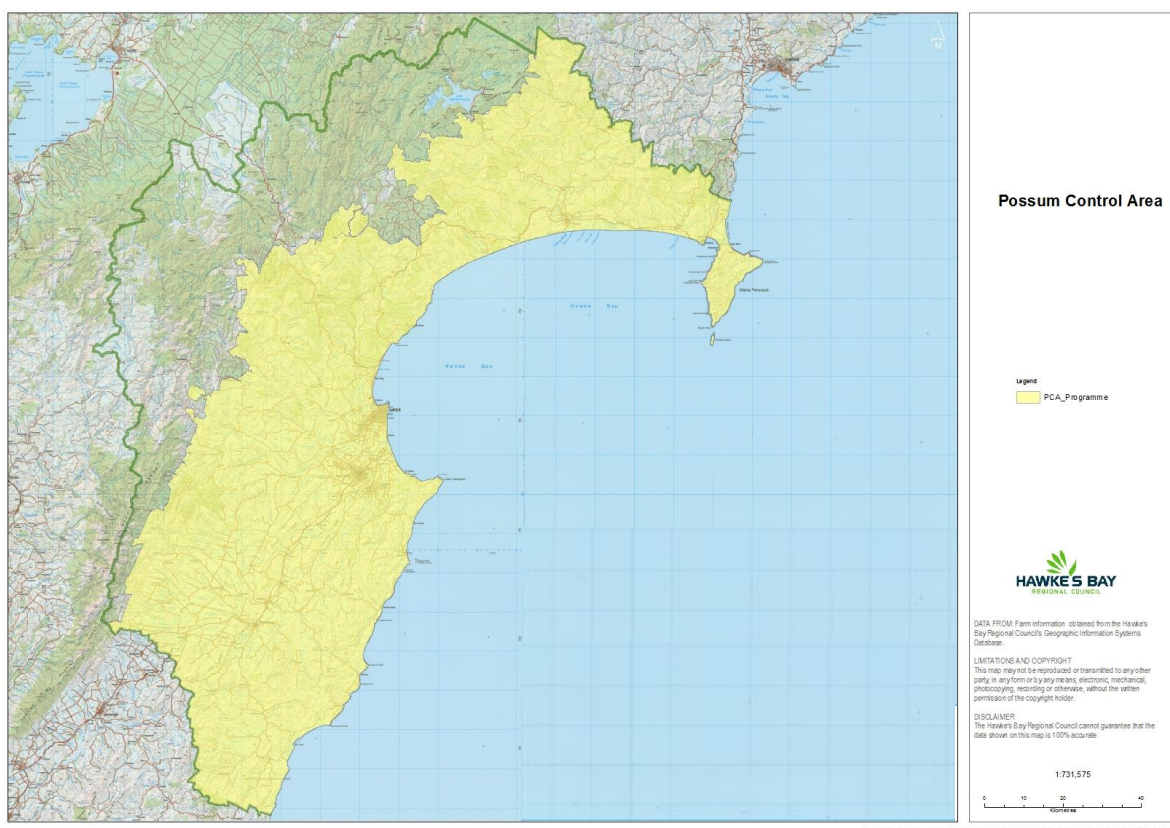


Figure 11: Possum Control Area (yellow)

Objective 11

Over the duration of the Plan, sustainably control possums contained within Possum Control Areas to ensure population density on that land is at or below 4% residual trap catch with no more than three possums in a single monitoring line, to minimise adverse effects on environmental values and economic well-being within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawing on **requirement to act, council inspection, service delivery, advocacy and education** activities described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 14

An occupier within a Possum Control Area (Figure 11 above) shall maintain possum densities on their land at or below 4% residual trap catch with no more than three possums in a single monitoring line, in accordance with the Hawke's Bay Regional Possum Control Technical Protocol (PN 4969). This rule does not apply if the property is under active possum management by the Hawke's Bay Regional Council or OSPRI.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to protect past investment in possum control by ensuring possum population levels remain below the threshold at which economic well-being and environmental values are threatened. The Council believes that requiring no more than three possums per monitoring line is an effective way of measuring the effectiveness of possum control efforts.

The Council is moving from an occupier responsibility model to council contractor delivery of possum control. This will take time to implement. Occupiers will continue to be responsible for possum control in the interim. However, once possums are being actively managed by the Hawke's Bay Regional Council the rule will no longer apply to occupiers. Further, the rule will not apply to any occupier who remains within a TB Management Area where possums are being actively managed by OSPRI.

Exemptions to possum control may be sought under section 87 of the Biosecurity Act 1993. The subsidy schemes associated with the PCA programme will be phased out as large-scale contracting is implemented across PCAs.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Plan Rule 15

Note: This is designated a Good Neighbour Rule

Except where an occupier of land has entered into a Written Management Agreement approved by Hawke's Bay Regional Council, an occupier within, or adjacent to, a Possum Control Area, shall, on receipt of a written direction from an Authorised Person maintain possum densities on their land at or below 5% residual trap catch with no more than three possums in a single monitoring line in 500 metres of the adjoining property boundary where the occupier of the adjoining property is also maintaining possum densities on their land at or below 5% residual trap catch. This rule will not apply to any occupier where possums are being actively managed by HBRC or OSPRI at or below 4% residual trap catch.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to manage the spread of possums causing unreasonable costs to the adjacent occupier where active possum management is being undertaken by that occupier.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.4.5 Predators (ferret, stoat, weasel and feral cat)

Background

As discussed in the Possum programme, Hawke's Bay Regional Council has been controlling possums since 2000 and has received a very high level of support for the PCA programme. This success and landowner support has provided the foundation for further strengthening PCA benefits.

Land owners within PCAs are now requesting predator control be undertaken for species such as feral cats and mustelids. Although feral cats are known to predate on native species, their role as a key vector of toxoplasmosis also concerns many land owners. In agriculture, toxoplasmosis has a significant impact on sheep production, with recent research suggesting there is a substantial economic impact to the Hawke's Bay region through loss of lambs. A survey undertaken of NZ sheep flocks in 2011 indicated 100% seroprevalence of toxoplasmosis in the flocks surveyed. Concern was also raised by land owners around mustelid impacts on biodiversity and ferrets as known TB vectors.

Predator pests such as mustelids and feral cats have a major adverse effect on NZ native flora and fauna. Predator Free New Zealand 2050 (PFNZ) and its associated funding is an important political and funding milestone in the war against predator pests. Public conservation land, sanctuaries, urban communities and farmland all have key roles in achieving a predator free nation.

Integrating predator control alongside PCA programmes can provide a key platform for delivering additional economic and environmental outcomes to land owners. This coupled with appropriately targeted intensive high biodiversity value site protection will provide the greatest likelihood of significant long term integrated biodiversity recovery and primary production benefits across the Hawke's Bay region.

However, Predator Control Areas will not replace Possum Control Areas. Rather, they are designed to add further value to possum control.

The Council will identify Predator Control Areas and will seek to enter into written agreements with individual landowners within those areas to undertake long term predator control maintenance. Once written agreements have been entered into with 75% or more of the total land area, the Council will undertake initial predator control work within the entire Predator Control Area. After initial predator control work has been undertaken, occupiers within the area will be required to maintain the listed pests in accordance with the Hawke's Bay Regional Predator Control Technical Protocol.

A Predator Control Area is defined as an area identified as a Predator Control Area in the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970) (the Protocol). The Protocol will contain mapped Predator Control Areas. These maps will be inserted into the Protocol once the 75% land area threshold has been reached and initial control work has been undertaken within the area. Once the



Source: Hawke's Bay Regional Council



Council has given notice in the NZ Gazette that the Protocol has been amended to include an additional map, the map will have legal effect as part of the RPMP. Thereafter occupiers within that mapped area will be required to comply with the requirements in the Protocol from the date specified in the Gazette notice.

Description

Ferrets, stoats, weasels are part of the mustelid family, which is a group of small to medium sized carnivores. Mustelids have large home ranges and are active day and night. They are opportunistic predators and have a strong musk odour. Ferrets are the largest mustelid in New Zealand.

Male **ferrets** grow up to 44cm and females up to 37cm in length. The undercoat is creamy yellow with long black guard hairs that give the ferret a dark appearance. A characteristic black face mask occurs across the eyes and above the nose.

Stoats have long, thin bodies with smooth pointed heads. Ears are short and rounded. They are smaller than ferrets. Males grow up to 30cm and females up to 25cm in length. Their fur is reddish- brown above with a white to yellowish underbelly. Stoats have relatively long tails with a distinctive bushy black tip.

Weasels are the smallest and least common mustelid in New Zealand. Males grow to about 20cm. Their fur is brown with white undercoat, often broken by brown spots. Their tails are short, brown and tapering.

Feral cats resemble domestic cats in both size and colouration. Coat colours vary from pure black to orange tabby and some resemble the striped dark and pale grey of the true European wild cat. Adult male cats are generally larger than the females and can weigh up to 5kg. Feral cats tend to be solitary and territorial compared to domestic stray or unwanted cats that tend to form colonies. Territory is marked by scent secreted from anal glands and by spraying urine. Feral cats are mainly active at night. Their vision and hearing are acute. Feral cats inhabit a wide range of urban, rural and forest habitats, from sea level to alpine habitats. Diet is wide-ranging and includes small mammals, fish, birds and invertebrates. They have 2-3 litters per year with an average of 4 young in each.

Adverse effects

Although habitat loss and modification remains a threat to native biodiversity, a more equally serious threat is from invasive introduced species. Introduced predators, such as ferrets, stoats, weasels and feral cats, pose a significant threat to our remaining natural ecosystems and habitats and threatened native species. They can also have considerable negative impact on primary production. Ferrets, stoats, weasels and feral cats are distributed throughout the Hawke's Bay region.

Mustelids were introduced in New Zealand in the 1880's in an attempt to manage growing rabbit populations. This introduction had minimal impact on rabbit densities but had a significant impact on New Zealand's biodiversity. Mustelids are implicated in the extinction of some indigenous bird species and as the major cause of decline of many others. Ferrets are also a threat to agriculture, particularly through their role as a vector (carrier) of bovine tuberculosis. Mustelids are a threat to poultry farms and carry parasites and toxoplasmosis, which can cause illness in humans and livestock.

Feral cats have been branded as 'the ultimate predators' in New Zealand and have been nominated as among 100 of the "World's Worst" invaders (Global Invasive Species Database, 2014). New Zealand's unique native wildlife is particularly vulnerable to predation by cats. Feral cats kill young and adult birds and occasionally take eggs, prey on native lizards, fish, frogs and large invertebrates. Cats are highly efficient predators, and have been known to cause local extinctions of seabird species on islands around the world. Both sea and land birds are at risk, particularly those that nest or feed on or near to the ground. Feral cats are implicated in a small way in the spread of bovine tuberculosis, with the potential to infect cattle. They also carry parasites and toxoplasmosis that causes abortions in

sheep and illness in humans. Feral and stray cats can be aggressive towards pet cats. Stray cats are likely to interbreed with the un-neutered domestic cat population and may spread infectious diseases.

Objective 12

Over the duration of the Plan, sustainably control stoats, ferrets, weasels and feral cats on land contained within Predator Control Areas to ensure population density on that land does not exceed levels outlined in the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970) to minimise adverse effects on environmental values and economic well-being within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawing on **requirement to act, council inspection, service delivery, advocacy and education** activities described in section 5.3 of the Plan will be used to achieve the Objective.

To assist achieving the Objective, Predator Control Areas will be established. Creating these areas will be done with agreement from landowners. The process and responsibilities to be followed are outlined in the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970).

Plan Rule 16

All occupiers within a Predator Control Area shall maintain ferrets, stoats, weasels and feral cats in accordance with the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970).

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The purpose of Predator Control Areas is to enable communities, who wish to do so, to create sustained low predator density areas to achieve both biodiversity and economic outcomes. If the community decides to form a Predator Control Area, whereby the 75% land area threshold is met, it is critical that there is a rule to protect the initial investment to be undertaken by Council and other partners. Securing this investment in the initial knockdown phase and binding land owners that would otherwise not participate and therefore potentially compromise the programme, is important to long term programme success.

All land owners/occupiers within a proposed Predator Control Area will be visited to discuss the programme. Land owners/occupiers will be asked if they are willing to sign up to a management agreement. Initial predator control work will not commence until the 75% land area threshold has been met. Upon completion of initial predator control, where predator abundance has been reduced to levels required under the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970), land occupiers within a Predator Control Area become responsible for maintaining stoats, ferrets, weasels and feral cats in accordance with the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970).

The Hawke's Bay Regional Council will give notice to affected land occupiers and in the NZ Gazette of the date on which an area becomes a Predator Control Area.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

6.4.6 Rabbits

Description

The wild European rabbit is a small mammalian herbivore, grey-brown (or sometimes black) in colour ranging in length from 34-50cm and weighing approximately 1.1 to 2.5kg. It has four sharp incisors (two on top, two on bottom) that grow continuously throughout its life, and two peg teeth on the top behind the incisors. They have long ears, large powerful hind legs to facilitate hopping movement, and short, fluffy tails. Their toes are long, and are webbed to keep from spreading apart as the animal jumps.



Source: Hawke's Bay Regional Council

While some may live up to seven years, its life span is generally much shorter, with high rates of natural mortality among young animals. They have a high capacity for reproduction and female rabbits (does) may be pregnant for 70% of a year. Early-born does may breed in their natal year. They can produce a total of 20 – 50 young per adult doe.

Females are also capable of adjusting litter sizes to food supply so rabbit populations are capable of rebounding quickly from natural disasters or control pressures.

Feral rabbits' preferred habitat is grassland below about 1000m altitude, with free draining soils, sunny aspect, and less than 1000mm annual rainfall. Their distribution and population density is reflected by a propensity of land to harbour populations of rabbits and the potential rate of population increase.

While much of Hawke's Bay is unlikely to attract more than the occasional number of rabbits, some parts of the region are favourably prone to infestations. In the past those prone areas have suffered major rabbit problems, however the spread of Rabbit Haemorrhagic Disease (RHD) throughout the region during the mid-1990's caused a significant drop in rabbit numbers. While numbers remain lower than historic pre RHD levels, recent trends indicate that the level of immunity to RHD in rabbits is increasing as are rabbit numbers. Rabbits are still susceptible to coccidiosis disease, prolonged wet conditions and predation by ferrets and cats.

Adverse effects

Rabbits can cause a number of adverse effects on economic well-being and environmental values particularly in the more rabbit-prone lands. At high numbers the control costs can be prohibitively expensive. Rabbits reduce available grazing for domestic stock and subsequently decreases the financial returns to landowners and their ability to fund control.

High rabbit numbers also assist in maintaining high predator (mustelid) numbers. This can lead to significant costs being incurred in situations where predators carry bovine tuberculosis.

On rabbit prone land, rabbits, often in conjunction with other grazing animals, may cause a number of environmental effects. These including:

- a) the depletion of many plant communities and species diversity;
- b) an increase in areas of bare ground as well as physical disturbance of the soil, both of which increase the risk of erosion;

- c) a reduction in soil organic matter through overgrazing, which, in turn, results in deterioration in the physical and nutrient properties of the soil; and
- d) adverse effects on indigenous and other fauna, when rabbit predators target alternative prey.

Objective 13

Over the duration of the Plan, sustainably control rabbits to ensure population levels are maintained below Level 4 on the Modified McLean Scale (2012) in order to minimise adverse effects on production and environmental values within the Hawke’s Bay region.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 17

Except where an occupier of land has entered into an active Written Management Agreement approved by Hawke’s Bay Regional Council, and upon receipt of a written direction from an Authorised Person, an occupier of land shall maintain rabbit populations at or below level 4 of the Modified McLean Scale from mid-January to mid-August, over any part of their land.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to maintain the population levels of rabbits to that which prevents adverse effects on the economic values of occupiers, and in so doing, prevent the possible adverse effects on wider environmental values.

Table 9: Modified McLean Rabbit Infestation Scale (2012) to assess rabbit population levels

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

B Programmes requiring boundary control only

There are a number of plant pests where regulatory control within a property is unwarranted because occupiers make adequate control decisions based on their individual requirements. However, the spreading attributes of the plants are such that control adjacent to property boundaries is still required. In particular, this requirement applies where an occupier is undertaking control and the neighbouring occupier is not or the control level is inadequate. The pests are listed in Table 10 below.

Table 10: Pests under sustained control programmes with boundary control only

| COMMON NAME | SCIENTIFIC NAME |
|---------------------|------------------------------|
| PLANTS | |
| Bathurst bur | <i>Xanthium spinosum</i> |
| Blackberry | <i>Rubus fruticosus</i> agg. |
| Gorse | <i>Ulex europaeus</i> |
| Nodding thistle | <i>Cardus nutans</i> |
| Ragwort | <i>Jacobaea vulgaris</i> |
| Variiegated thistle | <i>Silybum marianum</i> |

6.4.6 Bathurst bur

Description

Bathurst bur is a compact annual herb growing up to 1m tall. Stems have groups of three-pronged, stiff, yellow spines at the base of each leaf or branch. The leaves are dark grey to green, with prominent white veins and are almost silver underneath due to a cover of fine hairs. Its inconspicuous flowers develop into small oval brown burs, 10-12mm long, covered with hooked spines. The hooks aid dispersal by animal wool or hair, and clothing.

Bathurst bur grows in a range of habitats and is particularly invasive in wasteland and other open, unshaded areas. It is widespread throughout the Hawke's Bay region in both pastoral and cropping areas.



Source: Auckland Council

Adverse effects

Wool production value can be significantly affected if contaminated with the burs because of the difficulty of removal. Seedlings can be toxic when they are very small. Pigs are affected more than sheep or cattle. In cultivated land, infestations can swamp out crops. The spiky leaves and burs restrict both animal movement and recreational walking.

6.4.7 Blackberry

Description

Blackberry is a prickly, scrambling, deciduous, perennial shrub which grows from a woody rootstock into thickets up to 2m high. Stems (canes) are hairless, red-purple with many thorns and can be up to 7m long. Canes can develop roots wherever they touch the ground. Its leaves comprise three to five separate leaflets, each toothed along the edges, and are darker green on the upper than the lower side. The flowers are white to pink, 2-3cm in diameter with five petals. Edible berries 1-3cm long change from green to red to black as they ripen.



Source: Weedbusters

It inhabits roadsides, hedges, pasture, wasteland, forest and plantation margins, scrub, and the berms of waterways. Lightly grazed areas and wasteland in areas with moderate rainfall are particularly susceptible. It is spread mainly by birds, although stems will root where they touch the ground. It is widespread throughout the Hawke's Bay, particularly north of Napier.

Adverse effects

Blackberry is a very invasive pasture weed, growing into impenetrable thickets which not only reduce stock carrying capacity, but restrict access to streams and water supplies. Thickets entangle woolly sheep, even causing death, and provide ideal ground cover for pests such as rabbits, hares and possums. In forestry and urban areas, blackberry can be a major fire hazard.

6.4.8 Gorse

Description

Gorse is a sharply spinous, woody, leguminous perennial shrub and grows up to 4m tall. It has thick stems and an extensive lateral roots just below the soil surface, a deep taproot and forms impenetrable thickets. Plants and their yellow flowers are readily recognised. Seeds are contained in hairy pods 13-25 mm long which turn black when mature and explode to release the seeds, often up to 5m away. Seed set may occur twice a year.



Source: Weedbusters

Distribution of the seed may also occur by water, birds, road-making, gravel extractions, animals and machinery. The seed can remain viable in the soil for more than 50 years. The plant is however, shade intolerant and can be totally suppressed by light excluding overtopping vegetation.

Gorse is widely scattered across land throughout the region. Density varies from light to heavy depending upon the intensity of grazing management. It is most prevalent on lightly grazed and non-grazed areas such as low fertility pasture land, river areas and wasteland.

While its attributes contribute to it being a problem weed, those same attributes enable it to play a role in restoring tree vegetation. In particular, it acts as a nursery cover for indigenous forest regeneration where such a seed source exists.

Adverse effects

Where land is used for pastoral activities, gorse prevents stock access for grazing, is a fire hazard and increases management costs.

6.4.9 Nodding thistle

Description

Nodding thistle is a spiny leafed annual or biennial that can grow up to 1.5m in height. It has dark green upper surface leaves with irregular toothed lobes. Flowers are purplish-mauve and droop or “nod” at right angles to the stem when mature. It grows in pasture, on roadsides, on wasteland, and among crops. It thrives in all areas with light, free draining soil and low to medium rainfall. Drought prone areas in the Hawke’s Bay region are particularly susceptible. It is spread by stock, hay, machinery, water and wind.

Nodding thistle is widespread throughout the Hawke’s Bay region. However, biological control measures mean that in most seasons it is reasonably controlled.



Source: Auckland Council

Adverse effects

Where land is used for pastoral activities, nodding thistle prevents stock access for grazing, contaminates wool and increases management costs. Adjacent crops can also be contaminated.

6.4.10 Ragwort

Description

Ragwort is a branched, biennial or perennial plant, which grows 0.5-1.5m. It has numerous bright yellow flowers; slightly furry leaves and purplish coloured stems, which have an unpleasant smell when crushed.

Adverse effects

Where land is used for pastoral activities (cattle and deer), ragwort reduces available grazing and increases management costs. Adjacent crops can also be contaminated.



Source: Weedbusters

6.4.11 Variegated thistle

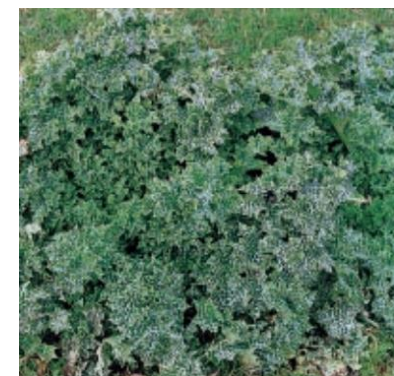
Description

Variegated thistle is a conspicuous, spiny, annual/biennial thistle. It forms a thick rosette of glossy dark green leaves with broad white patches around the veins on the upper surface. Flower heads are purplish-mauve. Drought conditions, such as those experienced in Hawke’s Bay, are ideal for the establishment of this plant. It is spread mainly by stock, birds, water and machinery.

Variegated thistle is widespread throughout the Hawke’s Bay region, especially in coastal areas.

Adverse effects

Where land is used for pastoral activities, variegated thistle prevents stock access for grazing, contaminates wool and increases management costs. Adjacent crops can also be contaminated.



Source: Hawke’s Bay Regional Council

Objective 14

Over the duration of the Plan, sustain control of:

- a) Bathurst bur and variegated thistle within 5 metres of an adjoining property; and
 - b) Blackberry and gorse within 10 metres of an adjoining property; and
 - c) Nodding thistle and ragwort within 20 metres of an adjoining property
- to protect economic well-being or recreational values within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 18

All occupiers shall, on receipt of a written direction from an Authorised Person, destroy all

- a) Bathurst bur and variegated thistle plants within 5 metres of the property boundary; and
 - b) blackberry and gorse plants within 10 metres of the property boundary; and
 - c) nodding thistle and ragwort plants within 20 metres of the property boundary
- on land that they occupy where an adjoining occupier is also destroying or the land is clear of, all
- a) Bathurst bur and variegated thistle plants within 5 metres of the property boundary; and
 - b) blackberry and gorse plants within 10 metres of the property boundary; and
 - c) nodding thistle and ragwort plants within 20 metres of the property boundary.

Council will administer the rule upon receiving a written complaint from the adjacent land occupier and/or at the discretion of the Authorised Person.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to prevent the plants from seeding within a zone that is capable of spreading to the adjacent property where the occupier is taking similar pest management.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

C Programmes for phytosanitary purposes

Hawke's Bay currently has around 6,000 planted hectares of pipfruit orchards (61% of the national production area) and 70% of the national production at 247,000 tonnes. The pipfruit industry is worth around \$300 million to the Hawke's Bay economy annually. Most orchards in Hawke's Bay have a combination of pipfruit varieties with individual businesses operating orchards ranging from 2 to more than 30 hectares. Fifteen percent of businesses have orchards more than 30 hectares, while there is still a significant portion operating less than 5 hectares (28%).

Apple production is cyclic in nature. From 2002 to 2012 there was more than a 112% reduction in the area of pipfruit planted in Hawke's Bay as growers removed uneconomic blocks of mainly Braeburn and Royal Gala due to increased production expenses, poor consumer demand and an appreciating exchange rate of the NZ dollar.

Since 2012, the industry has gone through a period of growth with increased productivity, realised high returns for new varieties and expanding export into high value Asian markets. As a result, the planted area in Hawke's Bay has grown again by 14%.

With the cyclic nature of crop production, it can be expected that the current years of good return may be followed by some downturn years when growers seek to leave the industry, particularly small to medium sized owner-operators without long-term strategic relationships with exporters and packers.

When people choose or consider whether or not to leave the pipfruit production sector during periods of downturn, New Zealand Apples & Pears Incorporated wishes to ensure that the occupiers of all pipfruit production sites continue to manage and control all the phytosanitary pests on their properties in accordance with industry best practise. This management is to ensure that pipfruit production levels remain high, access to international markets is maintained, and that costs for all growers are kept as low as possible.

In addition, biosecurity is critically important to sustained growth and profitability of the NZ apple and pear industry. NZ Apples & Pears biosecurity vision is that the industry, our stakeholders and local communities are all kept safe and secure from damaging pests and diseases. NZ Apples & Pears have been partners of the Government Industry Agreement (GIA) since 2014. The GIA operates as a partnership between primary industry and government to manage pests and diseases that could badly damage New Zealand's primary industries, economy and environment.

With biosecurity pests such as brown marmorated stink bug and Queensland fruit fly having the potential to significantly damage the NZ industry, it is imperative that strategies are in place to ensure unmanaged production sites are inspected and growers remain vigilant for biosecurity threats.

Therefore to ensure the continued success of the pipfruit industry in Hawke's Bay, the Regional Phytosanitary Pest Management Strategy outlines methods to ensure that occupiers of unmanaged pipfruit production sites control the phytosanitary pests on their land.

The controls in this Plan are designed to support New Zealand Apples & Pears Inc. with its overall phytosanitary and other orchard pest management strategies and protocols necessary for growing pipfruit successfully.

The pests for phytosanitary control purposes are list in Table 11 below.

Table 11: Pests under sustained control programmes for phytosanitary purposes

| COMMON NAME | SCIENTIFIC NAME |
|------------------------------------|-----------------------------|
| PHYTOSANITARY INSECTS | |
| Codling moth | <i>Cydia pomonella</i> |
| Lightbrown apple moth (Leafroller) | <i>Epiphyas postvittana</i> |
| PHYTOSANITARY DISEASES | |
| Apple black spot | <i>Venturia inaequalis.</i> |
| European canker | <i>Neonectria ditissima</i> |
| Fireblight | <i>Erwinia amylovora</i> |

6.4.12 Apple black spot

Description

Apple Black spot is a fungal disease of apples, often referred to as apple scab outside of New Zealand. Apple black spot is a different fungus to pear black spot, and black spot on roses.

Apple black spot is found all over the world wherever apples are grown. In New Zealand, black spot is a common problem in all regions.

Apple Black spot is a wet weather disease. Rainy and humid conditions early in the growing season provide ideal conditions for infection. In general, the higher the temperature and the longer it rains, the more severe the infection period will be. Apple black spot is spread mainly through windblown leaves which carry spores of the fungus.



Source: Plant and Food Research

Adverse effects

Infection early in the season may cause misshapen fruit. By harvest, spots are dried, cracked, and brown with a black outer edge. Infection just prior to or during harvest causes small black “pepper spotting” on fruit.

Late season infection may lead to symptoms appearing in cool storage even though there may be no signs of the disease at packing.

Even the smallest black spot is unacceptable on an export apple.

6.4.13 Codling moth

Description

Codling moth is common throughout New Zealand. It was accidentally introduced to New Zealand early in European settlement and is now found wherever apples are grown and is found extensively throughout the North Island. Codling Moth is a small speckled, grey moth, hosted by apple, pear and walnut trees. Frass (droppings) indicate the presence of larva. Codling Moth over-winters as a dormant caterpillar in a cocoon under the bark of the tree or in the soil. In most southern regions throughout New Zealand, codling moth has one generation per year. In the North Island, codling moth usually has one and a half to two generations.



Source: Te Ara

Adverse effects

The larvae of codling moth burrows into fruit leaving a small hole that result in the fruit being rejected for sale. The dispersal ability of codling moth has very important implications for management. With high levels of control achieved by insecticides or mating disruption, the resident population of codling moth in most orchards is extremely low. As a result, the immigration of codling moth adults into orchards is often greater than the resident population, and the removal of outside sources (e.g. neglected apple trees) can make a major contribution to control. 90% of mated females move within 300m of their emergence point and maximum dispersal may be as low as 600m.

A key concern for codling moth management is the increased export into high value Asian markets where it is a significant quarantine pest.

6.4.14 European canker

Description

European canker is a fungal disease that if left unmanaged, can spread and resulting in the removal of whole trees and complete blocks. Rain splash and wind spread the spores and fruiting bodies of European canker. European canker can also be spread through the movement of affected plants or plant parts. The disease can spread at any time of year as infected trees can produce spores in a broad range of temperatures. There are many hosts of European canker including neighbouring orchards and broadleaf trees such as birch, beech, oak and ornamentals.



Source: NZ Apples and Pears

Adverse effects

Initial symptoms of European canker are a small sunken area around a bud, leaf scar, or at the base of a small dead shoot or open wound. Concentric rings of canker growth then appear. The sunken area increases in size. The centre of infection becomes flaky. Eventually cankers girdle the stem, and shoots above the canker die. The fungus can cause fruit rot, which is a quarantine concern in some markets.

NZ Apples & Pears Inc. has issued a European Canker Management strategy to all growers.

6.4.15 Fireblight

Description

Fireblight is a bacterial disease. World-wide, Fireblight is found throughout North America and Canada and much of Europe.

Isolated outbreaks of fireblight occur throughout New Zealand. Pink Lady™, Gala, Royal Gala, Golden Delicious, and all pears are particularly susceptible. Other plants that can be affected by Fireblight are quince and ornamental plants of the Roseaceae family including cotoneaster, hawthorn and pyracantha.

Adverse effects

Trees are most prone during October when temperatures exceed 16°C, humidity is high and blossom is present. If unchecked, blossom infection can result in “shepherds crook” of the shoot. Blossoms appear water soaked then turn brown and finally black. Young fruit if infected turn brown, then black, wilt and drop off. The industry has become more susceptible to fire blight in recent years with an increase in susceptible rootstocks, varieties, new plantings and high density orchard systems. Fireblight is a quarantine concern for countries such as Japan and Australia.



Source: Nelson City Council

6.4.16 Lightbrown apple moth

Description

The lightbrown apple moth is native to Australia and the larvae feed on a wide range of plants including fruit crops, broad-leaved weeds, some vegetables and ornamentals.

Lightbrown apple moth adults are variable in colour and may be confused with other leafroller moths. Typical males have a forewing length of 6-10mm with a light brown area at the base distinguishable from a much darker, redbrown area at the tip. The latter may be absent, the moth appearing uniformly light brown, as in the females, with only slightly darker oblique markings distinguishing the area at the tip of the wing. Females have a forewing length of 7-13mm. Colour varies from a uniform light brown, with almost no distinguishing markings.



Source: Plant and Food Research

Larvae (caterpillars) are not easily distinguished from the larvae of other leafrollers. The first larval instar (stage) has a dark brown head; all other instars have a light fawn head and prothoracic plate (plate behind the head). Overwintering larvae are darker. First instar larvae are approximately 1.6mm long, and final instar larvae range from 10-18mm in length. The body of a mature larva is medium green with a darker green central stripe and two side stripes.

Pupae are at first green, but become medium brown after rapidly hardening.

Adverse effects

The larvae cause damage to foliage and fruit. Early instars feed on tissue beneath the upper epidermis (surface layer) of leaves, while protected under self-constructed silken webs on the under surface of leaves. Larger larvae migrate from these positions to construct feeding niches between adjacent

leaves, between a leaf and a fruit, in the developing bud, or on a single leaf, where the topical leaf roll develops. The late stage larvae feed on all leaf tissue except main veins.

Superficial fruit damage is common in apple varieties which form compact fruit clusters. Leaves are webbed to the fruit and feeding injury takes place under the protection of the leaf; or larvae spin up between fruits of a cluster. Internal damage to apple, pear, and citrus fruits is less common, but a young larva may enter the interior of an apple or pear fruit through the calyx or beneath the stem of a citrus fruit. Excreta are usually ejected on to the outside of the fruit; this does not happen with the codling moth. The issue with lightbrown apple moth is the potential increased phytosanitary risk posed to key markets such as the USA.

Objective 15

Over the duration of the Plan, sustainably control apple black spot, codling moth, European canker, fireblight and lightbrown apple moth on unmanaged pipfruit production sites to protect economic well-being of the pipfruit industry within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Plan Rule 19

Occupiers of unmanaged pipfruit production sites shall, on receipt of a written direction from an Authorised Person, control:

- a) apple black spot (*Venturia inaequalis*) on their land from the presence of green tips until fruit maturity/harvest; and
- b) codling moth (*Cydia pomonella*) on their land if five (5) or more codling moths are caught in any one codling moth pheromone trap during any calendar week on their land;
- c) European canker (*Neonectria ditissima*) by inspecting all pipfruit trees on their land at least four times during the year, applying post-harvest sprays if canker is found and removing and burning all infected pipfruit tree parts showing any presence of European canker; and
- d) fireblight (*Erwinia amylovora*) on their land during the pipfruit bloom period (from pink to petal fall); and
- e) lightbrown apple moth (Leafroller) (*Epiphyas postvittana*) on their land once thirty (30) lightbrown apple moths are caught in any one lightbrown apple moth pheromone trap on their land from the 15th December until fruit harvest.

A breach of this rule creates an offence under section 154N (19) of the Act.

Explanation of rule

The reason for this rule is to prevent the spread of these pests from an unmanaged pipfruit production property to the adjacent property that is being managed.

This rule provides regulatory protection in situations of inaction by an occupier. Prior to the issue of a direction from an Authorised Person, an occupier of a managed pipfruit production site and the Hawke's Bay Fruit Growers Association will have followed a number of prerequisite steps aimed at resolving any inaction concerns. Those steps are outlined below in the **Hawke's Bay Fruit Growers Association (HBFGA) Management Approach**.

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Hawke's Bay Fruit Growers Association (HBFGA) Management Approach

Resolving apple black spot, codling moth, European canker, fireblight or lightbrown apple moth control disputes between neighbouring parties will be undertaken by HBFGA in the first instance. Mediation will be carried out in an attempt to achieve one of the following:

- a) The occupier of pipfruit production sites manage, at their cost, the phytosanitary pests on their land in accordance with either the NZ Apples & Pears Inc. Integrated Fruit Production Manual, J Hughes et al., or Technical Bulletin #004: Organic apple production (New Zealand Pipfruit Limited)" and subsequent amendments to these documents.
- b) The occupier of an unmanaged pipfruit production site allows an affected adjacent pipfruit production site to manage their land in a manner that reduces the level of risk. Costs of control could be agreed between the two sites.
- c) The occupier of an unmanaged pipfruit production site, at no cost to adjacent managed pipfruit sites, removes their pip-fruit trees.

All occupiers of pipfruit production sites are expected to undertake monitoring for the presence of apple black spot, codling moth, European canker, fireblight or lightbrown apple moth (phytosanitary pests) over their properties.

Where monitoring shows the presence of any phytosanitary pest along a boundary of a pipfruit production site above the thresholds stated in the rules of this Plan and the affected property is being managed in accordance with industry best practice, as indicated by adherence to the rules in this Plan, then the affected occupier will contact the occupier of the adjacent unmanaged pipfruit production site to seek agreement that they will control phytosanitary pests similarly

Note that more specific details of industry best practice for the management of a fruit production site are set out in either the Technical Bulletin #004: Organic apple production, (September 2002), or the New Zealand Pipfruit Integrated Fruit Production Manual, (August 2001), and any subsequent amendments. These documents are available to the managers of pipfruit production sites in Hawke's Bay through New Zealand Apples & Pears Inc.

Where the adjacent pipfruit production site occupier does not agree to control phytosanitary pests, then the affected occupier may contact HBFGA advising them of the problem. HBFGA will act as an independent third party and investigate the issue and try to seek agreement for the control of phytosanitary pests.

HBFGA will advise the occupier of the unmanaged pipfruit production site that a complaint has been received regarding their inaction to control phytosanitary pests on their land, and that HBFGA is now investigating the issue.

If pest monitoring on the affected managed pipfruit production site over a reasonable time period confirms that:

- there is a clear difference in the management inputs required to control phytosanitary pests compared to the previous three years; and
- monitoring results indicated that the phytosanitary pest outbreak is more severe along the boundary with the adjacent unmanaged pipfruit production site;

then HBFGA will advise the occupier of the unmanaged pipfruit production site(s), that they are deemed to be an exacerbator of phytosanitary pests. HBFGA will be entitled to give the occupier of the unmanaged pipfruit production site(s) 14 days to reach an agreement with the affected owner regarding the control measures for the phytosanitary pests, and to undertake the necessary control measures. If agreement cannot be reached and/or control is not undertaken within that time, HBFGA will advise Hawke's Bay Regional Council of the situation and seek a direction to control phytosanitary pests on the unmanaged pipfruit production site.

On receiving advice regarding the situation, Hawke's Bay Regional Council will initiate appropriate enforcement procedures under the Biosecurity Act for the control of the phytosanitary pests.

6.5 Ngā orotā ka āta mātaitia i raro i ngā hōtaka whakahaere a tēnā wāhi, a tēnā wāhi / Pests to be managed under site-led programmes

Background

New Zealand's biodiversity is unique worldwide and in decline despite significant efforts from agencies, organisations, community groups and individuals. Pest management, habitat protection (e.g. via fencing) and habitat restoration/creation (e.g. via planting) are key management measures in halting biodiversity decline. This Plan significantly assists delivery of the first of those drivers. The pests listed under the site-led programmes, and most of the other pests included in this Plan, are capable of damaging habitats and important ecosystem processes, or competing with indigenous species for food, or prey directly on native species.

This programme sets out to protect areas of ecological importance. These areas are defined as sites identified through:

- Ecosystem Prioritisation (Hawke's Bay Regional Council)
- Recommended Areas for Protection (Department of Conservation)
- Sites of Special Wildlife Interest (Department of Conservation)

These sites have been identified as having high biodiversity values in Hawke's Bay. The aim of identifying these sites is to enact protection and halt biodiversity decline. A copy of these sites can be provided on request from Hawke's Bay Regional Council.

Before Council can assist a landowner to protect and improve the native biodiversity at any specific site the ecological and biodiversity values need to be determined.

This Plan provides Council with the ability to use, where necessary, appropriate provisions under the Biosecurity Act 1993 to ensure pest control activities undertaken at a site are protected from inaction by owners, both existing and new or adjacent.

What is a site led programme?

A site-led programme is the coordinated and integrated control of pests in a defined area that aims to protect and restore specific ecological or biodiversity values which are threatened or compromised by pests. Site led programmes focus on the ecological or biodiversity values of the site rather than simply the control of pests. Values of sites can be put at risk by factors other than the presence of pests and these need to be taken into consideration before embarking on a site-led pest programme (e.g. fencing out stock).

A range of outcomes can be achieved through site led management. For example:

- integrity of ecosystems are protected and enhanced;
- optimised ecological health where the benefits outweigh the costs;
- positive response to/or support of community concerns;
- improvement in breeding success and densities of native fauna;
- reduced soil erosion and subsequent soil conservation; and
- improvement in water quality.

The Council will monitor for the achievement of the outcomes being sought, rather than focusing on the output associated with traditional pest management.

Pests to be included in site-led programmes are listed in Table 12 below.

Table 12: Pests included in site-led programmes

| COMMON NAME | SCIENTIFIC NAME |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feral cat | <i>Felis catus</i> |
| Feral deer incl. hybrids (red, wapiti, sika, samba, rusa, fallow and white-tailed) | <i>Cervus elaphus scoticus</i> , <i>C. elaphus nelsoni</i> , <i>C. nippon</i> , <i>C. unicolor</i> , <i>C. timorensis</i> , <i>Dama dama dama</i> , <i>Odocoileus virginianus</i> |
| Feral goat | <i>Capra hircus</i> |
| Feral pig | <i>Sus scrofa</i> |
| Hedgehog | <i>Erinaceus europaeus</i> |
| Mustelids (ferret, stoat, weasel) | <i>Mustelo furo</i> , <i>M. ermine</i> , <i>M. nivalis</i> |
| Possum | <i>Trichosurus vulpecula</i> |
| Rat (Norway and ship) | <i>Rattus norvegicus</i> , <i>R. rattus</i> |

6.5.1 Feral cat

For the description and adverse effects of feral cats, please see page 68.

6.5.2 Feral deer (incl. hybrids)

Description

Medium- to large-sized ungulates ranging in weight from 40kg (female white tailed) to 450kg (wapiti male).

Red deer have a reddish brown coat. **Wapiti** are chestnut brown with a distinctive cream rump. **Samba** have dark brown coats with a tan-rust red rump. **Rusa** are dark reddish-brown. **Sika** deer have a black dorsal stripe, white rump, chestnut brown sides with white spots. **White tailed** deer have light brown coats with white undersides and rump. **Fallow deer** have coats of varying brown colours.

Feral deer live in a wide range of habitats, particularly forest. They consume large quantities of native seedlings and saplings, which reduces vegetation biomass, leading to failure in recruitment of a range of woody and herbaceous species and alters habitat for native fauna.

Adverse effects

Heavy and selective browsing on trees and shrubs can change forest structure and the composition of the understorey. Palatable plant species such as schefflera/pate, broadleaf, three-finger, lancewood, and hen and chicken fern can be all but removed from the ground tier. Sika often target species considered unpalatable to other deer.



6.5.3 Feral goat

For the description and adverse effects of feral goats, please see page 62.

6.5.4 Feral pig

Description

Adult feral pigs can measure 90-200cm in length, and weigh 50-90kg. Their colour varies from dark grey to brown or black. Adult males develop tusks that protrude from their mouth. Sexually mature at two years of age, they breed once per year with litter size ranging from 4-6 piglets. The piglets are weaned at 3-4 months of age.

Feral pigs are found in a wide range of habitats but mostly prefer to live on farmland and rough hill country that includes thick and extensive scrub cover. Vegetation forms 70% of pig diet. Pig rooting can reduce the diversity of seedlings and saplings and cause a dramatic reduction in leaf cover on the forest floor.



Adverse effects

Pigs are a known vector of bovine TB and can also spread other diseases and infectious microbes through the forest. They can significantly damage pasture by rooting, often leaving it in a 'state of cultivation'. Predation on lambs has also been observed.

Feral pigs can also have a major impact on native flora and fauna. They eat the tops of native plants and dig up their roots, resulting in the decline of some species. They also eat many native invertebrates, native land snails and large quantities of native earthworms. Pig predation of flightless and ground-dwelling birds (e.g. kiwi) has been suggested but rarely confirmed.

6.5.5 Hedgehog

Description

The hedgehog is an unmistakable small nocturnal mammal, grey-brown in colour with its back and sides entirely covered with spines. They are 150-250 mm in overall body length and reach a maximum of around 1 kg, but their weight can drop dramatically during winter hibernation.

In winter, hedgehogs hibernate. In spring the long breeding season starts, with young born as late as May. Two litters can be produced per year, each of 4-7 young, which are independent after about 7 weeks.

Hedgehogs' preferred habitat is lowland pastoral areas, and they become less common with increasing altitude. Although previously thought to be mostly absent from extensive forest, recent studies show they are regularly trapped within large forest tracts and are found above the bush line in extensive forest areas such as the Kawekas. Home ranges are not defended and can overlap with many others. Hedgehogs will usually have several daytime nests, which are sometimes used by other hedgehogs when not occupied.



Source: Department of Conservation

Hedgehogs are mainly insectivorous, with key prey items being slugs, snails and larger insects, but will eat almost any animal substance and some plant material. They find much of their prey by smell.

Adverse effects

The extent of hedgehogs impact upon the New Zealand environment is only recently beginning to be understood in any detail. They are voracious nocturnal predators, consuming invertebrates, ground nesting birds' eggs and small reptiles. They are also a vector to a wide variety of human, bird, pet and agricultural diseases, including bovine TB.

Hedgehogs are known to be a major predator on eggs of riverbed breeding birds such as banded dotterel and black-fronted tern, and kill and eat chicks of a variety of ground-nesting birds. In the MacKenzie Basin (South Island), hedgehogs have been found to be responsible for one in five predator attacks on nests. They are known to eat the rare giant native centipede, wētā, and other rare insects. Hedgehogs also prey upon lizards, particularly in cooler periods when lizard activity slows.

It is possible that hedgehogs also prey on endemic frog species, as they are known to take introduced frogs and their range overlaps with some New Zealand frog species.

6.5.6 Mustelids (ferret, stoat, weasel)

For the description and adverse effects of mustelids, please see page 68.

6.5.7 Possums

For the description and adverse effects of possums, please see page 39.

6.5.8 Rats (ship and Norway)

Description

The **ship rat** is a slender rat with large hairless ears, grey-brown on the back with a similarly coloured or creamish-white belly, or black all over. The uniformly-coloured tail is always longer than the head and body length combined. Adults usually weigh 120-160g but can exceed 200g.

Norway rats have brown fur on their backs and pale grey fur on their bellies. Adults normally weigh 150-300g, may reach up to 500g, and are up to 390mm long. They have relatively small ears which usually do not cover the eyes when pulled forward. Tail is shorter than head-body length.

Breeding by both types of rat commences as early as 3-4 months of age. Females can produce 15-20 young per year. Mortality can be high.

They inhabit a wide range of urban, rural and forest habitats. Ship rats are more common within forest areas.

Adverse effects

Omnivorous and opportunistic feeders eat 10% of their body weight per day. This makes them a competitor for food with many species and predators of others. They eat a variety of native flora and fauna, in particular native birds (eggs and fledglings), lizards, and invertebrates. They eat large quantities of native seeds, which reduces regeneration of native plants.



Objective 16

Over the duration of the Plan, support sustainable control of population levels of feral cats, feral deer, feral goats, feral pigs, hedgehogs, mustelids, possums and rats at sites of ecological importance to levels appropriate for the protection of ecological values, recreational values and economic well-being within the Hawke's Bay region.

Principal measures to be used

Appropriate measures drawn from **the requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Plan will be used to achieve the Objective.

Primarily, the Council will assist willing land occupiers by undertaking or arranging suitable control programmes. The exception is managing goats where regulatory provision is made for certain circumstances (please refer 6.4.6 Feral goat).

Advice note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of these rules creates an offence under section 154(O) of the Act.

Please note that this means pests listed in site-led programmes (Table 12 above) cannot be released from containment in any part of the Hawke's Bay region, including deer, goats and pigs.

7 Te mātaītanga orotā / Monitoring

7.1 Te ine i ngā hua kei te puta / Measuring what the objectives are achieving

| PEST | ANTICIPATED RESULT | INDICATOR | METHOD OF MONITORING | FREQUENCY OF MONITORING | FREQUENCY OF REPORTING |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Exclusion Programmes | | | | | |
| Wallaby Noogura bur Alligator weed Marshwort Senegal tea Spartina Sabella Styella | No exclusion pests establish in the Region | No exclusion pests found in the region | Undertake inspections of high risk areas and respond to reports | Annually | Annually |
| Eradication Programmes | | | | | |
| African feather grass Cathedral Bell Goats rue Phragmites Purple loostrife Spiny emex White-edged nightshade Yellow water lily | All known sites controlled to zero density by 2028 | Extent and density of subject pest in the region | Inspection of all known sites. Surveillance of areas vulnerable to invasion | Annual/bi-annual inspections until zero-density has been achieved Annual for five years after zero-density has been achieved Biennial inspections after that | Annually |
| Possums | Possum eradication areas maintained as per the Hawke's Bay Regional possum eradication Technical Protocol | Possums do not establish breeding populations within possum eradication areas | Surveillance programme using current tools (chew cards, cameras) and new tools as they become available | Annually | Annually |
| Rooks | All known rookery sites controlled to zero active nests | Number of active nests in the region | Inspection of all rookeries. Surveillance of areas where rookeries may establish | Annually | Annually |

| PEST | ANTICIPATED RESULT | INDICATOR | METHOD OF MONITORING | FREQUENCY OF MONITORING | FREQUENCY OF REPORTING |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------|
| Progressive Containment Programmes | | | | | |
| Apple of Sodom Australian sedge Cotton thistle Wilding conifers Nassella tussock Saffron thistle Woolly nightshade Darwin's Barberry Velvet leaf | Reduction in extent and density of these pests in the region. Pests do not establish in new areas in the region | Extent and density of subject pest in the region | Inspection of all known sites. Surveillance of areas vulnerable to invasion | Annually 3-5 yearly inspection of <i>Pinus contorta</i> | Annually |
| Japanese honeysuckle | Reduction in extent and density within the Japanese honeysuckle progressive containment area | Extent and density of Japanese honeysuckle within the progressive containment area | Inspection within the progressive containment area | Annually | Annually |
| Old man's beard | Reduction in extent and density within the old man's beard progressive containment areas | Extent and density of old man's beard within the progressive containment areas | Inspection within the progressive containment areas | Annually | Annually |
| Sustained Control Programmes | | | | | |
| Feral goats (Coordinated Management areas) | Feral goat CMA areas are established and feral goats are maintained as per written management agreements | No more than 10% of properties breach written management agreements All management agreement breaches are responded to within 5 working days with a remedial plan in place within two months | Audit of feral goat densities A register is kept of all management agreement breaches and response times | 3-5 yearly Annually | Annually Annually |
| Possums (Possum Control Areas) | Possum densities maintained at or below 4% RTC | Possum monitoring trend/education data | Residual trap catch index (RTCI) or chew card index | Annually | Annually |
| Predators (Predator Control Areas) | Predator densities maintained as per the Hawke's Bay Regional Predator Control Technical Protocol | Predator monitoring trend/education data | As per the Hawke's Bay Regional Predator Control Technical Protocol | Annually | Annually |

| PEST | ANTICIPATED RESULT | INDICATOR | METHOD OF MONITORING | FREQUENCY OF MONITORING | FREQUENCY OF REPORTING |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------|------------------------|
| Rabbit | Rabbits are maintained below level 4 on the McLean Scale | Regional rabbit monitoring trend data Complaints/enquiries received | Modified McLean Scale (2012) | Annually | Annually |
| Pest Plants (Boundary Control) | Prevent the spread of these pests onto adjacent, uninfested properties | Number of properties requiring boundary control enforcement | Boundary control enforcement register | Annually | Annually |
| Chilean needle grass | Minimise the spread of Chilean needle grass within the region | Extent of Chilean needle grass in the region | Inspection of all known sites. Surveillance of areas vulnerable to invasion | Annually | Annually |
| Privet | Minimise significant adverse effects of privet on human health | Number of privet complaints received | Privet complaints register Number of properties where privet was removed | Annually | Annually |
| Yellow bristle grass | Minimise the spread of yellow bristle grass within the region | Extent of yellow bristle grass in the region | Surveillance of known distribution. Surveillance of areas vulnerable to invasion | Annually | Annually |
| Site led Programmes | | | | | |
| Feral cat Feral deer Feral goat Feral Pig Hedgehog Ferret Rat (ship and Norway) Stoat Weasel | Support community in minimising adverse effects of these pests on natural ecosystems | Number of hectares under a site specific programme | Site specific pest control areas mapped on ArcGIS | Annually | Annually |

| PEST | ANTICIPATED RESULT | INDICATOR | METHOD OF MONITORING | FREQUENCY OF MONITORING | FREQUENCY OF REPORTING |
|--------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|------------------------|
| Organisms of Interest | | | | | |
| Argentine ant | Support community in minimising adverse effects of these pests on natural ecosystems | Number of community projects receiving assistance in managing these pests | A register is kept containing number of community projects receiving assistance | Annually | Annually |
| Australian tubeworm | | | | | |
| Banana passionfruit | Minimise the impact of these pests at sites managed through the Ecosystem Prioritisation process | Number of hectares managed under the Ecosystem Prioritisation process | Sites are mapped on ArcGIS | | |
| Blue morning glory/Convolvulus | | | | | |
| Boneseed | | | | | |
| Broom | | | | | |
| Canada goose | | | | | |
| Chilean flame creeper | | | | | |
| Climbing spindle berry | | | | | |
| Darwin's ant | | | | | |
| Eastern rosella | | | | | |
| Feral goose | | | | | |
| Feral pigeon | | | | | |
| Hare | | | | | |
| Horehound | | | | | |
| Hornwort | | | | | |
| Lesser calamint | | | | | |
| Magpie | | | | | |
| Mothplant | | | | | |
| Pampas | | | | | |
| Parrot's feather | | | | | |
| Pink ragwort | | | | | |
| Purple ragwort | | | | | |
| Reed sweet grass | | | | | |
| Wasp German and European | | | | | |
| Water celery | | | | | |
| Wild cotoneaster | | | | | |

7.2 Te aroturuki i ngā mahi a te tari whakahaere / Monitoring the management agency's performance

As the management agency responsible for implementing the Plan, the Hawke's Bay Regional Council will report on the operational plan each year, within 5 months after the end of each financial year.

7.3 Te aroturuki i te whaihua o te mahere / Monitoring plan effectiveness

Monitoring the effectiveness of the Plan will ensure that it continues to achieve its purpose. It will also check that relevant circumstances have not changed to such an extent that the Plan requires review.

A review may be needed if:

- (a) the Act is changed, and a review is needed to ensure that the Plan is not inconsistent with the Act;
- (b) other harmful organisms create, or have the potential to create, problems that can be resolved by including those organisms in the Plan;
- (c) monitoring shows the problems from pests or other organisms to be controlled (as covered by the Plan) have changed significantly; or
- (d) circumstances change so significantly that the Council believes a review is appropriate.

If the Plan does not need to be reviewed under such circumstances, it will be reviewed in line with s100D of the Act. Such a review may extend, amend or revoke the Plan, or leave it unchanged.

The procedures to review the Plan will include officers of the Council:

- assessing the efficiency and effectiveness of the principal measures (specified for each pest and other organism (or pest group or organisms) to be controlled to achieve the objectives of the Plan;
- assessing the impact the pest or organism (covered by the Plan) has on the region and any other harmful organisms that should be considered for inclusion in the Plan; and
- liaising with key interest groups on the effectiveness of the Plan.

8 Te mana uhia / Powers conferred

8.1 Ngā mana e ahu mai ana i te Wāhanga Tuaono o te Ture / Powers under Part 6 of the Act

The Principal Officer (Chief Executive) of Hawke’s Bay Regional Council or Chief Technical Officer (appointed by the Director-General and employed under the State Sector Act 1988) may appoint authorised persons to exercise the functions, powers and duties under the Act in relation to a Plan. The Council will use those statutory powers of Part 6 of the Act as shown in Table 13, where necessary, to help achieve the objectives of the Plan, and give effect to its management.

Table 13: Powers from Part 6 to be used

| AMINISTRATIVE PROVISIONS | BIOSECURITY ACT REFERENCE | LEVEL OF DELEGATION |
|------------------------------------------------------|---------------------------|-------------------------------|
| The appointment of authorised and accredited persons | Section 103(3) & (7) | Principal officer the Council |
| AP to comply with instructions | Section 104 | Principal officer the Council |
| Delegation to authorised persons | Section 105 | Principal officer the Council |
| Power to require assistance | Section 106 | Authorised person |
| Power of inspections and duties | Section 109, 110 & 112 | Authorised person |
| Entry in respect of offence | Section 111 | Authorised person |
| Power to record information | Section 113 | Authorised person |
| General powers | Section 114 | Authorised person |
| General powers | Section 114A | Principal officer the Council |
| Use of dogs and devices | Section 115 | Authorised person |
| Power to seize evidence | Section 118 | Authorised person |
| Power to seize abandoned goods | Section 119 | Authorised person |
| Power to intercept risk goods | Section 120 | Authorised person |
| Power to examine organisms | Section 121 | Authorised person |
| Power to apply article or substance to place | Section 121A | Authorised person |
| Power to give directions | Section 122 | Authorised person |
| Power to vaccinate | Section 123 | Authorised person |
| Power to act on default | Section 128 | Principal officer the Council |
| Liens | Section 129 | Principal officer the Council |
| Declaration of restricted areas | Section 130 | Authorised person |
| Declaration of controlled areas | Section 131 | The Council |
| Declaration of restricted place | Section 133 | The Council |
| Enforcement of control areas | Section 134 | Authorised person |
| Options for cost recovery | Section 135 | The Council |

8.2 Te mana i raro i ētahi atu wāhanga o te Ture / Powers under other sections of the Act

Any land occupier or person in breach of a rule in the Plan that specifies that a contravention of the rule creates an offence under section 154N (19) of the Act, can be prosecuted and is liable on conviction under section 157 (5) of the Act to a fine.

8.3 Te mana ki te tuku mana whakawātea i ngā ture o te mahere / Power to issue exemptions to plan rules

The Council will keep and maintain a register of exemptions granted in accordance with s78 of the Act that records the description, reasons and period of each exemption. The public will be able to inspect this register free of charge during business hours. The Council may also grant an extension of the period of an exemption.

9 Tuku tahua pūtea / Funding Analysis

9.1 Te āhua / Background

The Act requires that costs and benefits of implementing the Plan are analysed, and that the allocation of costs and funding is thoroughly examined. When determining the appropriate cost allocation for the Plan, Council must consider how the costs will be shared amongst:

- analysing the costs and benefits of the Plan and any reasonable alternative measures;
- noting how much any person will likely benefit from the Plan;
- noting how any persons contribute to creating, continuing or making worse the problems that the Plan proposes to resolve;
- noting the reasons for allocating costs; and
- noting whether any unusual administrative problems or costs are expected in recovering the costs from any person who is required to pay under the Plan.

9.2 He tātaritanga i ngā hua me ngā utu / Summary of analysis of benefits and costs

An analysis of the expected benefits and costs associated with implementing the plan has been undertaken. The analysis is contained within the Hawke's Bay Regional Pest Management Plan Cost Benefit Report.

9.3 Ngā hunga ka whiwhi me ngā kaitakakino ake / Beneficiaries and exacerbators

An analysis of the expected beneficiaries (those who benefit from controlling the pest) and exacerbators (those who contribute to the pest problem) associated with implementing the plan has been undertaken. This analysis is contained within the Hawke's Bay Regional Pest Management Plan Cost Benefit Report.

9.4 Ngā ara pūtea tahua me ngā take mō te tuku pūtea / Funding sources and reasons for funding

The Biosecurity Act 1993 and the Local Government (Rating) Act 2002 require that funding is sought from:

- people who have an interest in the Plan;
- those who benefit from the Plan; and
- those who contribute to the pest problem.

Funding must be sought in a way that reflects economic efficiency and equity. Those seeking funds should also target those funding the Plan and the costs of collecting funding.

These factors lead the Council to consider that overall the beneficiaries of the biosecurity activity are spread across the Region. Historically, a large portion of the programmes have been funded by the rural community, this Plan and the programmes proposed reflect a shift which recognises that the Regional Community are significant beneficiaries and the funding sources have been reviewed to reflect this in the Hawke's Bay Regional Pest Management Plan Cost Benefit Report, published alongside this document.

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Papa kupu / Glossary

Various technical and planning terms used in the Plan are defined in this Glossary. The use of italics indicates meanings taken from Section 2 of the Biosecurity Act 1993. In the case of any inconsistency arising from amendments to the Act, the statutory definition prevails.

Area of ecological importance is either a:

- (a) Ecosystem Prioritisation site (Hawke's Bay Regional Council);
- (b) Recommended Areas for Protection (Department of Conservation); or
- (c) Sites of Special Wildlife Interest (Department of Conservation).

Animal means any mammal, bird, fish, reptile or other vertebrate; any insect or other invertebrate. Any living organism, except a plant, micro-organism or a human being.

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 from the implementation of a pest management measure or the Plan.

Biofouling means the accumulation of aquatic organisms such as micro-organisms, plants and animals on surfaces and structures immersed in or exposed to the aquatic environment.

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

Chief Technical Officer means a person appointed a Chief Technical Officer under section 101 of the Act. The Ministries of Health, Primary Industries, and the Department of Conservation all have appointed Chief Technical Officers.

Council means Hawke's Bay Regional Council

Costs and benefits includes costs and benefits of any kind, whether monetary or non-monetary.

Effects, *in sections 12A and 12B and Part 5,*—

- (a) include the following, regardless of scale, intensity, duration, or frequency:
 - (i) a positive or adverse effect; and
 - (ii) a temporary or permanent effect; and
 - (iii) a past, present, or future effect; and
 - (iv) a cumulative effect that arises over time or in combination with other effects; and
- (b) also include the following:
 - (i) a potential effect of high probability; and
 - (ii) a potential effect of low probability that has a high potential impact

Effective fence means a minimum fence standard (as per below) or greater.

Minimum fence standard:

- (a) minimum overall fence height of 1100 mm; and
- (b) a maximum of 5 m spacing between posts; and
- (c) a minimum of 7 wires with maximum spacing of 200 mm between top wires; and
- (d) spaces between wires gradually decreasing to 100 mm between bottom two wires; and,
- (e) the bottom wire is a maximum of 100 mm above the ground; and
- (f) a minimum of 5 battens per bay; and
- (g) all wires must be strained to a minimum 150 kgs of tension; and
- (h) all materials are structurally sound; and

- (i) has been topped up with a netting fence that is:
- minimum netting specifications of height 600 mm, stay wire width 300 mm; and
 - has two electrified outriggers at 300mm and 1200mm spacing;

In relation to any gate, whether new or top-up, a gate that is:

- (a) the same height as the adjoining fence; and
- (b) the bottom of the gate is a maximum of 100 mm above the ground at all points including over any ditches or hollows; and
- (c) all components are structurally sound.

Electric type fences do not comply, as shortages and vegetation growth may lead to non-compliance.

Environment includes:

- (a) ecosystems and their constituent parts, including people and their communities; and
- (b) all natural and physical resources; and
- (c) amenity values; and
- (d) the aesthetic, cultural, economic, and social conditions that affect or are affected by any manner referred to in paragraphs (a) to (c) of this definition.

Environmental values incorporate those values that associated with the environment.

Eradication means to reduce the infestation level of the subject, or an organism being spread by the subject, to zero levels in an area in the short to medium term.

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

Exclusion means to prevent the establishment of the subject, or an organism being spread by the subject, that is present in New Zealand but not yet established in an area.

Feral Cat means any cat living in a wild state and not being kept as a domestic pet.

Feral Deer means any deer that is not:

- (a) being kept or farmed in accordance with the Wild Animal Control Act 1997; and
- (b) clearly identified in accordance with the National Animal Identification and Tracing Act 2012 and tagged with a NAIT approved RFID tag.

Feral Goat means any goat that is not:

- (a) held behind an effective fence or otherwise constrained; and
- (b) identified in accordance with an animal identification device approved under the National Animal Identification and Tracing Act 2012.

Feral Pig means any pig that is not kept within an effective fence or enclosure for farming or domestic purposes.

Good neighbour rule means a rule which:

- (a) applies to an occupier of land and to a pest or pest agent that is present on the land; and
- (b) seeks to manage the spread of a pest that would cause costs to occupiers of land that is adjacent or nearby; and
- (c) is identified in a regional pest management plan as a good neighbour rule; and
- (d) complies with the directions in the national policy direction relating to the setting of good neighbour rules.

Goods means all kinds of moveable personal property.

Hawke's Bay Regional Possum Control Technical Protocol (PN 4969) means this protocol plus any future amended Hawke's Bay Regional Possum Control Technical Protocol protocols.

Hawke's Bay Regional Predator Control Technical Protocol (PN 4970) means this protocol plus any future amended Hawke's Bay Regional Predator Control Technical Protocol protocols.

Hull means the immersed (including occasionally immersed) surfaces of a vessel including the following three parts:

- (a) **hull area** - the immersed surfaces of a vessel excluding niche areas and wind/water line.
- (b) **niche areas** - areas on a vessel hull that are more susceptible to biofouling due to different hydrodynamic forces, susceptibility to coating system wear or damage, or being inadequately, or not, painted, e.g., sea chests, bow thrusters, propeller shafts, inlet gratings, dry-dock support strips, etc. Includes appendages.
- (c) **wind and water line** - the area of the hull that is subject to alternating immersion due to a vessel's movement or loading conditions (also known in shipping as the Boot-top).

The definition of hull includes pontoons.

Infestation means where one or more plant pests occur.

Kaitiaki means a person or agent who cares for taonga; may be spiritual or physical. Responsible for the exercise of kaitiakitanga.

Kaitiakitanga means the exercise of guardianship under mana whenua, and, in relation to a resource, includes the ethic of guardianship and stewardship based on the nature of the resource itself.

Management agency means the body specified as the management agency in a pest management plan given the task of implementing the plan. For the purposes of this Plan, Hawke's Bay Regional Council is the management agency.

Mana whenua means customary authority exercised by an iwi or hapū over land and other taonga within the tribal rohe.

Mauri means the essential quality and vitality of a being or entity.

Modified McLean Scale (2012) refers to Version 1.0 of the Modified McLean Scale, as adopted by the New Zealand Rabbit Coordination Group, 12/10/2012, and any future versions adopted. This guideline outlines a method for monitoring rabbit possum populations.

Native planting means a non-commercial planting that is greater than one hectare in size, comprising of native species with a focus on ecological and/or soil erosion purposes.

Ngā Whenua Rāhui covenant means a land covenant made pursuant to section 77A of the Reserves Act 1977.

Occupier means

- (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.

Operational plan means a plan prepared by the Management Agency under section 85 of the Biosecurity Act 1993.

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.

Pathway means movement that:

- (a) is of goods or craft out of, into, or through:
 - a. a particular place in New Zealand; or
 - b. a particular kind of place in New Zealand; and
- (b) has the potential to spread harmful organisms.

Pest means an organism specified as a pest in a pest management plan

Pest management plan means a plan to which the following apply:

- (a) it is for the eradication or effective management of a particular pest or pests;
- (b) it is made under Part 5;
- (c) it is a national pest management plan or a regional pest management plan.

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.

Predator Control Area means an area identified as a Predator Control Area in the Hawke's Bay Regional Predator Control Technical Protocol (PN 4970).

Principal officer means:

- (a) in relation to a regional council, its chief executive; and
 - (b) in relation to a region, the chief executive of the region's regional council;
- and includes an acting chief executive.

Progressive containment means to contain or reduce the geographic distribution of the subject, or an organism being spread by the subject, to an area over time.

QEII covenant means a land covenant made pursuant to section 22 of the Queen Elizabeth the Second National Trust Act 1977.

Region means the region in respect of which it has the functions, duties, and powers of a regional council.

Residual trap Catch refers to Possum Population Monitoring Using the Trapcatch, Waxtag and Chewcard Methods, November 2015. This Protocol outlines a method for estimating indices of relative abundance of possum populations. For example, a 4% trap catch means that for every 100 traps set for one night, 4 possums are caught.

Road includes all bridges, culverts, and fords forming part of any road.

Rule means a rule included in a pest management plan or a pathway management plan.

Rohe means the territory or boundary that defines the areas within which a tangata whenua group claims association and mana whenua.

Site led pest programme means that the subject, or an organism being spread by the subject, that is capable of causing damage to a place is excluded or eradicated from that place, or is contained, reduced, or controlled within the place to an extent that protects the values of that place.

Slime layer means a layer of microscopic organisms, such as bacteria and diatoms, and the slimy substances that they produce.

Sustained control means to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.

Tangata whenua means in relation to a particular area, means the iwi or hapū that holds the mana whenua over that area.

Taonga means treasure, property: taonga are prized and protected as sacred possessions of the tribe. The term carries a deep spiritual meaning and taonga may be things that cannot be seen or touched. Included for example are te reo Māori (the Māori language), wāhi tapu, the air, waterways, fishing grounds and mountains.

Unwanted organism means any organism that a Chief Technical Officer believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health; and

(a) Includes:

- a. any new organism, if the Environmental Risk Management Authority has declined approval to import that organism; and
- b. any organism specified in the Second Schedule of the Hazardous Substances and New Organisms Act 1996; but

(b) does not include any organism approved for importation under the Hazardous Substances and New Organisms Act 1996, unless:

- a. the organism is an organism which has escaped from a containment facility; or
- b. a Chief Technical Officer, after consulting the Environmental Risk Management Authority and taking into account any comments made by the Authority concerning the organism, believes that the organism is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health.

Vessel or sea-craft means a subset of 'craft' as defined by the Act and means every description of boat or other craft used in water navigation, whether or not it has any means of propulsion. It also includes: a barge, lighter, hovercraft, floating drilling rig or a structure or installation that is being towed through the sea. It does not include aircraft.

Wāhi tapu means sacred site. These are defined locally by the hapū or iwi that are kaitiaki for the wāhi tapu.

Wai māori means fresh water.

Wilding conifers are defined as any introduced conifer tree, including (but not limited to) any of the species listed in Table 7, established by natural means, unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of.

Zero density means when there are no known animals or plants left of the pest species of concern, in the area of concern, at the end of annual pest control operations. Zero density is a status slightly less than eradication because of the risk of re-infestation and longevity of seed banks.