

# Proposed Regional Pest Management Plan for Taranaki

Taranaki Regional Council

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## Foreword

This document is the proposed *Pest Management Plan for Taranaki* (the Plan). Its purpose is to set out the statutory framework by which the Taranaki Regional Council will undertake the management of pest animals and pest plants in the Taranaki region for the next 10 years.

The Plan is the fourth plan prepared by the Taranaki Regional Council for its pest management functions. This Plan identifies and sets out management programmes in relation to 18 'pest' animal and plant species that the Taranaki Regional Council believes warrant regional intervention.

Some relatively minor changes from the previous pest plant and pest animal strategies have been incorporated into the Plan to take into account changes to the Biosecurity Act and the promulgation of the National Policy Direction for Pest Management. We want to ensure that we are making the best use of resources to effectively manage the pests that are of most concern to the environment and economy of our region.

In brief, the following highlights and significant changes are noted:

- Rules relating to the control of animal and plant pests combined within a single document;
- Inclusion of good neighbour rules for Possums; Giant buttercup; Giant gunnera; Gorse; Nodding; Plumeless; and Variegated thistles; Old man's beard; Pampas; Wild broom; Wild ginger; and Yellow ragwort that are binding on both private and Crown land occupiers
- Targeted application of rules for Giant buttercup; Gorse, Nodding, Plumeless, and Variegated thistles; and Wild broom;
- Application of rules to control Old man's beard in the Patea and Waingongoro catchments;
- Focus on eradication programmes or sustained control programmes (for which rules apply) with other species and non-regulatory programmes to be addressed in the *Taranaki Regional Council Biosecurity Strategy 2017–2037*.

On behalf of the Taranaki Regional Council, I am pleased to present this proposed Plan to the people of Taranaki, and now call for your submissions. The Council will consider all submissions received, in detail, before the Plan is finalised and becomes a statutory document.

This is your opportunity to influence pest management in the Taranaki region. I look forward to receiving your submission on the proposed Plan. Please send any submissions to:

The Chief Executive  
Taranaki Regional Council  
Private Bag 713  
STRATFORD

By 30 June 2017

David MacLeod  
Chair, Taranaki Regional Council



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## PART ONE: PLAN ESTABLISHMENT



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# 1. Introduction

## 1.1 Proposer

The Taranaki Regional Council has a regional leadership role under the Biosecurity Act 1993 (the Act), and intends to establish a regional pest management plan (RPMP). The first formal step is notification of the Proposed Regional Pest Management Plan for the Taranaki region for 10 years. The proposed Plan builds on the previous regional pest management strategies for plants and animals.

## 1.2 Purpose

The purpose of the proposed RPMP is to outline the framework for efficient and effective management, or eradication, of specified animal and plant organisms in the Taranaki region so as to–

- minimise the actual or potential adverse or unintended effects associated with those organisms; and
- maximise the effectiveness of individual pest management actions by way of a regionally coordinated approach.

There are many organisms in the Taranaki region considered undesirable or a nuisance. However, it is only where an individual's pest management actions or inaction impose undue effects upon others that regional management is warranted. The Biosecurity Act 1993 (the Act) contains prerequisite criteria that must be met to justify such intervention. This Proposal identifies which organisms should be classified as pests and managed on a regional basis.

Once operative, the RPMP will empower the Taranaki Regional 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: Pest Management.

## 1.3 Coverage

The proposed RPMP will operate within the administrative boundaries of the Taranaki region (Figure 1) as defined by the Local Government (Taranaki region) Reorganisation Order 1989. It covers a total land area of 723,610 hectares on the North Island's west coast. The boundaries of the Taranaki Regional Council conform to those of water catchments and extend from the Mohakatino catchment in the north to the Waitotara catchment in the south and inland to, but not including, the Whanganui catchment.

The region extends 12 nautical miles offshore to include the waters of the territorial sea (see map below).

## 1.4 Duration

The proposed RPMP will take effect on the date it becomes operative as a regional pest management plan under section 77 of the Act. It is proposed to remain in force for a period of 10 years. The RPMP may cease at an earlier date if the Taranaki Regional Council declares by public notice that it has achieved its purpose. It may also cease at an earlier date if, following a review, it is revoked.

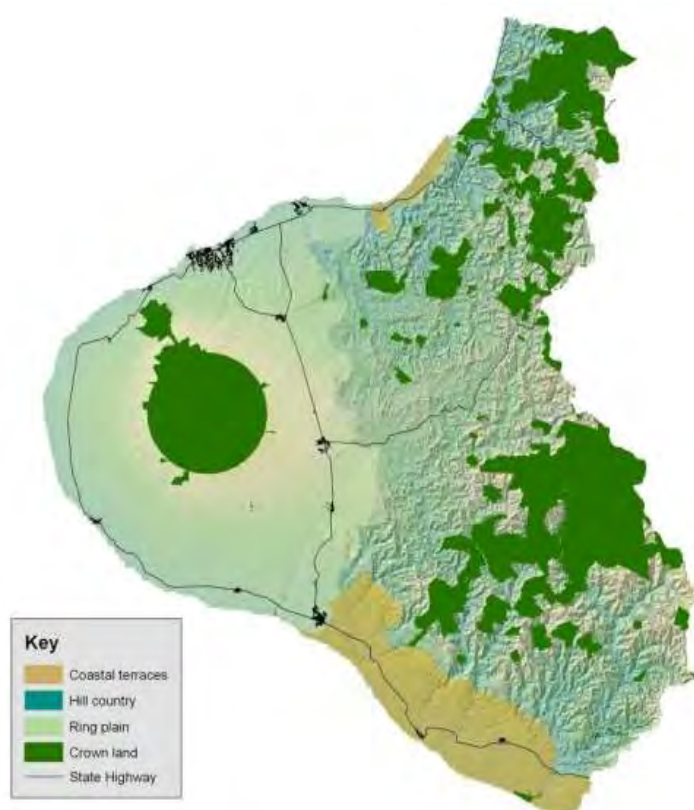


Figure 1: The Taranaki Region

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## 2. Planning and statutory background

### 2.1 Strategic background

Pest management influences, or is influenced by, the overall way land and water is used and managed. Several planning or operational activities contribute to the overall efficiency in reducing pest impacts on the region's economic, environmental, social and cultural values. The activities occur both inside the Council and externally.

#### 2.1.1 Council's biosecurity framework

Regional pest management in the Taranaki region sits within a biosecurity framework, which includes this Plan, and a biosecurity strategy entitled *Taranaki Regional Council Biosecurity Strategy 2017–2037*. The framework is underpinned by a number of supporting actions, which either provide inputs into regional pest management, or result from their activity. Land occupiers and the wider community, either as beneficiaries or exacerbators or both, complete the partnership.

#### 2.1.2 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, policy and initiatives influence the RPMP, and the plans and strategies of territorial authorities may have complementary influence. As a result, an RPMP is an integral cog in a secure biosecurity system to protect New Zealand's environmental, economic, social, and cultural values from pest threats.

### 2.2 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 Act.

#### 2.2.1 Biosecurity Act 1993

A regional council can use the 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. Indeed, section 71 of the Act sets out prerequisite criteria that must be met to justify such intervention. These criteria include that each subject–

- is capable of causing at some time an adverse effect on certain values;<sup>1</sup> and

For each subject–

- the benefits of the plan must outweigh the costs, or the consequences of inaction, or other courses of action;
- persons who are required to pay some or all of the costs of implementation must either be beneficiaries of the plan or exacerbators of the problems proposed to be resolved by the plan;
- there is likely to be adequate funding for the plan's implementation; and
- that each proposed rule helps to achieve the plan's objectives and does not trespass unduly on individual rights; and
- that the proposal is not frivolous or vexatious, is clear enough to be easily understood, and
- that if the council has rejected a similar proposal within the last 3 years, new material information answers the previous objections.

#### 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 sections 69–78 of the Act). Part 5 includes a requirement for ongoing monitoring, to determine whether pests and unwanted organisms are present, and keeping them under surveillance. Part of this

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<sup>1</sup> That is, on one or more of the following: economic wellbeing; the viability of threatened species; the survival and distribution of indigenous plants and animals; the sustainability of natural and developed ecological systems and processes and biological diversity; soil resources; water quality; human health; social and cultural wellbeing; recreational enjoyment of the natural environment; the relationship between Māori, their culture and traditions and their ancestral lands, waters and other taonga; and animal welfare.

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 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 immediate 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 so as to make programmes more effective, efficient and equitable.

Section 13(1) sets out the 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);
- research and prepare (eg, gather information; keep records; prepare a proposal to activate an RPMP);
- enable (eg, giving councils the power to monitor pests to be assessed, managed or eradicated); and
- review (eg, not allow an operational plan; review, amend, revoke or replace a plan).

## 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 they are 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 Resource Management Act 1991

Regional councils also have responsibilities under the Resource Management Act 1991 (RMA) to sustainably manage the natural and physical resources of the region, including the coastal marine area. These responsibilities include sustaining the potential of natural and physical resources safeguarding the life-supporting capacity and protecting environmentally significant areas and habitats (s5(2) and s6(c)).

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

The focus of the RMA is on managing adverse effects 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 Local Government Act 2002

The purpose of the Local Government Act 2002 (the 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 under the powers and duties of 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 Wild Animal Control Act 1977 and the Wildlife Act 1953

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

- (a) The Wild Animal Control Act 1977 controls the hunting and release of wild animals such as deer, feral goats and pigs as well as 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 consent of the Minister of Conservation.
- (b) The Wildlife Act 1953 controls and protects wildlife not subject to the Wild Animal Control Act 1977. It defines wildlife which are not protected (eg, feral cattle, feral cats, feral dogs), are to be game (eg, mallard ducks, black swan), partially protected or are injurious. It authorises that certain unprotected wildlife may be kept and bred in captivity even if they are declared pests under a pest management plan (eg, ferret, stoat, weasel, and polecat).

### 2.2.5 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.

## 2.3 Relationship with other pest management plans

A regional pest management plan must not be inconsistent with–

- (a) any national or regional pest management plan (whether relating to the same region or any other region or regions) concerning the same organism; or
- (b) any regulation or regulations.

Coordination with other pest management plans, and pest control operations undertaken by the Department of Conservation, TB Free, Waikato Regional Council and Horizons, will be achieved through a process based on consultation and communication between the Taranaki Regional Council and the relevant agency. Memoranda of Understanding will be developed as required. Liaison on national pest control matters will take place with the Ministry of Primary Industries.

## 2.4 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.

The table overleaf sets out the NPD requirements and the steps taken to comply with them.

**Table 1:** NPD requirements and steps taken to comply

NPD requirements	Steps taken to comply
Programme is described	Checked that the types of programmes (described in section 5 of the proposal) comply with clause 5 of the NPD.
Objectives are set	Checked that the contents of section 6 of the Proposal comply with clause 6 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 'Impact Assessments and Cost-Benefit Analyses for the Proposed Regional Pest Management Plan for Taranaki'
Funding rationale is noted	Checked the funding rationale described in section 10 of the Proposal 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

## 2.5 Relationship with Māori

The Act, and the Taranaki Regional Council, seek to provide for the protection of the relationship between Māori as tangata whenua and their ancestral lands, their waters, sites, wāhi tapu, and taonga, and for the protection of those aspects from the adverse effects of pests, through the RPMP. Māori involvement in biosecurity is an important part of exercising kaitiakitanga over their mana whenua. Māori also carry out significant pest management through their primary sector economic interests and as land owners and/or occupiers.

The LGA requires the Taranaki Regional 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. This includes considering ways to help Māori to contribute. These responsibilities and requirements were met while preparing this Plan and will continue after it takes effect.

## 2.6 Consultation overview

In 2012 and 2013, the Taranaki Regional Council carried out a preliminary review of the effectiveness and efficiency of the *Pest Management Strategy for Taranaki: Animals* and the *Pest Management Strategy for Taranaki: Plants* (2007). As part of that review, Council prepared a report summarising key findings and proposed new directions to be included in a revised pest management plan. Four responses were received from a range of stakeholders including the Ministry for Primary Industries (MPI); Federated Farmers; Department of Conservation, and KiwiRail.

Further pre consultation has occurred with [a series of meetings to discussed proposed changes to be incorporated into a revised plan. Meetings and discussions have occurred with, Iwi, the Department of Conservation, District Councils, Federated Farmers and contractors from within the region. The meetings covered progress made under the current Regional Pest Management Strategy, and an open table discussion on management options for potential pests to be included in the new RPMP. A Draft Proposed RPMP was further distributed to key stakeholders for early comment.

This proposed RPMP has been publicly notified for public submissions to confirm community expectations and policy directions to be incorporated into the final plan.



## 3. Responsibilities and obligations

### 3.1 The management agency

The Taranaki Regional Council is the management agency responsible for implementing the proposed RPMP. The Taranaki Regional Council is satisfied that it meets the requirements of s 100 of the Act in that it–

- (a) is accountable to the Plan funders, including Crown agencies, through the requirements of the LGA 2002;
- (b) is acceptable to the funders and those persons subject to the RPMP’s management provision because it implemented previous Regional Pest Management Strategies; and
- (c) has the capacity, competency and expertise to implement the proposed RPMP.

How the Taranaki Regional Council will undertake its management responsibilities is set out in Part Three (Procedures) of the proposed RPMP and in the Council’s standard operating procedures.

### 3.2 Compensation and disposal of receipts

The proposed 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 Affected parties

#### 3.3.1 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. No person can 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. RMA and/or the Hazardous Substances and New Organisms Act 1996.)

This Proposal 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 Whenua Māori Act 1993. Where owners and/or occupiers are unknown, the Māori Land Court; or the Registrar of Companies may help to identify and communicate with them.

#### 3.3.2 Crown agencies

Under section 69(5) of the Act, all land occupiers, including the Crown, must meet ‘good neighbour rules’ within regional pest management plans, as well as general rules. A good neighbour rule responds to the issues caused when inaction by one neighbour contributes to the creation, continuance, or exacerbation of pest issues for an adjacent neighbour. This is an opportunity for the Council to promote more integrated and effective pest management, regardless of land tenure, and develop equity across occupiers. In common with other land occupiers, however, the Council may exempt the Crown from any requirement in a Plan rule upon written request (refer section 10.3 of this Proposal).

##### 3.3.2.1 Department of Conservation

The Department of Conservation manages 146,973 hectares of Crown land in the Taranaki region (21% of

the total land area) under the Reserves Act, the National Parks Act, and the Conservation Act 1987. The Department also has particular responsibilities and expertise in the management of pest plants and pest animals that pose a threat to indigenous biodiversity, including pest fish, under the Conservation Act 1987, the Unwanted Organisms (Biosecurity Act 1993), and the Noxious Fish (Freshwater Fish) Regulations 1983.

Under section 6(ab) of the Conservation Act 1987 the Department is required to preserve "...so far as is practicable all indigenous freshwater fisheries, and protect recreational freshwater fisheries and freshwater fish habitats". Particular pest fish, such as koi carp and rudd, are classified as noxious fish under the Noxious Fish (Freshwater Fish) Regulations 1983 and the Freshwater Fisheries Regulations 1983 (Schedule 3). Section 64 of the Freshwater Fisheries Regulations 1983 prohibits the unauthorised catching or keeping of *Gambusia* and section 67C specifies conditions applicable for the taking of European carp or Japanese koi from any containment area.

### 3.3.2.2 Land Information New Zealand

Land Information New Zealand (LINZ) administers vacant and non-rateable land, as well as 4412 hectares of Crown Forestry Land in Taranaki<sup>2</sup>. LINZ also has responsibility for un-alienated Crown land and surplus railway land in the region.

### 3.3.2.3 KiwiRail

KiwiRail is, on behalf of the Crown, the owner and manager of New Zealand's railway infrastructure. There are approximately 214 kilometres of railway line in the Taranaki region accounting for 763 hectares of railway land.

KiwiRail is required to control pests on land that it administers, as set out in plan rules prescribed in Part Two of this Proposal. In individual circumstances, the Taranaki Regional Council may, in accordance with section 10.3 of the Proposal, exempt any person from any requirement included in a Plan rule.

### 3.3.2.4 New Zealand Transport Agency

The New Zealand Transport Authority (NZTA) is the road controlling authority for 391 kilometres of state highways<sup>3</sup> in the Taranaki region. The land on which state highways lie, including those parts of road, roadway or road margin extending to adjacent

property boundaries, accounts for approximately 1,278 hectares in the Taranaki region.

NZTA is required to control pests on land that it occupies, including all formed roads, roadways or road margins for which it is responsible, in accordance with the plan rules prescribed in Part Two of this Proposal. In individual circumstances, the Taranaki Regional Council may, in accordance with section 10.3 of the Plan, exempt any person from any requirement included in a plan rule.

## 3.3.3 Territorial local authorities

Three territorial authorities are wholly or partly contained within the Taranaki region. They are the South Taranaki District Council, Stratford District Council (excluding parts of the district that lie in the Whanganui catchment), and the New Plymouth District Council.

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

Territorial authorities are occupiers of land (such as parks and reserves) and are road controlling authorities in their districts. Territorial authorities are jointly responsible for 3,504 kilometres of local roads in the Taranaki region.<sup>4</sup>

## 3.3.4 Road reserves

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 councils) or adjoining land occupiers responsible for pest management in road reserves (see s6(1) of the Act).

As such, the Taranaki Regional Council has decided that, for the purposes of this Plan, roadside responsibilities for pest animal and pest plant management lie with the roading authorities where they apply to 'formed' roads. Pest animal and pest plant control on unformed [paper] roads occupied by other persons are the responsibility of the person physically occupying that land.

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<sup>2</sup> Comprising the Te Wera block (TNPR23/51).

<sup>3</sup> Taranaki Regional Council 2015, *Regional Land Transport Plan for Taranaki 2015/16-2020/21*, p 10.

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<sup>4</sup> Taranaki Regional Council 2015, *Regional Land Transport Plan for Taranaki 2015/16-2020/21*, p 10.



## PART TWO: PEST MANAGEMENT

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## 4. Organisms declared as pests

The organisms listed in Tables 2 and 3 below are classified as pests. The table also indicates what management programme or programmes will apply to the pest and if a rule, including a Good Neighbour Rule (GNR), applies.

Attention is drawn to:

- The general administrative powers of inspection and entry, contained in **Part 6 of the Act**, which are available to the Taranaki Regional Council; and
- The statutory obligations of any person under **sections 52 and 53 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 sections 52 and 53 is an **offence** under the Act, and may result in the penalties noted in section 157(1).

**Table 2:** Animal organisms classified as pests

Common name	Scientific name	Programme	GNR	Page
Possum	<i>Trichosurus vulpecula</i>	Sustained control	√	27

**Table 3:** Plant organisms classified as pests

Common name	Scientific name	Programme	GNR	Page
Climbing spindleberry	<i>Celastrus orbiculatus</i>	Eradication		18
Giant reed	<i>Arundo donax</i>	Eradication		20
Madeira (Mignonette) vine	<i>Anredera cordifolia</i>	Eradication		22
Senegal tea	<i>Gymnocoronis spilanthoides</i>	Eradication		24
Giant buttercup	<i>Ranunculus acris</i>	Sustained Control	√	30
Giant gunnera	<i>Gunnera manicata</i> <i>Gunnera tinctoria</i>	Sustained Control	√	32
Gorse	<i>Ulex europeaus</i>	Sustained Control	√	34
Nodding, Plumeless and Variegated thistles	<i>Carduus nutans</i> , <i>C. acanthoides</i> , <i>Silybum marianum</i>	Sustained Control	√	36
Old man's beard	<i>Clematis vitalba</i>	Sustained Control	√	38
Pampas (Common and Purple)	<i>Cortaderia selloana</i> , and <i>C. jubata</i>	Sustained Control	√	40
Wild broom	<i>Cytisus scoparius</i>	Sustained Control	√	42
Kahili and Yellow ginger	<i>Hedychium gardnerianum</i> <i>Hedychium flavescens</i>	Sustained Control	√	44
Yellow ragwort	<i>Jacobaea vulgaris</i>	Sustained Control	√	46

## 4.1 Other harmful organisms

In addition to the pests listed in Tables 2 and 3 above there are a number of harmful organisms that are already present in Taranaki for which eradication is technically unfeasible and / or regulatory intervention in the form of rules is not considered appropriate.

Other harmful organisms include, but are not limited to, those species identified through previous public processes in Table 4 below. Such organisms are not accorded pest status and control of them will be undertaken as part of a site-led or pathway management response and in conjunction with co-operating land occupiers and/or other affected parties (see Section 5.3.3(b),(c),and (d)).

For further information refer to Section 7 and Appendix 1 of this Plan and to the Taranaki Regional Council *Biosecurity Strategy 2017–2037*.

**Table 4:** Other harmful organisms

ANIMALS	
Common name	Scientific name
Argentine Ant	<i>Linepithema humile</i>
Feral cat	<i>Felis catus</i>
<b>Feral deer:</b>	
Red deer	<i>Cervus elaphus</i>
Sika deer	<i>Cervus nippon</i>
Sambar deer	<i>Cervus unicolor</i>
Rusa deer	<i>Cervus timorensis</i>
Fallow deer	<i>Cervus dama</i>
Wapiti deer	<i>Cervus elaphus nelsoni</i>
Feral goat	<i>Capra hircus</i>
Feral pig	<i>Sus scrofa</i>
Ferret	<i>Mustela furo</i>
Gambusia	<i>Gambusia affinis</i>
Hare	<i>Lepus europaeus occidentalis</i>
Koi carp	<i>Cyprinus carpio</i>
Magpie	<i>Gymnorhina tibicen</i>
Rabbit	<i>Oryctolagus cuniculus</i>
Rook	<i>Corvus frugilegus</i>
Rudd	<i>Scardinius erythrophthalmus</i>
Stoat	<i>Mustela ermine</i>
Weasel	<i>Mustela nivalis vulgaris</i>

PLANTS	
Common name	Scientific name
Australian sedge	<i>Carex longibrachiata</i>
Brush wattle	<i>Paraserianthes lapantha</i>
Climbing asparagus	<i>Asparagus scandens</i> and <i>A. setaceus</i>
Darwin's barberry	<i>Berberis darwinii</i>
Egeria oxygen weed	<i>Egeria densa</i>
Grateloupia	<i>Grateloupia turuturu</i>
Hornwort	<i>Ceratophyllum demersum</i>
Japanese walnut	<i>Juglans ailantifolia</i>
Lagarasiphon	<i>Lagarosiphon major</i>
Ragwort – Pink	<i>Senecio glastifolius</i>
Spanish heath	<i>Erica lusitanica</i>
Undaria	<i>Undaria pinnatifida</i>
Woolly nightshade	<i>Solanum mauritianum</i>
Yellow bristle grass	<i>Setaria pumila</i>

## 5. Pest management framework

### 5.1 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 immediate 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 Pest management programmes

One or more pest management programmes will be used to control pests and any other organisms covered by this RPMP. 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 the two programme types relevant to this RPMP are described below.

1. **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.
2. **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.

### 5.3 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.

#### 5.3.1 Requirement to act

Land occupiers or other persons may be required to act-

- (a) Where plan rules dictate pests are to be controlled; and
- (b) pursuant to restrictions under sections 52 and 53 of the Act, requiring persons not to release, spread, propagate, sell or distribute a pest.

The Council's powers to act through service delivery are set out in section 5.3.3.

#### 5.3.2 Inspection and monitoring

Inspection by Council may include staff-

- (a) visiting properties, undertaking monitoring, 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.

#### 5.3.3 Service delivery

Council may deliver the service-

- (a) by undertaking direct control to facilitate the eradication of Climbing spindleberry, Giant reed, Madeira (Mignonette) vine, and Senegal tea
- (b) in relation to the Self-Help Possum Control Programme;
- (c) in relation to Key Native Ecosystems where the presence of the subject threatens regionally significant biodiversity values;
- (d) by undertaking the direct control of any other pest or harmful organism as time and circumstances permit;

- (e) by providing control tools, including sourcing and distributing biological agents, or provisions (e.g. traps, chemicals); and
- (f) on a user pays basis.

### 5.3.4 Advocacy and education

Council may–

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

- (b) specify if breaching the rule is an offence under the Act;
- (c) specify if an exemption to the rule, or any part of it, is allowable or not; and
- (d) 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 include extra requirements for a new Good Neighbour Rule. Of particular note, the Good Neighbour Rule will–

- (a) identify who the Good Neighbour Rule 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 Good Neighbour Rule is intended to address.

## 5.4 Memoranda of Understanding (MOU)

Council may develop MOUs with agencies to establish agreed levels of service with those agencies, to act to control pests on their land, or to defer enforcement actions such as good neighbour rules in this Plan, in preference for pragmatic levels of service that achieve the objectives of the RPMP.

## 5.5 Rules

Rules play an integral role in securing many of the pest management outcomes sought by the objectives of this 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–

- (a) specify if the rule is to be designated as a 'Good Neighbour Rule';

## 6. Pest descriptions and programmes

The following section describes the pests, or group of pests, to be managed under this Plan. This section also describes any rules that will be used to achieve the objectives of the Plan.

For each pest listed the Act requires a proposed RPMP to describe the reasons for inclusion, the objective of pest management (see Section 5.1 above), and the principal measures used to achieve the objectives (see section 5.3 above).

The Plan also proposes various general and Good Neighbour Rules (see section 5.5 above), whose contravention will be an offence under the Act.

## Eradication

The eradication programme covers organisms which are present in the region but infestations are limited in size or density, or eradication is feasible and is a cost-effective solution to prevent a species becoming established, and to protect future production or environmental values. The programme involves regular ongoing control to reduce infestations levels of the pests, in the short to medium term, to zero density levels across the region and across all habitats and properties. Taranaki Regional Council has decided it is appropriate to be the lead agency or partner for eradicating these pests from the region.



## 6.1 Climbing spindleberry (*Celastrus orbiculatus*)

### 6.1.1 Adverse effects

Climbing spindleberry (also known as Oriental bittersweet) is a deciduous, perennial, twining climber. It can spread vegetatively and by birds eating the fruit.

The plant seeds prolifically and is shade tolerant, allowing it to establish and spread quickly, forming dense colonies that compete with other plant species for soil moisture, nutrients and light. Once established, Climbing spindleberry is difficult to control and becomes very invasive.

Climbing spindleberry represents a particular threat to indigenous biodiversity and, to a lesser extent, plantation forests and farm shelterbelts. It can compete with and replace indigenous plants in disturbed or low forest, and on forest and riparian margins. Its density can affect the regeneration of indigenous flora, topple and kill small trees, and suppress desirable groundcovers. Preventing Climbing spindleberry from becoming established will reduce the possibility of more significant costs in the future.



Climbing spindleberry

### 6.1.2 Reasons for proposed programme

An analysis of the benefits and costs of eradicating Climbing spindleberry is contained in the companion report entitled *Impact Assessments and Cost-Benefit Analyses*<sup>5</sup> ('the CBA Report'). The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Climbing spindleberry management and a discussion on who should pay for the proposed management approach. The inclusion of Climbing spindleberry in the Plan, with the focus on the Council undertaking the direct control of the plant, is considered appropriate because—

- (a) Early and proactive action will prevent the establishment of the plant in the region and avoid significant public good impacts on indigenous biodiversity and forestry over the long term; and
- (b) Eradication is technically feasible as the plant has a restricted distribution range within Taranaki (there are 22 known active sites); and
- (c) Reliance on alternative measures, including voluntary actions to control or prevent the spread of the plant, is unlikely to be efficient or effective in achieving the eradication objective, and there will be subsequent significant net costs to the community with respect to reduced conservation and forestry production values, as the plant spreads, through a lack of effective co-ordinated plant pest control.
- (d) Implementation of the Plan will have a positive effect on plantation forestry, farm shelterbelts, and indigenous biodiversity.

### 6.1.3 Objective

Over the duration of the Plan eradicate Climbing spindleberry, by destroying all known infestations as at the date the plan becomes operative and, where practicable, destroy any new infestations that are identified, to prevent adverse effects on indigenous biodiversity and production forestry values in the Taranaki region.

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<sup>5</sup> Taranaki Regional Council, 2017.

## 6.1.4 Principal measures to achieve objective

To achieve the objective for Climbing spindleberry, the following principal measures will be applied:

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Climbing spindleberry to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the introduction or spread of Climbing spindleberry; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will undertake direct control of Climbing spindleberry.

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## 6.2 Giant reed (Arundo donax)

### 6.2.1 Adverse effects

Originally introduced into New Zealand as an ornamental garden plant, Giant reed is a tall, perennial, clump-forming bamboo-like grass with a dense root mass and short rhizomes.

Giant reed can grow up to eight metres tall. Usually grey-green in colour, it also has a variegated form, with white stripes. A plume-like flower-head is produced at the top of the stem in late summer. It is primarily spread by vegetative reproduction, either from underground rhizome extensions or from plant fragments transported by water, and both stems and rhizomes have the ability to propagate.

The plant can inhabit riparian and forest margins, scrub-land, production and regenerating indigenous forests and degraded pasture.

Once established it forms dense clumps, which exclude and/or compete with other plant species for soil moisture, nutrients and light. Giant reed represents a particular threat to indigenous biodiversity values along riparian, wetland and forest margins and can also cause problems in recreational areas and by obstructing drainage channels.



### 6.2.2 Reasons for proposed programme

An analysis of the benefits and costs of eradicating Giant reed is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Giant reed management and a discussion on who should pay for the proposed management approach. The inclusion of Giant reed in the Plan, with the focus on the Council undertaking the direct control of the plant, is considered appropriate because–

- (a) Early and proactive action will prevent the establishment of the plant in the region and avoid significant public good impacts on water quality, species diversity (including riparian and wetland plant species) and threatened species over the long term; and
- (b) Eradication is technically feasible as the plant has a very confined habitat range and is not yet widespread in Taranaki (there are 39 known active sites); and
- (c) Reliance on alternative measures, including voluntary actions to control or prevent the spread of the plant, is unlikely to be efficient or effective in achieving the eradication objective, and there will be subsequent significant net costs to the community with respect to reduced conservation values, as the plant spreads, through a lack of effective co-ordinated plant pest control; and
- (d) Implementation of the Plan will have a positive effect on water quality, species diversity, forestry, and sheep and beef production.

### 6.2.3 Objective

Over the duration of the Plan eradicate Giant reed (including the variegated form), by destroying all known infestations as at the date the plan becomes operative and, where practicable, destroy any new infestations that are identified, to prevent adverse effects on indigenous biodiversity values in the Taranaki region.

## 6.2.4 Principal measures to achieve objective

To achieve the objective for Giant reed, the following principal measures will be applied:

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Giant reed (including the variegated form) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the introduction or spread of Giant reed; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will undertake direct control of Giant reed (including the variegated form).

## 6.3 Madeira (Mignonette) vine (*Anredera cordifolia*)

### 6.3.1 Adverse effects

Madreia vine (also known as Mignonette vine) is a perennial climber arising from a fleshy rhizome. The plant has bright green fleshy leaves, long racemes of cream flowers from January to April, and warty stem tubers. It can grow up to seven metres high.

Originally widely distributed as an ornamental plant, Madeira vine has become a significant potential threat to indigenous biodiversity values. It reproduces through the shedding and spread of stem tubers and each tuber is capable of generating a new plant. Dumping garden waste or moving topsoil containing tubers have been the main cause of the plant's spread.

The preferred habitat of Madeira vine includes gardens, forest and riparian margins, disturbed and low indigenous forests, particularly in coastal areas. The plant is very invasive and can form dense colonies, which exclude and/or compete with other plant species for soil moisture, nutrients and light. Once established, it is very difficult to control.



### 6.3.2 Reasons for proposed programme

An analysis of the benefits and costs of eradicating Madeira vine is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Madeira vine management and a discussion on who should pay for the proposed management approach. The inclusion of Madeira vine in the Plan, with the focus on the Council undertaking the direct control of the plant, is considered appropriate because–

- (a) Early and proactive action will prevent the establishment of the plant in the region and avoid significant public good impacts on indigenous biodiversity over the long term; and
- (b) Eradication is technically feasible as the plant has a limited distribution (it is confined to 53 known active sites near the coast in Taranaki) and there is a high probability that control will be successful; and
- (c) Reliance on alternative measures, including voluntary actions to control or prevent the spread of the plant, is unlikely to be efficient or effective in achieving the eradication objective, and there will be subsequent significant net costs to the community with respect to reduced conservation values, as the plant spreads, through a lack of effective co-ordinated plant pest control; and
- (d) Implementation of the Plan will have a positive effect on native and plantation forestry.

### 6.3.3 Objective

Over the duration of the Plan eradicate Madeira (Mignonette) vine, by destroying all known infestations, as at the date the plan becomes operative and, where practicable, destroy any new infestations that are identified, to prevent adverse effects on indigenous biodiversity and production forestry values in the Taranaki region.

### 6.3.4 Principal measures to achieve objective

To achieve the objective for Madeira (Mignonette) vine, the following principal measures will be applied:

#### **Inspection and monitoring**

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Madeira vine to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

#### **Advocacy and education**

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the introduction or spread of Madeira vine; and
3. Undertake liaison and advocacy to promote effective integrated pest management

#### **Service delivery**

Taranaki Regional Council will undertake direct control of Madeira vine.

## 6.4 Senegal tea (*Gymnocoronis spilanthoides*)

### 6.4.1 Adverse effects

Senegal tea is a perennial, semi-aquatic herb with dark green leaves and white flowers. The plant flowers in summer and autumn and may grow up to 1.5 metres in height. The plant has been widely distributed as an ornamental pond plant through the aquarium trade and has become an extremely aggressive freshwater weed.

It inhabits wetlands and still or flowing water and is spread both by vegetative fragmentation and seed dispersal. Stem fragments may be spread by water movement, deliberate plantings or by drainage machinery. Dispersal of seed is by water movement, or mud sticking to animals or machinery.

Senegal tea forms dense floating mats, which can quickly cover waterways or wetland areas causing a number of serious and unintended adverse effects. These include the displacement of traditional food sources of value to Maori, particularly watercress, and the smothering of submerged native flora species, which affects the habitat and food source of some fish species. Heavy infestations and the rotting of dead plants can diminish oxygen available to fish by reducing water circulation. They can also impede the flow of water, causing flooding (problems with flooding attributable to this plant have occurred elsewhere in New Zealand), and interfering with navigation and recreational activities.



### 6.4.2 Reasons for proposed programme

An analysis of the benefits and costs of eradicating Senegal tea is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Senegal tea management and a discussion on who should pay for the proposed management approach. The inclusion of Senegal tea in the Plan, with the focus on the Council undertaking the direct control of the plant, is considered appropriate because–

- (a) Early and proactive action will prevent the establishment of the plant in the region and avoid significant public good impacts on indigenous aquatic biodiversity over the long term; and
- (b) Eradication is technically feasible. The pest has a very limited distribution (currently located at only two known sites) and there is a high probability that infestation levels can be reduced to zero densities in the short to medium term; and
- (c) Reliance on alternative measures, including voluntary actions to control or prevent the spread of the plant, is unlikely to be efficient or effective in achieving the eradication objective, and there will be subsequent significant net costs to the community with respect to reduced conservation values, as the plant spreads, through a lack of effective co-ordinated plant pest control; and
- (d) Implementation of the Plan will have a positive effect on waterways and wetlands including aquatic flora and fauna species.

### 6.4.3 Objective

Over the duration of the Plan eradicate Senegal tea by destroying all known infestations as at the date the plan becomes operative and, where practicable, destroy any new infestations that are identified, to prevent adverse effects on indigenous biodiversity values in the Taranaki region.

## 6.4.4 Principal measures to achieve objective

To achieve the objective for Senegal tea, the following principal measures will be applied:

### **Inspection and monitoring**

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Senegal tea to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### **Advocacy and education**

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the introduction or spread of Senegal tea; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### **Service delivery**

Taranaki Regional Council will undertake direct control of Senegal tea.



## Sustained Control

The sustained control programme covers pests that, because of their biological and pest characteristics, need to be controlled to levels where their impacts on the economic, environmental or social values are reduced cost-effectively and on an ongoing basis. The programme involves the imposition of rules and associated costs on organisations and individuals to maintain pest numbers below, or at, a level that addresses the negative impacts of the species on their neighbours. The effect of the rules may apply to the whole property, parts of the property (i.e. on its boundaries), the whole region, or parts of the region. Public costs are incurred through the implementation of an inspectorial, monitoring and enforcement regime to ensure compliance.

## 6.5 Brushtail possums (*Trichosurus vulpecula*)

### 6.5.1 Adverse effects

The brushtail possum is an introduced marsupial animal widespread throughout New Zealand. A small to medium sized omnivore, the animal is nocturnal, with large ears, pointed face, close woolly fur, and bushy tail. Possums represent a major threat to the Taranaki region in terms of their actual or potential harmful effects on economic production and on indigenous biodiversity values.

Their main economic impact is reduced economic returns associated with agricultural production. Possums compete directly with livestock for pasture, reducing the carrying capacity of farmland and reducing farm income. Additionally, they can be a vector for Bovine tuberculosis, however a concerted and considerable investment into regional control has been successful in preventing the disease becoming endemic in the region (one of only three regions where this has been the case). Possums also cause substantial damage to plantation forests, indigenous vegetation and birds. The net overall result of Possums is reduction in the vigour, density and diversity of native flora and fauna species.

Possum population densities within the region vary according to the topography, vegetation and history of control in any specific area. The highest possum population densities lie between forest and pasture where there is a plentiful supply of food and suitable habitat. In those areas where the Taranaki Regional Council has implemented the 'Self-help Possum Control Programme' (SHP) (refer below and in the *Taranaki Regional Council Biosecurity Strategy 2017–2037*), possum numbers are very low and have been maintained at these low levels for a number of years. Possum numbers outside the Programme are significantly higher.



The Self-help Possum Control Programme has been running successfully since the early 1990s through the Council working with land owners to facilitate possum control.

As at 30 June 2016, effective and sustained control of possums has been achieved over approximately 241,344 hectares of farmland on the ring plain and coastal terraces. The level of control achieved is an average 6.13% residual trap catch - a figure well below the 10% target considered necessary to protect pastoral production and the vegetative canopy of remnant forests and wetlands. It has also contributed to increased bird life. The Council considers that the Programme may soon reach its practical and viable extent.

More recently, the Council has extended its possum control activities into urban areas, in collaboration with New Plymouth District Council.

### 6.5.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Possums is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Possum management and a discussion on who should pay for the proposed management approach. The inclusion of Possums in the Plan, with the Council imposing rules and coordinating ongoing control of the animal by land occupiers in, or adjacent to, parts of Taranaki in the Self-help Possum Control Programme, is considered appropriate because—

- (a) Possums have a continuing impact on production (dairy, forestry, and horticulture), animal health and biodiversity values and they are widespread across all forms of habitat in Taranaki; and
- (b) Given the widespread nature of Possums, Council support is appropriate to facilitate effective and coordinated control on privately-owned land. A sustained control programme involving the imposition of rules is proposed for properties in, or adjacent to, those in the Self-help Possum Control Programme (ie the parts of the region that are intensively-farmed). Sustained possum control is also being undertaken in the Egmont National Park and on private intensively-farmed land elsewhere and the ongoing effectiveness of that work needs to be protected; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and

- (d) Given the significant impact caused by Possums in Taranaki, there are widely-accepted public good benefits from coordinating possum control in the ring plain and coastal terraces, through the implementation of a regionally-coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on dairy, forestry and horticulture production, animal health, and biodiversity.

### 6.5.3 Objective

Over the duration of the Plan, sustainably control Possum numbers on land within the Self-help Possum Control Programme and elsewhere as appropriate, to avoid or minimise adverse effects on pastoral production, animal health, and indigenous biodiversity values in the Taranaki region.

### 6.5.4 Principal measures to achieve objective

To achieve the objective for Possums, the following principal measures will be applied:

#### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

#### Extension programme

Taranaki Regional Council will implement the Self-help Possum Control Programme (SHP) and provide sustained possum control on the ring plain and coastal terraces by:

1. Undertaking initial possum control on rateable properties that lie in an area where at least 75% of land occupiers, covering at least 75% of the land area targeted, indicate, or have indicated, that they wish to be included in the SHP and will accept land occupier obligations.
2. Providing on going technical advice, information, and support to land occupiers in the SHP, including monitoring and enforcement of rules.

#### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties in the SHP with suspected or confirmed infestations of Possums to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

#### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers in the SHP to coordinate possum control
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to promote effective possum management; and
3. Undertake liaison and advocacy to promote effective integrated possum management

#### Service delivery

Taranaki Regional Council will –

1. Undertake additional initial direct control, as necessary, of Possums on properties in the SHP, which
2. Undertake additional initial direct control, as necessary, on properties in urban pest control programmes
3. Undertake control operations of Possums in areas surrounding Egmont National Park in conjunction with the DOC.
4. Undertake site-led possum control on Key Native Ecosystems as part of an agreed site-led response.

## Plan rules requiring land occupier and other persons to act

### General Rule for the Self-Help Possum Control Programme

**6.5.4.1 A land occupier in the Self-Help Possum Control Programme, must maintain possum numbers present on their land to below a 10% residual trap catch.**

*Explanation of the rule:* The reason for this general rule is to target private land within the Self-Help Possum Control Programme (as identified in Appendix B) to ensure that possums are effectively managed to address not only their cost impacts on adjacent land but also any pastoral production, animal health, and indigenous biodiversity values on the property.

### Good Neighbour Rule

**6.5.4.2 A land occupier must maintain possum numbers present on their land to below a 10% residual trap catch within 500 metres of their boundary to protect production and indigenous biodiversity values AND where an adjacent land occupier is in the Self-Help Possum Control Programme and is maintaining possums present on their land to below a 10% residual trap catch, excepting any property or part of a property east of the Self-Help Possum Control Programme boundary or in an urban area.**

*Explanation of the rules:* The reason for this rule is to prevent unreasonable costs on pastoral production, animal health, and indigenous biodiversity values caused by the spread of Possums across property boundaries where active management is being undertaken by an adjacent land occupier (as identified in Appendix B). Scientific literature confirms that a 500 metre buffer zone should be sufficient to address most externality impacts associated with possums.

Contravention of these rules creates an offence under section 154(N)(19) of the Biosecurity Act.

## 6.6 Giant buttercup (*Ranunculus acris*)

### 6.6.1 Adverse effects

Giant buttercup is a perennial plant with deeply segmented leaves growing from single crowns. Between November to April the plant has yellow flowers on branched stems up to a metre tall.

Giant buttercup is very free seeding, with the seeds being spread by water, animals and in silage and hay. The failure of occupiers to prevent Giant buttercup from seeding has contributed to the increased distribution of the plant in Taranaki. The plant's preferred habitat is in pasture and along roadsides, particularly in areas with high rainfall.

Sheep will eat giant buttercup, however the plant is seasonably unpalatable to cattle so infestations of giant buttercup can quickly overwhelm other pasture species in dairying areas thereby reducing pasture and dairy production. Once established in pasture, the plant is costly and difficult to control.



### 6.6.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Giant buttercup is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Giant buttercup management and a discussion on who should pay for the proposed management approach. The inclusion of Giant buttercup in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because–

- (a) Giant buttercup is toxic in large quantities and has major adverse effects on dairy and beef pastoral production. It has the potential to spread throughout most of Taranaki's dairy and beef farmland; and
- (b) Council support and coordination maximises the effectiveness of individual control of Giant buttercup in the region. A sustained control programme involving the imposition of rules to control Giant buttercup is proposed for land within five (5) metres of a property boundary where the adjacent land occupier is also managing Giant buttercup. This programme is essentially a continuation of the existing programme for pastoral farmers; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Giant buttercup through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on maintaining dairy and beef pastoral production values in Taranaki.

### 6.6.3 Objective

Over the duration of the Plan, sustainably control Giant buttercup to avoid or minimise adverse effects on dairy and beef pastoral production in the Taranaki region.

## 6.6.4 Principal measures to achieve objective

To achieve the objective for Giant buttercup, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Giant buttercup to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent spread of Giant buttercup; and
3. Undertake liaison and advocacy to promote effective integrated pest management

## Plan rules requiring land occupiers to act

### Good Neighbour Rule

- 6.6.4.1 **A land occupier within the Taranaki region must destroy all Giant buttercup present on their land within five (5) metres of their property boundary to protect adjacent dairy and beef production values AND where the adjacent land occupier is managing Giant buttercup within five (5) metres of their property boundary.**

*Explanation of the rule:* The rule targets rural areas. The reason for this rule is to prevent unreasonable costs on dairy and beef pastoral production values caused by the spread of Giant buttercup across property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 5 metre buffer distance should be sufficient to address most externality impacts associated with Giant buttercup.

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

## 6.7 Giant gunnera (*Gunnera tinctoria*, *G. manicata*)

### 6.7.1 Adverse effects

All giant gunnera species and hybrids, including *Gunnera manicata* and *Gunnera tinctoria*,<sup>6</sup> are covered by this Plan. Giant gunnera species share many of the same features and are commonly mistaken for one another.

Giant gunnera is a giant clump-forming herbaceous perennial with massive umbrella sized leaves and stems up to two metres tall. It was a popular ornamental garden plant used extensively in bog gardens, however it has become invasive in several areas of New Zealand, including Taranaki.

Giant gunnera is a very free-seeding plant with the seeds being spread by water and birds. It represents a particular threat to indigenous biodiversity values, particularly in coastal, wetland and riparian areas. Once established the plants form dense colonies that can suppress the regeneration of indigenous flora. The presence of Giant gunnera in Key Native Ecosystems and other areas of high conservation value could have a disproportionately high impact on such areas, possibly impacting upon rare and endangered indigenous flora and fauna species.

Occasionally Giant gunnera causes the obstruction or infestation of production forestry and recreational areas.



### 6.7.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Giant gunnera species is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Giant gunnera management and a discussion on who should pay for the proposed management approach. The inclusion of Giant gunnera in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because—

- (a) Giant gunnera can form dense colonies which can invade and displace native vegetation, and impede access to waterways. It has a widespread distribution range in coastal and riparian areas in the Taranaki region; and
- (b) Council support and coordination maximises the effectiveness of individual control of Giant gunnera in the region. A sustained control programme involving the imposition of rules to control Giant gunnera is proposed for land within 500 metres of a property boundary where the adjacent land occupier is also managing Giant gunnera. This programme is essentially a continuation of the existing programme for pastoral farmers; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Giant gunnera through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on indigenous biodiversity values and riparian management, including threatened species.

### 6.7.3 Objective

Over the duration of the Plan, sustainably control Giant gunnera to avoid or minimise adverse effects on indigenous biodiversity values in the Taranaki region.

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<sup>6</sup> *Giant gunner* is also known as *Chilean Rhubarb*.



## 6.7.4 Principal measures to achieve objective

To achieve the objective for Giant gunnera, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Giant gunnera to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Giant gunnera and encourage its control; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will undertake direct control of Giant gunnera on Key Native Ecosystems as part of an agreed site-led response.

## Plan rules requiring land occupier and other persons to act

### General rule

- 6.7.4.1 **A private land occupier within the Taranaki region must destroy all Giant gunnera present on their land to protect indigenous biodiversity values.**

*Explanation of the rule:* The reason for this rule is to prevent the further spread of the plant across the region and the consequential impacts on indigenous biodiversity and riparian values.

### Good Neighbour Rule

- 6.7.4.2 **A Crown land occupier within the Taranaki region must destroy all Giant gunnera present on their land within 500 metres of their property boundary to protect adjacent indigenous biodiversity values AND where the adjacent land occupier is managing Giant gunnera within 500 metres of their property boundary.**

*Explanation of the rule:* The reason for this rule is to prevent unreasonable costs on indigenous biodiversity (including riparian) values caused by the spread of Giant gunnera via birds or water across property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 500 metre buffer distance should be sufficient to address most externality impacts associated with Giant gunnera.

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



## 6.8 Gorse (*Ulex europaeus*)

### 6.8.1 Adverse effects

Gorse is a deep-rooted, woody perennial shrub with sharp spikes.

The plant may grow up to four metres in height and has yellow flowers, which generally appear from May to November, followed by black seed pods. Gorse seeds are primarily ballistic and can be ejected up to five metres from their pods. However, the plant can also be spread by water or animals, or via human activities such as road works and gravel extraction.

Gorse seeds remain viable in the soil for many years. The plant's biological characteristics and its ability to grow almost anywhere, means that the plant can be a serious problem over large areas, including pasture, riparian zones, roadside margins, scrub-land, forest margins and coastal habitats.

The impact of Gorse is principally on agricultural production. Gorse forms dense spiny thickets, capable of totally suppressing pasture or restricting stock grazing in affected areas. Although Gorse does have benefits as a nursery plant for native species, the impacts on farm productivity, and the cost to land occupiers to control gorse may be significant. This is particularly the case on properties that are only marginally financially sustainable.



### 6.8.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Gorse species is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Gorse management and a discussion on who should pay for the proposed management approach. The inclusion of Gorse in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because–

- (a) Gorse is widespread throughout the Taranaki region and has continuing and significant impacts on production values in the dairy, sheep and beef, and plantation forestry sectors; and
- (b) Council support and coordination maximises the effectiveness of individual control of Gorse in the region. A sustained control programme involving the imposition of rules to control Gorse is proposed for rural land within 10 metres of a property boundary where the adjacent land occupier is also managing Gorse; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Gorse through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on dairy, sheep, and beef production and on plantation forestry.

### 6.8.3 Objective

Over the duration of the Plan, sustainably control Gorse to avoid or minimise adverse effects on pastoral or forestry production values in the Taranaki region.

## 6.8.4 Principal measures to achieve objective

To achieve the objective for Gorse, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Gorse to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Gorse; and
3. Undertake liaison and advocacy to promote effective integrated pest management.

### Service delivery

Taranaki Regional Council will–

1. Undertake biological control
2. Undertake direct control of Gorse on Key Native Ecosystems as part of an agreed site-led response.

### Plan rules requiring land occupier and other persons to act

#### Good Neighbour Rule

- 6.8.4.1 **A land occupier within the Taranaki region must destroy all Gorse present on their land within 10 metres of their property boundary to protect pastoral or forestry production values AND where the adjacent land occupier is managing Gorse within 10 metres of their property boundary, excepting any property or part of a property in an urban area.**

*Explanation of the rule:* The rule targets rural areas. The reason for this rule is to prevent unreasonable costs on pastoral production values caused by the spread of Gorse across rural property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 10 metre buffer distance should be sufficient to address most externality impacts associated with Gorse.

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

## 6.9 Nodding, Plumeless and Variegated thistles (*Carduus nutans*, *C. acanthoides*, *Silybum marianum*)

### 6.9.1 Adverse effects

Nodding, Plumeless and Variegated thistles are largely biennial plants.

Nodding thistle forms a flat rosette then has flowering stems up to 1.5 metres tall with a long fleshy taproot. The large purple flower heads droop or 'nod' when mature.

Plumeless thistle is similar to nodding thistle but grows taller (up to two metres tall) and has smaller flower heads that stay erect. The plants require the same control measures. Both Nodding and Plumless thistles are poisonous to cattle and sheep.

Variegated thistle is spiny and easily recognised by cream marks on its leaves, which give it a variegated appearance.

All three thistles are extremely invasive pasture plants. They will grow in most soil types and, owing to the mixed age and size of the plants, are difficult and costly to control. If not controlled, the thistles form dense stands that suppress pasture and obstruct livestock movement. Thistle fragments and spines may also injure livestock, damage the fleeces or hides of livestock, and may cause 'scabby mouth' in lambs.

Variegated thistle matures very rapidly, seeds prolifically, and is spread by wind and animals. It grows best on high fertility soils in pasture, along roadside margins, and in waste ground. The broad leaves smother pasture and create bare ground for its seeds to germinate.



Variegated Thistle



Nodding & Plumeless thistles

## 6.9.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Nodding, Plumeless and Variegated thistles is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Nodding, Plumeless, and Variegated thistle management and a discussion on who should pay for the proposed management approach. The inclusion of Nodding, Plumeless and Variegated thistles in the Plan, with the Council imposing rules and coordinating ongoing control of the plants by land occupiers, is considered appropriate because–

- (a) Infestations of Nodding, Plumeless and Variegated thistles are relatively confined in the Taranaki region. However, the biological and pest characteristics of the plants are such that small infestations can have a disproportionate impact on neighbouring pasture, and on production values in the dairy and sheep and beef sectors. There is also potential for Variegated thistle to impact on horticultural production if not well-managed; and
- (b) Council support and coordination maximises the effectiveness of individual control of Nodding, Plumeless and Variegated thistles in the region. A sustained control programme involving the imposition of rules to control Nodding and Plumeless thistles is proposed for land within 100 metres of a property boundary, and for Variegated thistles within five (5) metres of a property boundary, where the adjacent land occupier is also managing thistles; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Nodding, Plumeless and Variegated thistles through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on dairy, sheep, and beef production and on horticultural production in respect of Variegated thistles.

### 6.9.3 Objective

Over the duration of the Plan, sustainably control Nodding, Plumeless and Variegated thistles to avoid or minimise adverse effects on dairying and sheep and beef production in the Taranaki region.

### 6.9.4 Principal measures to achieve objective

To achieve the objective for Nodding, Plumeless and Variegated thistles, the following principal measures will be applied:

#### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

#### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Nodding, Plumeless or Variegated thistles to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

#### Advocacy and education

Taranaki Regional Council will-

1. Provide advice and information to land occupiers to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Nodding, Plumeless and Variegated thistles; and
3. Undertake liaison and advocacy to promote effective integrated pest management.

#### Service delivery

Taranaki Regional Council will-

1. Undertake biological control
2. Undertake direct control of thistles on Key Native Ecosystems as part of an agreed site-led response.

#### Plan rules requiring land occupier and other persons to act

##### Good Neighbour Rules

6.9.4.1 **A land occupier within the Taranaki region must destroy all Nodding and Plumeless thistles present on their land within 100 metres of their property boundary to protect adjacent dairying and sheep and beef production values AND where the adjacent land occupier is managing Nodding and Plumeless thistles within 100 metres of their property boundary,**

6.9.4.2 **A land occupier within the Taranaki region must destroy all Variegated thistles present on their land within five (5) metres of their property boundary to protect adjacent dairying and sheep and beef production values AND where the adjacent land occupier is managing Variegated thistles within five (5) metres of their property boundary.**

*Explanation of the rules:* The rules target rural areas. The reason for these rules is to prevent unreasonable costs on pastoral production values caused by the spread of Nodding, Plumeless and Variegated thistle across property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 5–100 metre buffer distance should be sufficient to address most externality impacts associated with Variegated, Nodding and Plumeless thistles.

Contravention of these rules creates an offence under section 154(N)(19) of the Biosecurity Act.

## 6.10 Old man's beard (*Clematis vitalba*)

### 6.10.1 Adverse effects

Old man's beard is a deciduous, woody, perennial climber that may reach 25 metres in height. In summer it has creamy white flowers followed by 'fluffy' seed heads in autumn and winter. The plant grows in well-drained alluvial soils and can occupy a wide range of habitats including riparian margins, forest remnants, gardens, and hedgerows. Wind, water and birds disperse the seeds.

Old man's beard is recognised as the most damaging pest climber in New Zealand and it is a significant threat to indigenous biodiversity values in the region. It has the potential to infest most lowland forested areas (under 750 metres above sea level) of Taranaki and is particularly troublesome in second growth or damaged indigenous forests (typical of many of the small but important remnant areas on the ring plain).

One plant is capable of blanketing an area up to 180 m<sup>2</sup>. The plant climbs high into the canopy, forming a thick blanket of growth, which prevents light reaching the support trees, eventually smothering and killing them. Old man's beard also prevents the establishment of native seedlings.



### 6.10.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Old man's beard is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Old man's beard management and a discussion on who should pay for the proposed management approach. The inclusion of Old man's beard in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because—

- (a) Old man's beard is widespread in the region, and has significant adverse impacts on indigenous biodiversity values, including threatened species; and
- (b) Council support and coordination maximises the effectiveness of individual control of Old man's beard in the region. Excluding certain areas in the region where the Council is working to bring infestations under control, a sustained control programme involving the imposition of rules to control Old man's beard across the whole property, or within 10 metres from the property boundary, is proposed for land where the adjacent land occupier is also managing Old man's beard; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Old man's beard through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on indigenous biodiversity values, including threatened species, especially in forested and riparian areas but also farm shelterbelts, plantation forests and orchards.

### 6.10.3 Objective

Over the duration of the Plan, sustainably control Old man's beard to avoid or minimise adverse effects on indigenous biodiversity and production forestry values in the Taranaki region.



## 6.10.4 Principal measures to achieve objective

To achieve the objective for Old man's beard, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Extension programme (Waingongoro Old man's beard programme)

Taranaki Regional Council will incrementally implement the Waingongoro Old man's beard Programme to:

1. Undertake initial Old man's beard control along the mid and lower reaches
2. Provide ongoing technical advice, information, and support to land occupiers in the programmes, including monitoring and enforcement of rules.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Old man's beard to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will-

1. Provide advice and information to land occupiers and the general public to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Old man's beard and encourage its control; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will -

1. Incrementally undertake initial direct control of Old man's beard along the Waingongoro River south of Opunake Road;
2. Undertake direct control of Old man's beard on Key Native Ecosystems as part of an agreed site-led response;
3. Investigate the undertaking of direct control along the mid to lower parts of the Patea River.

## Plan rules requiring land occupier and other persons to act

### General Rule

#### 6.10.4.1 A private land occupier within the Taranaki region must destroy all Old man's beard on their property, except:

- (a) any parts of a property that lie within 50 metres from the middle of the Waingongoro River south of Opunake Road and for which the Council has not completed its initial control programme; and
- (b) any parts of a property that lie within 50 metres from the middle of the Patea River east of State Highway 3

*Explanation of the rule:* The reason for this rule is to prevent unreasonable costs on indigenous biodiversity (and riparian) values caused by the spread of Old man's beard from modified landscapes to natural areas across Taranaki. The rule applies to private land only (as the Crown can only be bound to good neighbour rules). The rule does not apply within 50 metres from the middle of the Waingongoro River south of Opunake Road unless Council has undertaken initial control. Likewise the rule does not apply to the Patea River east of State Highway Three. The rule does not apply to these areas as the plant is considered too widespread for land occupiers to undertake effective control and the cost of control would be disproportionately high.

### Good Neighbour Rule

#### 6.10.4.2 A Crown land occupier within the Taranaki region must destroy all Old man's beard present on their land within 10 metres of their property boundary to protect indigenous biodiversity values AND where the adjacent land occupier is managing Old man's beard within 10 metres of their property boundary.

*Explanation of the rule:* The reason for this good neighbour rule is to prevent unreasonable costs on indigenous biodiversity (and riparian) values caused by the spread of Old man's beard on Crown land, across property boundaries, where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 10 metre buffer distance should be sufficient to address most externality impacts associated with Old man's beard.

Contravention of these rules creates an offence under section 154(N)(19) of the Biosecurity Act.

## 6.11 Pampas – Common and Purple (*Cortaderia selloana* and *C. jubata*)

### 6.11.1 Adverse effects

Common pampas (*Cortaderia selloana*) and Purple pampas (*C. jubata*) were introduced to New Zealand in the late 1800s as supplementary stock fodder and as a shelterbelt plant. Both forms also became popular ornamental plants.

Pampas plants can grow up to three metres high and are erect, tall, clump-forming perennial grasses with coarse abrasive leaves. The distinctive flower stems can grow up to five metres high. Common Pampas has fluffy white flowers, which appear in mid-March, while Purple Pampas has purple flower heads that appear in late January, and later fade to brown. Other than that, the plants share the same features and require the same control measures.

Pampas has a fast growth rate and is very hardy. The root system of a single plant can occupy as much as 103 cubic m of soil and it flowers prolifically, with up to 100,000 seeds produced per flower head. The primary mode of distribution for Pampas seed is by wind and seed can be blown a considerable distance away from the parent plant. It can also be dispersed by gravel, vehicles and livestock.

Pampas predominantly impacts on indigenous biodiversity and, to a lesser extent, forestry production values. The biggest threat to indigenous biodiversity values is in coastal areas where Pampas cannot be easily shaded out and/or managed. It is a particular threat on coastal cliffs, islands and sand dune habitats but also can impact on wetlands, and scrub and forest margins. In those areas Pampas can suppress or exclude indigenous flora, and may eventually eliminate indigenous seed sources, thereby altering the existing structure and species composition.

In production forestry areas, the plants can interfere with the planting of exotic forests by crowding out seedlings and imposing significant costs of control on the occupier.

Pampas can be readily controlled using herbicides. However, effective herbicide control is costly and time consuming as it involves not only the costs of the herbicide, but the costs of penetrant and labour. Repeat applications may be required due to it becoming resistant in pastoral situations. The plants can be grazed by stock, however, mechanical removal of large mature plants is difficult.

### 6.11.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Pampas species is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Pampas management and a discussion on who should pay for the proposed management approach. The inclusion of Pampas in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because–

- (a) Pampas has a widespread distribution range in the Taranaki region. It is prevalent across much of the farmed landscape (where it has been extensively used for hedging purposes) and in 'wild' situations such as roadside verges. Without control the plant can become very invasive, forming dense impenetrable stands. Its seed-banks can re-infest barren, burnt and sprayed sites, and grazed plants can re-sprout. Pampas can invade and displace native vegetation, and interfere with plantation forestry; and
- (b) Council support and coordination maximises the effectiveness of individual control of Pampas in the region. A sustained control programme involving the imposition of rules to control Pampas is proposed for Crown and private land. This programme reduces the requirement for control for pastoral farmers; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Pampas through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on plantation forestry and biodiversity values.

### 6.11.3 Objective

Over the duration of the Plan, sustainably control Common pampas and Purple pampas to avoid or minimise adverse effects on indigenous biodiversity or production forestry in the Taranaki region.

## 6.11.4 Principal measures to achieve objective

To achieve the objective for Pampas, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Pampas to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Pampas and encourage its control; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will undertake direct control of Pampas on Key Native Ecosystems as part of an agreed site-led response.

### Plan rules requiring land occupier and other persons to act

#### Good Neighbour Rule

- 6.11.4.1 **A land occupier within the Taranaki region must destroy all Common pampas or Purple pampas present on their land within 2,000 metres of their property boundary to protect adjacent indigenous biodiversity and production forestry values AND where the adjacent land occupier is managing Pampas within 2,000 metres of their property boundary.**

*Explanation of the rule:* The reason for this rule is to prevent unreasonable costs on plantation forestry and indigenous biodiversity values caused by the spread of Pampas via birds across property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a 2,000 metre buffer distance should be sufficient to address most externality impacts associated with Pampas.

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



## 6.12 Wild broom (*Cytisus scoparius*)

### 6.12.1 Adverse effects

Wild broom is a multi-branched shrub that grows up to 2.5 metres tall. The plant has bright yellow flowers throughout October and November and these are followed by flat, dark seed pods. The seeds are ballistic, although animals and flowing water also have a role in their dispersal.

Wild broom seeds prolifically and can grow under a wide variety of soil and climatic conditions. The plant is principally a problem in pastoral situations where it forms thickets and shades out pasture grasses, affecting agricultural production and imposing costs of control on the occupier.

Wild broom can also invade and modify semi-open indigenous ecosystems such as riparian areas. In some areas, Wild broom may affect aesthetic or recreational values by inhibiting access to riparian margins and or reducing indigenous biodiversity values generally.



### 6.12.2 Reasons for proposed Wild broom programme

An analysis of the benefits and costs of sustained control of Wild broom is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Wild broom management and a discussion on who should pay for the proposed management approach. The inclusion of Wild broom in the Plan, with the Council imposing rules and coordinating ongoing control of the plants by land occupiers, is considered appropriate because–

- (a) Wild broom has a widespread distribution range in the Taranaki region, with light infestations occurring throughout the region, mostly on waste areas, roadsides, riparian margins or poorly grazed pasture on the ring plain. Wild broom has a significant impact on production values (dairy, sheep and beef, and forestry). However it can also impact on species diversity and threatened species; and
- (b) Council support and coordination maximises the effectiveness of individual control of Wild broom in the region. A sustained control programme involving the imposition of rules to control Wild broom is proposed for land within 10 metres of a property boundary where the adjacent land occupier is also managing Wild broom; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Wild broom through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on dairy, sheep, beef and forestry production and on species diversity and threatened species.

### 6.12.3 Objective

Over the duration of the Plan, sustainably control Wild broom to avoid or minimise adverse effects on dairying, sheep and beef and forestry production in the Taranaki region.

## 6.12.4 Principal measures to achieve objective

To achieve the objective for Wild broom, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Wild broom to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote effective control of Wild broom;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Wild broom; and
3. Undertake liaison and advocacy to promote effective integrated pest management.

### Service delivery

Taranaki Regional Council will undertake direct control of Wild broom on Key Native Ecosystems as part of an agreed site-led response.

### Plan rules requiring land occupier and other persons to act

#### Good Neighbour Rule

**6.12.4.1 A land occupier within the Taranaki region must destroy all Wild broom present on their land within 10 metres of their property boundary to protect adjacent dairying, sheep and beef or production forestry values AND where the adjacent land occupier is managing Wild broom within 10 metres of their property boundary.**

*Explanation of the rule:* The rule targets rural areas. The reason for this rule is to prevent unreasonable costs caused by the spread of Wild broom on pastoral or arable production values across property boundaries where active management is being undertaken by an adjacent land occupier. Scientific literature confirms that a ten metre buffer distance should be sufficient to address most externality impacts associated with Wild broom.

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

## 6.13 Wild ginger (Yellow and Kahili) (*Hedychium gardnerianum*, *H. flavescens*)

### 6.13.1 Adverse effects

Kahili ginger and Yellow ginger share many of the same features and, when not in flower, are often commonly mistaken for one another. Yellow ginger flowers are cream coloured and are seen late autumn and early winter. Kahili ginger flowers are lemon yellow with red centre stamens and are seen during the late summer and early autumn followed by red seeds. The leaves are wider than that of Yellow ginger.

Both varieties can grow up to two metres or more and produce many branching rhizomes, which spread outwards and over themselves to create a rhizome bed a metre or more deep. In addition to branching rhizomes, Kahili ginger also produces up to 100 seeds per flower head, making it a more prolific spreader than Yellow ginger.

Kahili and yellow ginger are ecologically versatile plants that are extremely difficult to control or eradicate once established. Once popular garden plants, both gingers are now generally considered to be insidious, and have a significant impact on indigenous biodiversity values. Once established in indigenous forested areas and other habitats, the tough rhizomes form a solid web over large areas smothering and replacing understorey species and seedlings. Kahili ginger and Yellow ginger can suppress indigenous regeneration by up to 90%, however, Kahili ginger is the more insidious plant given its seeding ability.

Kahili ginger and yellow ginger can also block streams and drains and obstruct walking tracks, reducing access to some recreational and conservation areas and the aesthetic appeal of such areas.



### 6.13.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Wild ginger (Yellow and Kahili) is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Wild ginger management and a discussion on who should pay for the proposed management approach. The inclusion of Wild ginger in the Plan, with the Council imposing rules and coordinating ongoing control of the plants by land occupiers, is considered appropriate because—

- (a) Wild ginger infestations are widespread throughout Taranaki. Most infestations occur in and around New Plymouth where it has extensively been used for streambank stabilisation purposes. However, the plants are also found in many home gardens and waste areas in Taranaki. Wild ginger has significant biodiversity impacts and can out-compete almost all native species. It can also establish in plantation forests and prevent forest regeneration. The plants are not yet found in areas where they may affect rare and endangered species; and
- (b) Council support and coordination maximises the effectiveness of individual control of Wild ginger in the region. A sustained control programme involving the imposition of rules to control Yellow ginger is proposed for land within five (5) metres from the property boundary, and to control Kahili ginger on land within 1,000 metres from the property boundary, where the adjacent land occupier is also managing Kahili ginger. This programme is essentially a continuation of the existing programme for Kahili ginger, and reduces the scope of the rule for Yellow ginger; and
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (a) There are regional public good benefits from sustained management of Wild ginger – both Yellow and Kahili - through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (d) Implementation of the Plan will have a positive effect on biodiversity and on plantation forestry.

### 6.13.3 Objective

Over the duration of the Plan, sustainably control Wild ginger (Yellow and Kahili) to avoid or minimise adverse effects on indigenous biodiversity in the Taranaki region.

## 6.13.4 Principal measures to achieve objective

To achieve the objective for Wild ginger, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Wild ginger (Yellow and Kahili) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote effective control;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Wild ginger and encourage its control; and
3. Undertake liaison and advocacy to promote effective integrated pest management.

### Service delivery

Taranaki Regional Council will undertake direct control of Wild ginger on Key Native Ecosystems as part of an agreed site-led response.

### Plan rules requiring land occupier and other persons to act

#### General Rule

**6.13.4.1 A private land occupier within the Taranaki region must destroy all Yellow ginger or Kahili ginger present on their land.**

*Explanation of the rule:* The reason for this general rule is to prevent unreasonable costs on indigenous biodiversity values caused by the spread of Wild ginger (Yellow and Kahili) throughout the region.

#### Good Neighbour Rule for Yellow Ginger

**6.13.4.2 A Crown land occupier within the Taranaki region must destroy all Wild ginger (Yellow) present on their land within five (5) metres of their property boundary to protect indigenous biodiversity values AND where the adjacent land occupier is managing Wild ginger (Yellow) within five (5) metres of their property boundary.**

#### Good Neighbour Rule for Kahili Ginger

**6.13.4.3 A Crown land occupier within the Taranaki region must destroy all Wild ginger (Kahili) present on their land within 1,000 metres of their property boundary to protect indigenous biodiversity values AND where the adjacent land occupier is managing Wild ginger (Kahili) within 1,000 metres of their property boundary.**

*Explanation of the rules:* The reason for these rules is to prevent unreasonable costs on indigenous biodiversity values caused by the spread of Wild ginger (Yellow and Kahili) across property boundaries where active management is being undertaken by an adjacent land occupier. Kahili ginger is a prolific seeder and can be spread by birds as well as by rhizomes hence the Kahili rule's 1000 metre buffer distance compared with 5 metres for Yellow ginger, which spreads by rhizomes only. Scientific literature confirms that these distinct buffer zones should be sufficient to address most externality impacts associated with Wild ginger.

Contravention of these rules creates an offence under section 154(N)(19) of the Biosecurity Act.

## 6.14 Yellow ragwort (*Jacobaea vulgaris*)

### 6.14.1 Adverse effects

Yellow ragwort is a herbaceous biennial or perennial with conspicuous yellow flowers during summer.

The majority of plants flower in their second season, from December to March, followed by mature seeds a few weeks after the first appearance of flowers. A large plant can produce 150,000 seeds in one season. It commonly grows 45 to 60 centimetres high.

Yellow ragwort can be a serious pasture weed, found in waste places, riparian margins, open forests and swamps. Once established, the plant has the ability to spread rapidly and invade 'clean' pasture areas. It seeds freely and is dispersed principally by wind and, to a lesser extent, by water and animals, and in hay.

Yellow ragwort is a particular problem in dairying parts of Taranaki. Heavy infestations will reduce pasture production, thereby reducing the carrying capacity of dairy land, and imposing added farm production costs on the occupier.

Ragwort is toxic to cattle, horses and deer so they avoid the plant and pasture nearby. This enhances the smothering effects of the plant and further reduces pasture utilisation.



### 6.14.2 Reasons for proposed programme

An analysis of the benefits and costs of sustained control of Yellow ragwort is contained in the companion CBA report. The CBA report also includes an analysis of beneficiaries and exacerbators in relation to Yellow ragwort management and a discussion on who should pay for the proposed management approach. The inclusion of Yellow ragwort in the Plan, with the Council imposing rules and coordinating ongoing control of the plant by land occupiers, is considered appropriate because–

- (a) Yellow ragwort has a widespread distribution range in the Taranaki region and can significantly affect dairy and beef pasture production. While there are scattered infestations of Ragwort throughout the region, most land occupiers are effectively managing the plant as part of normal farm work; and.
- (b) Given the widespread nature of this pest, Council support and coordination is aimed at maximising the effectiveness of individual control of Yellow ragwort in the region; and,
- (c) There are no alternative measures that are a preferable means of achieving the objectives; and
- (d) There are regional public good benefits from sustained management of Yellow ragwort through the implementation of a regionally coordinated inspectorial, monitoring and enforcement regime to ensure compliance, while land occupiers pay for the cost of any direct control; and
- (e) Implementation of the Plan will have a positive effect on dairy, deer, and beef production.

### 6.14.3 Objective

Over the duration of the Plan, sustainably control Yellow ragwort to avoid or minimise adverse effects on dairy or beef production values in the region.



## 6.14.4 Principal measures to achieve objective

To achieve the objective for Yellow ragwort, the following principal measures will be applied:

### Requirement to act

Land occupiers will comply with the rules specified in this section of the Plan.

### Inspection and monitoring

Taranaki Regional Council will inspect and monitor properties with suspected or confirmed infestations of Yellow ragwort to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

1. Provide advice and information to land occupiers and the general public to promote effective control of Yellow ragwort;
2. Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the spread of Yellow ragwort; and
3. Undertake liaison and advocacy to promote effective integrated pest management

### Service delivery

Taranaki Regional Council will undertake biological control of Yellow ragwort.

### Plan rules requiring land occupier and other persons to act

#### General Rule

6.14.4.1 **A private land occupier west of the Pest Management Line as identified in Appendix A of the Plan must destroy all Yellow ragwort on their land, except:**

- **Any Crown land in which case 6.14.4.2 applies.**

*Explanation of the rules:* The reason for these general rules is to target private land on the ring plain and coastal terraces to ensure that Yellow ragwort is effectively managed, to address not only its cost impacts on adjacent land, but also any dairy or arable production values on the occupied land.

#### Good Neighbour Rule

6.14.4.2 **A Crown land occupier within the region, or land occupier east of the Pest Management Line as identified in Appendix A of the Plan, must destroy all Yellow ragwort present on their land within 20 metres of their property boundary to protect adjacent dairying or beef production values AND where the adjacent land occupier is managing Yellow ragwort within 20 metres of their property boundary.**

*Explanation of the rule:* The reason for this rule is to prevent unreasonable costs caused by the spread of Yellow ragwort on dairy or beef production values, (including deer) across property boundaries where active management is being undertaken by an adjacent land occupier and dairy or arable land values are being impacted upon. Scientific literature confirms that a 20 metre buffer distance should be sufficient to address most externality impacts associated with Yellow ragwort.

Contravention of these rules creates an offence under section 154(N)(19) of the Biosecurity Act.

## Other harmful organisms

## 7. Other harmful organisms

### 7.1 Overview

Some harmful organisms have not been declared 'pests' for the purposes of this Plan because regulatory responses, including the imposition of rules, are not considered appropriate or necessary.

Notwithstanding that the organisms noted below will not be classified as pests for the purposes of this Plan, they may have significant adverse effects which may be mitigated by non-regulatory action such as pathway management, advice and education, liaison and advocacy, biological control and/or site-led management as appropriate.

A summary of the management regime for other harmful organisms, including but not confined to the species identified in **Table 5** below, is outlined below.

For further information refer to the *Taranaki Regional Council Biosecurity Strategy 2017–2037*.



## 7.2 Management of other harmful organisms

**Table 5:** Management of other harmful organisms

Pathway/surveillance	
All exotic reptiles and amphibians (other than the currently established 3 species of <i>Australian Litoria</i> ) found in the wild	
Alligator weed ( <i>Alternanthera philoxeroides</i> )	Brown bull-headed catfish ( <i>Ameiurus nebulosus</i> )
Darwins ant ( <i>Doleromyrma darwiniana</i> )	Great White butterfly ( <i>Pieris brassicae</i> )
Plague skink ( <i>Lampropholis delicata</i> )	Rainbow lorikeet ( <i>Trichoglossus haematodus</i> )
Red-eared slider turtle ( <i>Trachemys scripta elegans</i> )	Rook ( <i>Corvus frugilegus</i> )
Rusa deer ( <i>Cervus timorensis</i> )	Sea Spurge ( <i>Euphorbia paralias</i> )
Wallaby – Dama ( <i>Macropus eugenii</i> ); - Bennett's ( <i>Macropus rufogriseus</i> )	Wapiti ( <i>Cervus elaphus nelsoni</i> )
White-tailed deer ( <i>Odocoileus virginianus</i> )	
Site-led animals and birds	
Argentine Ant ( <i>Linepithema humile</i> )	Eastern rosella ( <i>Platycercus eximius</i> )
Feral cat ( <i>Felis catus</i> )	
Feral deer - Red deer: ( <i>Cervus elaphus</i> ); Sika deer: ( <i>Cervus Nippon</i> ); Sambar deer: ( <i>Cervus unicolor</i> ); Fallow deer: ( <i>Cervus dama</i> ; <i>Cervus elaphus nelsoni</i> ; and <i>Odocoileus virginianus borealis</i> )	Mustelids: Ferret ( <i>Mustela furo</i> ); Stoat ( <i>Mustela erminea</i> ); and Weasel ( <i>Mustela nivalis vulgaris</i> )
Feral goat ( <i>Capra hircus</i> )	Feral pig ( <i>Sus scrofa</i> )
German wasp ( <i>Vespula germanica</i> ), Common wasp ( <i>V. Vulgaris</i> ), Paper wasps ( <i>Polistes humilis</i> and <i>P. chinensis</i> )	Hare ( <i>Lepus europaeus occidentalis</i> )
Hedgehog ( <i>Erinaceus europaeus occidentalis</i> )	Magpie ( <i>Gymnorhina tibicen</i> )
Rabbit ( <i>Oryctolagus cuniculus</i> )	Ship rat ( <i>Rattus rattus</i> ) and Norway rat ( <i>R. norvegicus</i> )
Rock pigeon ( <i>Columba livia</i> )	
Site-led freshwater fish:	
Gambusia ( <i>Gambusia affinis</i> )	Koi carp ( <i>Cyprinus carpio</i> )
Rudd ( <i>Scardinius erythrophthalmus</i> )	

Site-led plants	
Arum lily ( <i>Zantedeschia aethiopica</i> )	Australian sedge ( <i>Carex lonebrachiata</i> )
Bamboo (Various bamboo species including <i>Bambusa</i> spp. <i>Phyllostachys</i> spp. and <i>pseudosasa japonica</i> )	Banana passionfruit ( <i>Passiflora tripartite</i> )
Blackberry ( <i>Rubus fruticosus</i> )	Blue morning glory ( <i>Ipomoea indica</i> )
Brush wattle ( <i>Paraserianthes lophantha</i> )	Cathedral bells ( <i>Cobaea scandens</i> )
Chinese privet ( <i>Ligustrum sinense</i> )	Chocolate vine ( <i>Akebia quinata</i> )
Climbing asparagus ( <i>Asparagus scandens</i> )	Coastal banksia ( <i>Banksia integrifolia</i> )
Contorta pine ( <i>Pinus contorta</i> )	Cotoneaster ( <i>Cotoneaster glaucophyllus</i> )
Darwin's barberry ( <i>Berberis darwinii</i> )	Egeria oxygen weed ( <i>Egeria densa</i> )
Elaeagnus ( <i>Elaeagnus x reflexa</i> )	Elder ( <i>Sambucus nigra</i> )
Grateloupia (Devil's Tongue) ( <i>Grateloupia turuturu</i> )	Green goddess ( <i>Zantedeschia aethiopica</i> 'green goddess')
Grey willow ( <i>Salix cinera</i> )	Hawthorn ( <i>Crataegus monogyna</i> )
Holly ( <i>Ilex aquifolium</i> )	House Holly Fern ( <i>Cyrtomium falcatum</i> )
Homwort ( <i>Ceratophyllum demersum</i> )	Ivy ( <i>Hedera helix</i> )
Japanese honeysuckle ( <i>Lonicera japonica</i> )	Japanese walnut ( <i>Juglans ailantifolia</i> )
Jasmine ( <i>Jasminum polyanthum</i> )	Lagarosiphon oxygen weed ( <i>Lagarosiphon major</i> )
Periwinkle ( <i>Vinca major</i> )	Plectranthus ( <i>Plectranthus ciliatus</i> )
Potato vine ( <i>Solanum jasminoides</i> )	Ragwort – Pink ( <i>Senecio glastifolius</i> )
Reed sweet grass ( <i>Glyceria maxima</i> )	Smilax ( <i>Asparagus asparagoides</i> )
Spanish heath ( <i>Erica lusitanica</i> )	Sycamore ( <i>Acer pseudoplatanus</i> )
Tree privet ( <i>Ligustrum lucidum</i> )	Tutsan ( <i>Hypericum androseamum</i> )
Undaria ( <i>Undaria pinnatifida</i> )	Wandering willy ( <i>Tradescantia fluminensis</i> )
Wilding cherry species (eg <i>Prunus avium</i> , <i>P. serotina</i> , and <i>P. serrulata</i> )	Woolly nightshade ( <i>Solanum mauritanum</i> )
Yellow bristle grass ( <i>Setaria pumila</i> )	

Pathway, surveillance, site-led management and other non-regulatory responses are considered appropriate options for the harmful organisms listed in Table 5 above.

## 7.3 Objectives

Over the duration of the Plan, and in conjunction with the Taranaki Regional Council *Biosecurity Strategy 2017–2037*, to manage other harmful organisms, to avoid or minimise adverse effects on economic wellbeing; the environment; human health; enjoyment of the natural environment; the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu and taonga; or the marketing overseas of New Zealand production in the Taranaki region, through site-led or pathway management, by way of the following measures:

## 7.4 Principal measures to achieve objective

### Inspection and monitoring

Taranaki Regional Council may inspect and monitor properties with suspected or confirmed infestations of harmful organisms to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

### Advocacy and education

Taranaki Regional Council will–

Provide advice and information to land occupiers and the general public to promote awareness and encourage the public reporting of any infestations;

Provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to prevent the introduction or spread of the harmful organisms, or encourage their control; and

Undertake liaison and advocacy to promote effective integrated management

### Service delivery

Taranaki Regional Council may undertake direct control of the harmful organisms listed in Table 5, on KNEs as part of an agreed site-led response, and elsewhere as appropriate.

## 8. Actual or potential effects of implementation

Given its longstanding experience in pest management, Taranaki Regional Council is satisfied that the overall effects of the RPMP will be beneficial to the regional community. While Taranaki Regional Council is confident that a RPMP is an effective way of managing pests, there are some aspects of the implementation of the RPMP that may have real or perceived adverse effects.

### 8.1 Effects on Māori

It is hoped that pest animal and plant management under the RPMP will have a positive effect on the relationship of Māori with their culture and traditions, and their ancestral lands, waters, sites, wāhi tapu, and taonga, by contributing to the protection of taonga and mauri associated with indigenous biodiversity, landscapes, and waterways.

Positive results stemming from the RPMP can include improved quality of traditional food gathering sites (eg wetlands and estuaries), and improved availability of native plant resources for food, fibre, and the purposes of rongoa.

It is acknowledged that feral animals such as deer, pigs, and goats are valued as replacements for traditional hunting resources. However, none of these feral species are priorities for pest control under the RPMP, and therefore the effect of the RPMP on the regional availability of these hunting resources will be minimal.

### 8.2 Effects on the environment

This RPMP will enhance and protect the ecological environment including natural ecosystems and processes, soil health and water quality, by removing, reducing, or managing the pest species that threaten it. The use of control tools such as toxins or traps can negatively affect indigenous wildlife. Taranaki Regional Council actively participates in current research and training that aims to minimise the non-target effects of pest control, and readily adopts best practice methods for poisoning and trapping operations.

Enjoyment of the cultural environment will also be enhanced where pest management overlaps with amenity and recreational values. The economic environment will experience some benefit as a result of suppressing or eradicating pests that impact on primary productivity. In addition, the tourism industry (domestic and international) is expected to gain from this RPMP through enhancement of the natural areas utilised by visitors.

### 8.3 Effects on marketing overseas of New Zealand products

The control of pests in areas of high natural value (Key Native Ecosystems), in conjunction with the *Taranaki Regional Council Biosecurity Strategy 2017–2037*, should increase the recreational and aesthetic values associated with these areas, which may have a positive impact on international tourism.

The provisions of this Plan do not replace other legislation or regulations relating to the use of toxins and impacts on Māori culture and traditions, and public health and safety. The Taranaki Regional Council shall monitor and report on any impacts arising through the use of toxins through systems and processes established under the relevant legislation. The Taranaki Regional Council will also routinely record and report any adverse effects arising from its direct control operations, including non-target kills.

The use of best practice methods when applying toxins and employment of the mixed method of control should mitigate any threat to the marketing of New Zealand products. Moreover the volume of exports may be improved through increased productivity by managing pests that affect agriculture, horticulture, and forestry.

## 9. Monitoring

### 9.1 Measuring what the objectives are achieving

The Taranaki Regional Council shall monitor the extent to which the objectives set out in Part Two of this Plan are being achieved by:

- (a) annually mapping the implementation of the Self-help Possum Control Programme;
- (b) monitoring possum population densities and trends, over time, in areas included in the Self-help Possum Control Programme;
- (c) developing agreed collaborative monitoring, reporting and management programmes addressing possum control within and around the Egmont National Park;
- (d) monitor, for each pest, the effectiveness of direct control undertaken by the Taranaki Regional Council;
- (e) recording the number of public complaints pertaining to individual pests and instances of non-compliance with the plan rules; and
- (f) recording the number of public enquiries in relation to individual pests, including requests for information.
- (g) annually surveying at release sites and mapping the distribution of biological control agents.

### 9.2 Monitoring the management agency's performance

The Taranaki Regional Council is the management agency. As the management agency responsible for implementing the Plan, the Taranaki Regional Council will–

- (a) prepare an operational plan within three months of the Plan being approved;
- (b) review the operational plan, and amend it if needed;
- (c) report on the operational plan each year, within five months after the end of each financial year; and
- (d) maintain up-to-date databases of complaints, pest levels and densities, and responses from Regional Council and land owners and/or occupiers.

### 9.3 Monitoring plan effectiveness

Monitoring the effects 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 Taranaki Regional 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 Taranaki Regional Council–

- (a) 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;
- (b) 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
- (c) liaising with Crown agencies, territorial authorities, iwi authorities and key interest groups, on the effectiveness of the Plan.

### 9.4 Monitoring other effects of this Plan

The provisions of this Plan do not replace other legislation or regulations relating to the use of toxins, impacts on Maori culture and traditions, and public health and safety. Where appropriate, the Taranaki Regional Council shall monitor and report on any impacts arising through the use of toxins through systems and processes established under the Resource Management Act. The Taranaki Regional Council will also routinely record and report any adverse effects arising from its direct control operations, including non-target kills.

Agencies other than the Taranaki Regional Council are more likely to undertake monitoring and respond to any problems under the Health and Safety in Employment Act 1992, the Hazardous Substances and New Organisms Act 1996, and the Agricultural Compounds and Veterinary Medicines Act 1997.



## PART THREE: PROCEDURES





## 10. Powers conferred

### 10.1 Powers under Part 6 of the Act

The Principal Officer (Chief Executive) of the Taranaki Regional Council may appoint authorised persons to exercise the functions, powers, and duties under the Act in relation to a RPMP.

The Taranaki Regional Council will use those statutory powers of Part 6 of the Act as shown in **Table 6** below, where necessary, to help implement this Plan.

**Table 6:** Powers from Part 6 to be used

Administrative provisions	Biosecurity Act Reference
The appointment of authorised and accredited persons	Sections 103(3) and (7)
Delegation to authorised persons	Section 105
Power to require assistance	Section 106
Power of inspections and duties	Sections 109, 110 & 112
Power to record information	Section 113
General powers	Sections 114 & 114A
Use of dogs and devices	Section 115
Power to seize abandoned goods	Section 119
Power to intercept risk goods	Section 120
Power to examine organisms	Section 121
Power to give directions	Section 122
Power to act on default	Section 128
Liens	Section 129
Declaration of restricted place	Section 130
Declaration of controlled area	Section 131
Options for cost recovery	Section 135
Failure to pay	Section 136

**Note:** The Taranaki Regional Council's standard operating procedures document sets out the procedures the Taranaki Regional Council will follow when land owners and/or occupiers or other persons do not comply with the rules or other general duties.

### 10.2 Powers under other sections of the Act

A land occupier or any person in breach of a plan rule creates an offence under section 154N(19) of the Act, where the rule provides for this. The Taranaki Regional Council can seek prosecution under section 157(5) of the Act for those offences.

A Chief Technical Officer (employed under the State Sector Act 1988) may appoint authorised people to implement other biosecurity law considered necessary. One example is where restrictions on selling, propagating and distributing pests (under sections 52 and 53 of the Act) must be enforced. Another example is where owners and/or occupiers of land are asked for information (under section 43 of the Act).

### 10.3 Power to issue exemptions to plan rules

Any land occupier or other person may write to the Taranaki Regional Council to seek an exemption from any provision of a plan rule set out in Part Two of the RPMP.

The requirements in section 78 of the Act must be met for a person to be granted an exemption. Taranaki Regional Council's operating procedures must also note those requirements in full. The requirements are:

- The council is satisfied that granting the exemption will not significantly prejudice the attainment of the plan's objectives; and
- The council is satisfied that 1 or more of the following applies:
  - The requirement has been substantially complied with and further compliance is unnecessary;
  - The action taken on, or provision made for, the matter to which the requirement relates is as effective as, or more effective than, compliance with the requirement;
  - The requirement is clearly unreasonable or inappropriate in the particular case;
  - Events have occurred that make the requirement unnecessary or inappropriate in the particular case.

The Taranaki Regional Council will keep and maintain a register that records the number and nature of exemptions granted. The public will be able to inspect this register during business hours.

## 11. Funding

The Act requires that funding is thoroughly examined. For a Proposal, this includes–

- 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 person’s actions or inactions may contribute to creating, continuing or making worse the problems that the plan proposes to resolve;
- noting the reason 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.

### 11.1 Analysis of benefits and costs

A full description of the adverse effects of the pests identified in this Plan is contained in the companion CBA report. A summary of the benefits and costs are shown and summarised in

**Table 7** (Appendix 1).

### 11.2 Beneficiaries and exacerbators

The CBA report also includes an analysis of beneficiaries and exacerbators in relation to the management of pest animals and plants, including recommendations on who should pay for the proposed management approach. **Table 9** (Appendix 3) shows a summary of the beneficiaries (those who benefit from controlling pests); and exacerbators (those who contribute to the pest problem) for the pests and other harmful organisms referred to in this Proposed Plan.

### 11.3 Anticipated costs to the Council of implementing the Plan

The anticipated costs to the Council of implementing the proposed RPMP reflect a similar level of pest management funding to previous years. The Taranaki Regional Council expects that the relative cost of pest

management will be similar for the duration of the Plan.

The funding of the implementation of the proposed Plan is from a region-wide general rate set and assessed under the Local Government (Rating) Act 2002, and in determining this, the Taranaki Regional Council has had regard to those matters outlined in Section 100T of the Biosecurity Act.

### 11.4 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.

In general, efficiency is best achieved by targeting costs to those closest to a particular work where those paying can act in respect of those works. If the person deciding has to pay for the results of their action or inaction, they may change their behaviour to minimise costs. Doing so would lead to the least-cost outcome for society. But if another person pays for those costs, the incentive to change behaviour is minimal. This may lead to a higher cost for society. Efficiency includes close targeting of costs to benefits and to those contributing to the problem (exacerbators). Equity is difficult to establish, particularly if a “public good” component exists. However, through the Plan development process, assumptions around efficiency, effectiveness and equity may be tested. Costs will be recovered from land occupiers by the means and to the extent identified below.

#### 11.4.1 General rate and investment revenue

Private land occupiers will contribute to the programmes identified in this Plan through a proportion of the general rate that is levied on every separately rateable property in the region under Section 33 of the Rating Powers Act 1988, and a proportion of the Taranaki Regional Council’s investment revenue.

#### 11.4.2 Recovery of direct costs

The Council will recover costs for a particular function or service under section 135 of the Act. In the event that the Council incurs costs arising from a land occupier's failure to comply with a notice of direction, the Council may:

- recover actual and reasonable costs associated with additional inspections for pest infestations; and
- recover actual and reasonable costs associated with undertaking the control of pest infestations.

The amount of money recovered from direct charges will vary from year-to-year depending on the number of cost recovery pest plant control operations undertaken, if any.

the effect of inflation. Funding sources include direct charges (usually arising from enforcement action), and a proportion of the general rate.

The New Plymouth, Stratford and South Taranaki district councils collect general rates on behalf of the Taranaki Regional Council. The policies adopted by the Taranaki Regional Council in relation to rate remissions, postponements, and additional charges are those adopted by the respective district councils.

### 11.4.3 Funding limitations

No unusual administrative problems or costs are expected in recovering the costs from any of the persons who are required to pay.

**Table 7** below sets out the indicative income and costs for the Plan, up until 2020/2021. The figures include

**Table 7:** Indicative costs and sources of funds (exclusive of GST)

Expenditure	2016/17 \$	2017/18 \$	2018/19 \$	2019/20 \$	2020/21 \$
Biosecurity pest animal and plant management planning, plans and strategy initiatives, and actions	2,049,707	1,806,794	1,829,842	2,050,486	1,922,269
<b>Total expenditure</b>	<b>2,049,707</b>	<b>1,806,794</b>	<b>1,829,842</b>	<b>2,050,486</b>	<b>1,922,269</b>
Income:					
Direct charges	108,250	110,116	112,104	114,297	116,631
<b>Total income</b>	<b>108,250</b>	<b>110,116</b>	<b>112,104</b>	<b>114,297</b>	<b>116,631</b>
Net cost of service	1,941,457	1,696,678	1,717,738	1,936,189	1,805,638
Funded by:					
General rates and investment revenue	1,941,457	1,696,678	1,717,738	1,936,189	1,805,638
<b>Total Funding</b>	<b>1,941,457</b>	<b>1,696,678</b>	<b>1,717,738</b>	<b>1,936,189</b>	<b>1,805,638</b>

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## 12. Glossary

This section provides the meaning of words used in this Plan and in the amended Biosecurity Act 1993. When a word is followed by an asterisk (\*), the meaning which follows is the meaning provided in section 4 [interpretation section] of the Act.

Users of this Plan are advised that they should refer to the Act (or other relevant legislation) to ensure that the definition included in this Plan is the current statutory definition. In the case of any inconsistency or amendment of the definition, the statutory definition prevails.

**Act\*** means the Biosecurity Act 1993.

**Adjacent** means, for the purpose of this Plan, a property that is next to, or adjoining, another property.

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

**Appropriate** means as determined to be appropriate by the Taranaki Regional Council or its officers acting under delegated authority.

**Authorised person\*** means a person for the time being appointed an authorised person under section 103 (Inspectors, authorised persons, and accredited persons) of the Act.

**Beneficiary** means the receiver of benefits accruing from the implementation of a pest management measure or this Plan.

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

**Biological diversity** (or biodiversity) means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems.

**Bovine tuberculosis** means the state of being infected with *Mycobacterium bovis*. *Mycobacterium bovis* is an infectious, zoonotic, bacterial disease, characterised by the formation of tubercle lesions on affected animals.

### **Crown**<sup>7</sup>

- (a) means her Majesty the Queen in right of New Zealand; and
- (b) includes all Ministers of the Crown and all departments; but

does not include:

- (c) an Office of Parliament;
- (d) a Crown entity; or
- (e) a State enterprise named in the First Schedule to the State-Owned Enterprises Act 1986.

**Crown land** means any land occupied or owned by the Crown, a Crown entity under the Crown Entities Act 2004, and a crown-owned enterprise under the State-Owned Enterprises Act 1986.

**Destroy**, in relation to rules that apply to sustained control pests, means an annual minimum 99% level of control on land requiring treatment.

**Direct control** means pest animal or plant control undertaken by or funded by the Taranaki Regional Council.

**Distribute**, in relation to pest plants, means to transport, or in any way spread a pest plant.

**District council** means a district council as defined in accordance with the Local Government Act 2002.

**Effect**<sup>8</sup> includes:

any positive or adverse effect; and

any temporary or permanent effect; and

any past; present or future effect; and

any cumulative effect which arises over time or in combination with other effects—regardless of the scale, intensity, duration or frequency of the effect—and also includes:

any potential effect of high probability; and

any potential effect of low probability which has a high potential impact.

**Endemic** means a plant or animal native or restricted to a certain place, or, in the case of feral animal populations, means the presence of Bovine tuberculosis.

**Environment** includes:

ecosystems and their constituent parts, including people and their communities; and

all natural and physical resources; and

amenity values; and

the social, economic, aesthetic and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters.

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<sup>7</sup> *Public Finances Act 1989*

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<sup>8</sup> *Resource Management Act 1991*

**Eradicate**, in relation to an organism, means to totally clear the organism from New Zealand, or a region or part of a region.

**Eradication** means to reduce the infestation level of the subject that is present in New Zealand to zero levels in an area in the short to medium term.

**Exacerbator** means a person who contributes to the creation, continuance, or exacerbation of the problems proposed to be resolved by a pest or pathway management plan.

**Exclusion** means to prevent the establishment of the subject that is present in New Zealand but not yet established in an area.

**Externality Impacts**, in relation to pest management, are adverse and unintended effects imposed on others.

**Feral** means free-ranging, living in a wild state.

**Good Neighbour Rule** means a rule that seeks to manage the externality impacts arising from pests spilling over from one property to a neighbouring property that is free of, or being cleared, of that pest.

**Habitat** means the place or type of site where an organism or population naturally occurs.

**Harmful organism** means organisms that have not been declared 'pests' for the purposes of this Plan because, although they may have significant adverse effects, regulatory responses are not considered appropriate or necessary.

**Indigenous** means native to New Zealand.

**Key Native Ecosystems** refers to terrestrial sites (sites on land) identified by the Taranaki Regional Council to have regionally significant indigenous biodiversity values.

**Management agency\*** means a management agency responsible for implementing a regional pest management plan.

**Mana whenua** means customary authority and title exercised by Iwi or hapu over the general environment within their tribal rohe.

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

**Mitigate** means to reduce or moderate the severity of something.

**Monitor**, in respect of this Plan, means to measure and record parameters that indicate the levels of effectiveness of a certain pest management programme.

**National Policy Direction**, in respect of this Plan, means the currently operative National Policy Direction for Pest Management.

**Notice of direction** refers to a notice served by officers of the Taranaki Regional Council to note non-compliance with a plan rule and to identify and direct remedial action.

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

**Occupier\***

in relation to any place physically occupied by any person, means that person; and

in relation to any other place, means the owner of the place; and

in relation to any place, includes any agent, employee, or other person acting or apparently acting in the general management or control of the place.

**Occupied'** has a corresponding meaning.

**Operational plan** means a plan prepared by the management agency under section 100B of the Act.

**Organism –**

does not include a human being or a genetic structure derived from a human being:

includes a micro-organism:

subject to paragraph (a), 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):

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:

includes a reproductive cell or developmental stage of an organism:

includes any particle that is a prion.

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

**Pest\*** means an organism specified as a pest in a pest management plan.

**Pesticide** means a substance for destroying harmful pests.

**Pest management plan and Plan\*** means a Plan made under Part V of the Act, for the exclusion, eradication or management of a particular pest or pests.

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

**Principal officer\*** means, -

in relation to a regional council, its chief executive; and  
in relation to a region, the chief executive of the region's regional council;

- and includes an acting chief executive.

**Private land** means any land which is for the time being held in fee simple by any person other than Her Majesty; and includes any Maori land.

**Region**<sup>9</sup>, in relation to a regional council, means the region of the regional council as determined in accordance with the Local Government Act 2002.

**Regional council** means a regional council within the meaning of the Local Government Act 2002.

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

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

**Rongoā** means traditional Māori medicine. Rongoā is a system of healing that was passed on orally. It comprised diverse practices and an emphasis on the spiritual dimension of health. Rongoā includes herbal remedies, physical therapies such as massage and manipulation, and spiritual healing.

**Rule\*** means a rule in a regional pest management plan under Part 5 of the Act.

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

**"Site-led"** pest programme means a management programme for which the intermediate outcome for the programme is 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.

**Subject** means,-

in relation to a proposal for a pest management plan, means the organism or organisms proposed to be specified as a pest or pests under the plan; and

in relation to a pest management plan, means the pest to which the plan applies; and

in relation to a proposal for a pathway management plan, or to a pathway management plan, means the pathway or pathways to which the proposal for a plan, or to which the plan, applies; and

in relation to a small-scale management programme, means the unwanted organism specified in the programme.

**Sustained control** pest programme means a management programme for which the intermediate outcome for the programme is 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**<sup>10</sup>, in relation to a particular area, means the iwi or hapu that holds 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.

**Tapu** means under spiritual protection or restriction.

**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

Includes—

- (f) Any new organism, if the Authority [Environmental Risk Management Authority] has declined approval to import that organism; and
- (g) Any organism specified in the Second Schedule of the Hazardous Substances and New Organisms Act 1996; but
- (h) Does not include any organism approved for importation under the Hazardous Substances and New Organisms Act 1996, unless—

The organism is an organism that has escaped from a containment facility; or

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<sup>9</sup>Resource Management Act 1991

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<sup>10</sup> Resource Management Act 1991

A chief technical officer, after consulting the Authority [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.

**Urban area** means a city, town or urban settlement that comprises a built-up area of commercial, industrial, or residential buildings, including associated infrastructure and amenities. An urban area also includes low density 'lifestyle' residential areas, urban parkland and open spaces, usually within or associated with, built-up areas.

**Wāhi tapu** means places or things which are sacred or spiritually endowed. These are defined locally by tangata whenua of the Taranaki region.

**Working day\*** means any day except:

a Saturday, a Sunday, Good Friday, Easter Monday, Anzac Day, Labour Day, the Sovereign's birthday and Waitangi Day; and

the day observed in the region of a regional council as the anniversary day of the province of which the region forms part; and

a day in the period commencing on the 20th day of December in any year and ending with the 15th day of January in the following year.



# Appendices

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## Appendix 1: Summary of costs and benefits

**Table 8:** Types and analysis of costs and benefits across the region (over 50years)

Pest/s	Costs of scenario	Benefits of scenario	Conclusion
<b>Climbing spindleberry</b>			
Preferred Management (Option 1): Eradication	\$88,967	\$3,723,884:	Net benefit to the region: \$3,723,884 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$3,724,631 No Council costs.	None	Not adopted
<b>Giant reed</b>			
Preferred Management (Option 1): Eradication	\$88,967	\$173,736	Net benefit to the region: \$84,769 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$173,952 No Council costs.	None	Not adopted
<b>Madeira (Mignonette) vine</b>			
Preferred Management (Option 1): Eradication	\$131,144	\$10,954,185	Net benefit to the region: \$10,823,041 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$10,954,230 No Council costs	None	Not adopted
<b>Senegal tea</b>			
Preferred Management (Option 1): Eradication	\$8,832	\$19,080	Net benefit to the region: \$10,248 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$19,090 No Council costs	None	Not adopted
<b>Possums</b>			
Preferred Management (Option 1): Sustained Control	Council costs: \$19,347,807 Compliance costs: \$5,010,212	\$37,093,807	Net benefit to the region: \$12,735,880 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$131,430,629 No Council or compliance costs	None	Not adopted
<b>Giant buttercup</b>			
Preferred Management (Option 1): Sustained Control			Good neighbour rules net beneficial for receptor dairying and sheep and beef land uses only
Alternatives considered (if any) Option 2: No regional intervention			Not adopted
<b>Giant gunnera</b>			
Preferred Management (Option 1): Sustained Control	Council costs: \$733,308 Compliance costs: \$1,503,064	50 years: \$2,823,717	Net benefit to the region: \$587,345 Additional non-monetised benefits associated with the protection of

Pest/s	Costs of scenario	Benefits of scenario	Conclusion
Alternatives considered (if any) Option 2: No regional intervention	No Council or compliance costs.	None	biodiversity values are also anticipated. Not adopted
<b>Gorse</b>			
Preferred Management (Option 1): Sustained Control			Good neighbour rules net beneficial for receptor dairying, sheep and beef, hill country and forestry land uses only
Alternatives considered (if any) Option 2: No regional intervention			Not adopted
<b>Nodding, Plumeless &amp; Variegated thistles</b>			
Preferred Management (Option 1): Sustained Control			Good neighbour rules net beneficial for receptor dairying, sheep and beef and hill country land uses only
Alternatives considered (if any) Option 2: No regional intervention			Not adopted
<b>Old man's beard</b>			
Preferred Management (Option 1): Sustained Control	Council costs: \$915,526 Compliance costs: \$4,264,010	\$8,305,816	Net benefit to the region: \$3,126,280 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	50 years: \$2,404,823 No Council costs	None	Not adopted
<b>Pampas (Common and Purple)</b>			
Preferred Management (Option 1): Sustained Control			Good neighbour rules net beneficial for receptor forestry and conservation land uses only
Alternatives considered (if any) Option 2: No regional intervention			Not adopted
<b>Wild broom</b>			
Preferred Management (Option 1): Sustained Control			Good neighbour rules net beneficial for receptor dairying, sheep and beef, hill country and forestry land uses only
Alternatives considered (if any) Option 2: No regional intervention			Not adopted
<b>Wild ginger (Yellow and Kahili)</b>			
Preferred Management (Option 1): Sustained Control	Council costs: \$368,827 Compliance costs: \$229,191	\$15,070,669	Net benefit to the region: \$14,472,606 Additional non-monetised benefits associated with the protection of biodiversity values are also anticipated.
Alternatives considered (if any) Option 2: No regional intervention	\$15,146,746 No Council costs	None	Not adopted
<b>Yellow ragwort</b>			
Preferred Management (Option 1): Sustained Control	Council costs: \$1,025,002 Compliance costs: \$6,899,198	\$20,314,512	Net benefit to the region: \$12,390,312
Alternatives considered (if any) Option 2: No regional intervention	\$23,899,426 No Council costs	None	Not adopted

For further information please refer to the report entitled *Pest Management Plan for Taranaki - Impact Assessments and Cost-Benefit Analyses*.

## Appendix 2: Descriptions of other harmful organisms

**Table 9:** Descriptions of other harmful organisms

Species	Description
Animals	
<b>Argentine Ant</b> ( <i>Linepithema humile</i> )	The Argentine ant is light to dark honey-brown and 2-3 mm long. Because they are so small, the best way to tell Argentine ants from other ants is by their colour and their trails. Argentine ants breed prolifically and do not fly off to establish new nests like other ants. Their trails are often five or more ants wide and, unlike other species, may travel up trees or buildings. Argentine ants pose a particularly serious threat to people's amenity and lifestyle values and they have a painful bite. They are highly active in their food searches and large colonies will utilise just about any food source they can find—even when it is in microwaves, refrigerators, and screw-top jars. Argentine ants pose a significant threat to horticulture production as they feed directly on fruit crops. They are also a serious pest of viticulture, avocado and tomato crops. Argentine ants are very aggressive and kill or drive away other insects. They can prey on Monarch butterflies and young birds and compete strongly with native invertebrate and other insect species thereby reducing biodiversity (both indigenous and valued exotic) values in their area.
<b>Feral cat</b> ( <i>Felis catus</i> )	Feral cats are solitary and predominantly nocturnal animals. Feral cats are the same size and have the same range of colour as domestic cats. Although population densities are small, feral cats have an enormous home range of approximately 150 to 200 hectares. From the age of about one year, feral cats can breed in any season. They have up to two litters of about four kittens each year. They are carnivores and opportunistic feeders and feed on a wide variety of wildlife including indigenous birds—such as young kiwi, reptiles and invertebrates. Both domestic and feral cats can have an extraordinary impact on indigenous biodiversity values, especially in and around natural areas such as forests, shrubland, wetlands and dunelands. In such areas, even a small number of feral cats can have a disproportionate large impact on rare and endangered species, affecting the diversity, vigour and even survival of some species. Feral cats have been found with Bovine tuberculosis, which continues to be New Zealand's principal animal health problem. They may also be a vector for a number of animal diseases that impact upon agricultural production values. They are the primary host for <i>Sarcocystis</i> spp, which can be spread to sheep, causing abortions and the possible rejection of meat for export.
<b>Feral deer</b> ( <i>Red deer: Cervus elaphus;</i> <i>Sika deer: Cervus nippon;</i> <i>Sambar deer: Cervus unicolor;</i> <i>Rusa deer: Cervus timorensis;</i> <i>Fallow deer: Cervus dama;</i> <i>Cervus elaphus nelsoni; and</i> <i>Odocoileus virginianus boreali</i> )	<p>Feral deer species include red deer, sika deer, sambar deer, rusa deer, fallow deer, wapiti deer and white-tailed deer living in the wild but excluding farmed or escaped farmed deer. Feral deer range in size and colour, depending upon the species, however generally they are various shades of brown. The antlers of deer, worn by males only, are shed each year.</p> <p>Feral deer are opportunistic and highly adaptable feeders that can both browse and graze. In forested areas, feral deer will destroy the under-storey of vegetation which, when combined with possum damage to the upper canopy, can result in the severe deterioration of forested areas. Feral deer can also have a significant impact in forestry production areas, particularly during the establishment phase. Even small numbers of feral deer can cause degradation of indigenous flora and fauna affecting the diversity, vigour, and even survival of some rare and endangered species. Feral deer may also have a significant impact on agricultural production values and animal health and along with the possum are major vectors for Bovine tuberculosis. Established feral deer populations can adapt to, and thrive in habitats ranging from steep hill country to coastal flats and scrub margins.</p>
<b>Feral goat</b> ( <i>Capra hircus</i> )	Feral goats are goats that are free ranging and not in a farmed situation. Varying in size and colour, both sexes may be white, brown, black, or a combination of these colours and have horns. The adult male, the larger of the two sexes, stands almost 70 centimetres high at the shoulder and weighs between 50 to 70 kilograms. Feral goats have a high productive rate and prosper in a wide range of habitats, particularly in forested areas or areas adjacent to pasture and scrub margins. The impact of feral goats on indigenous vegetation is second only to the possum, as they can destroy the under-storey of vegetation also damaged by possums in the upper canopy, resulting in the severe deterioration of forested areas. Such damage may result in the degradation of indigenous flora and fauna affecting the diversity, vigour and even survival of some rare and endangered species. Feral goats can also impact upon agricultural production values, competing directly with livestock for pasture and potentially reducing the carrying capacity of farmland, and thus reducing productivity. Feral goats can damage newly planted or young trees planted for forestry production and soil conservation purposes. In areas where feral goats are encroaching onto farms, the goats may represent a problem for stock hygiene as goats and sheep can carry and transmit many of the same parasites and diseases. Goats are notoriously difficult to contain by fences and goat escapees from farmland into forested areas represent an on-going problem.
<b>Feral pig</b> ( <i>Sus scrofa</i> )	Feral pigs are pigs that are free ranging and not in a farmed situation. They are smaller and more muscular than domestic pigs, with massive forequarters and smaller, shorter hindquarters. They are more hirsute, with longer and coarser hair, longer and larger snouts and tusks, and much narrower backs. Feral pigs are omnivorous and opportunistic feeders. They can cause localised damage to pasture, production forestry (in the early stages of establishment), and cropping. Their more significant impact is on indigenous biodiversity values. Where present in large numbers, feral pigs will eat the tops and dig up the roots of indigenous vegetation, resulting in the decline of some plant species. Feral pigs may also have a significant effect on the diversity, vigour and even survival of rare native fauna. For example they feed on threatened populations of indigenous land snails, eat their eggs, and

Species	Description
	destroy their litter habitat.
<b>Freshwater fish species:</b>	
<b>Brown bull-headed catfish</b> ( <i>Ameiurus nebulosus</i> )	The Brown bull-headed catfish is a large headed fish with eight long whisker-like barbels around the mouth. They are dark brown to greenish-olive on the back, with a pale underside, and their skin is slimy and eel-like to touch. They grow to at least 500mm in length and 3kg in weight. Catfish are predatory scavengers, eating diverse foods including snails, insects such as caddisfly larvae, crustaceans including koura, plant material, detritus and small fish. They push native fish out by taking over their territory and eating many of the same foods. Catfish are extremely robust and tolerate low oxygen levels, high turbidity, poor water quality and a range of temperatures. It is also thought that catfish can hibernate in bottom mud if necessary. Catfish are able to stay alive for long periods out of water if kept moist, making intentional and accidental transfer very easy.
<b>Koi carp (Cyprinus carpio)</b>	Koi carp are an ornamental strain of the common or European carp. Koi carp look very similar to a large gold fish but with a distinctive large head, a pair of barbels at each corner of the mouth, large scales and a large prominent dorsal fin. Like goldfish, Koi carp can be bright orange with dark blotches, or a splotchy olive brown. In New Zealand Koi carp commonly exceed 5kg and occasionally 10kg. Introduced to New Zealand as ornamental fish they now breed in natural waterways and pose a significant threat to the health of New Zealand's freshwater ecosystems. They uproot water plants, lower water quality and eat insects and other young fish. Their feeding disturbs bottom sediments leading to increased turbidity and general muddying of waters, the effect of which is to reduce aquatic plant growth with flow-on impacts on other fish species, invertebrates and wildlife. Koi carp prefer warm enclosed waters or slow flowing rivers and canals and are tolerant of low oxygen levels and high turbidity.
<b>Gambusia (Gambusia affinis)</b>	Gambusia or, as they are sometimes known 'Mosquitofish', are small fish introduced to New Zealand in the 1930s to control mosquito larvae. However, they proved to be ineffective in the control of mosquitoes and instead became pests. Gambusia have thick bodies, small mouths and large round dorsal fins and are an olive green silvery colour. The female grows to about 60mm in length, with the male reaching about 35mm in length. Gambusia consume a wide range of small aquatic and terrestrial insects and crustaceans. They feed mainly on the surface of the water or only a few inches deep below the surface. They can breed rapidly when conditions are suitable and may attack larger fish by nibbling their fins. Gambusia are found in vegetated ponds and lakes, rivers, creeks, springs and ditches and they reproduce several times throughout the year.
<b>Rudd (Scardinius erythrophthalmus)</b>	Rudd are stout-bodied freshwater sport fish of the carp family. They have yellow-orange eyes, bright orange fins, silver in colour and have a sharp-edged belly. Rudd may grow to at least 400mm in length and 2kg in weight. They are mostly carnivorous, feeding on small aquatic crustaceans, snails and insects when small and diversifying to small fish, worms, aquatic detritus, also aquatic plants and terrestrial insects when larger. Rudd are found mostly in still or slow-flowing waters, especially those with prolific weed beds.
<b>Hare</b> ( <i>Lepus europaeus occidentalis</i> )	Brown hares are very similar to their close relative, the rabbit. However, it is distinguishable from the rabbit by its larger size and its larger muscular hind quarters. The hare is mostly brown in colour and its front legs are about half the size of its hind legs. The hare's impacts in relation to agricultural production values are generally localised, however, because of their often quite destructive habits, those impacts can be significant – particularly with respect to silviculture, horticulture, cropping and amenity values. Hares damage new tree plantings, and horticultural, crop, riparian and amenity plantings, by nipping out the tops of seedlings even though they do not actually eat them. A single hare amongst such plantings can do considerable damage. Selective browsing by hares may threaten rare and endangered indigenous plant species. Its preference for young tender growth such as regenerating plants can also affect the diversity and vigour of native vegetation in other areas. For example, the damage caused by hares to riparian planting can be considerable, resulting in added costs to the farmers through the need to replace plantings.
<b>Magpie</b> ( <i>Gymnorhina tibicen</i> )	Adult magpies are about 41 centimetres in length and weigh between 280 to 340 grams. The birds are black and white in colour with a range of patterns. Magpies are gregarious and found in family groups of two to 24 birds. Their nests are usually high in exotic trees but occasionally in native trees and sometimes on man-made structures such as power pylons. The breeding season is generally between August and November and breeding magpies, on average, rear one chick. Extremely territorial, magpies have the reputation for being the most aggressive birds in New Zealand and nesting Magpies will attack humans, sometimes causing serious physical injuries. Magpies exhibit the same aggressive behaviour against other birds and consequently are a perceived threat to indigenous biodiversity values. They also prey on indigenous invertebrates such as skinks and geckos and indigenous bird chicks and eggs to feed their own young. This in turn may affect the abundance of indigenous fauna species in some areas.
<b>Mustelids:</b> <b>Ferret (<i>Mustela furo</i>);</b> <b>Stoat (<i>Mustela erminea</i>); and</b> <b>Weasel</b> <b>(<i>Mustela nivalis vulgaris</i>)</b>	The ferret, stoat, and weasel belong to a group of small to medium sized carnivores known as mustelids. They are considered together as their effects on the environment are largely the same. Mustelids share the characteristic long body, short legs and smooth pointed face but they vary in size. The adult male ferret, the largest of the three species is, on average, about 41 centimetres long, the stoat 29 centimetres, and the weasel 22 centimetres. Mustelids search for prey through all possible cover, down every accessible hole and up every likely tree in the course of each hunting excursion. Killing behaviour is independent of hunger and mustelids will, if the opportunity arises, kill any suitable prey and cache the surplus for future use. Mustelids are serious predators of indigenous bird life. Stoats in particular are considered to be the primary factor contributing to the decline of mainland kiwis and have been linked to the disappearance of a number of other threatened indigenous bird species such as the

Species	Description
	kokako. Along with cats, mustelids predate on young kiwi, and both destroy 95% of juvenile kiwi within the first six to nine months of leaving the nest. Mustelids have an unknown but suspected participation in the Bovine tuberculosis cycle, and they carry parasites and toxoplasmosis, which causes abortions in sheep and illness in humans.
<b>Rabbit</b> ( <i>Oryctolagus cuniculus</i> )	The European rabbit is a small to medium sized herbivore, usually grey-brown in colour. Rabbits breed throughout the year and produce several litters comprising of three to seven young. On average, adult female rabbits produce 45 to 50 young a year, although survival rates are low. Where conditions are favourable, the rabbit's mortality rate is lowered, and the population has the ability to increase rapidly. Under favourable conditions rabbits can become enormously abundant and very destructive to pastoral farmland over large parts of Taranaki – particularly sheep and beef properties. By competing directly with stock for grazing, rabbits reduce the carrying capacity of agricultural land. Rabbits may also have localised impacts on silviculture and horticulture values by eating new tree and crop plantings. Where present in large numbers, the overgrazing and burrowing of pasture by rabbits may result in soil erosion and the loss of valuable topsoil and the sedimentation of waterways, and creates favourable conditions for less desirable plant species.
<b>Rook</b> ( <i>Corvus frugilegus</i> )	Rooks are large, totally black birds with a violet-blue glossy sheen. The birds stand about 45 centimetres high. A distinguishing feature of the social system of rooks is the conspicuous breeding colonies or rookeries that the birds form. Rookeries are generally built in pine and eucalyptus trees but oak, poplar and walnut trees may also be used. Where established, rookeries may approach several hundred birds. Initially introduced in the Hawkes Bay to control grass grub, rook numbers, in many parts of New Zealand, now pose a particularly serious threat to cropping and horticulture production. Most of the year the birds will feed in small groups and do not represent a problem. However, during the summer, when the soil becomes hard and difficult to work, rooks aggregate into larger groups targeting easier food supplies. On such occasions, the rooks show a strong preference for foraging on fields of cereal at all stages of the crop. Rooks can also tear up large areas of pasture in their search for grass grub and other invertebrates.
<b>Plants</b>	
<b>Arum Lily</b> ( <i>Zantedeschia aethiopica</i> ) Also known as the Green Goddess Cultivar.	The Arum lily is a robust, persistent, evergreen, clump-forming perennial herb <1.5m tall. Large arrow-shaped shiny green leaves and white, erect, funnel-shaped 'flower' (Aug-Jan, occasionally other times of year) of central yellow spike and white outer modified leaf. Habitats include wetlands, riparian zones, and pasture. Dispersal method is via seed mainly spread by birds. Flowing water and animals also play a role in spread of seed. Local spread by rhizomes and dumping of garden cuttings. The Arum lily smothers the ground, preventing regeneration of native flora. All parts of the plant are poisonous to humans, pets and livestock. Green Goddess is a NPPA plant.
<b>Australian sedge</b> ( <i>Carex longebrachiata</i> )	Australian Sedge is a perennial tussock-forming sedge native to Australia. The plant is distinguishable from other New Zealand and native sedges by its harsh cutting leaves, angled flowering stems, and catkin-like flower spikes. Australian Sedge is primarily a problem in dry-stock areas where, once established, it is a difficult plant to control and will occupy large areas to the exclusion of pasture species. The seeds can be spread by animals to other properties. Unpalatable to stock, infestations of Australian Sedge reduce pasture production, and thereby reduce the carrying capacity of agricultural land.
<b>Bamboo</b> ( <i>Phyllostachys</i> species also known as: <i>Pseudosasa</i> Species, <i>Bambusa</i> Species)	Bamboo species are tall, erect, evergreen, rhizomatous grasses <10m or more high. The stems are smooth with hollow canes and alternating leaves. Habitats include roadsides, shelterbelts, and settled areas. Bamboo tolerates a wide range of conditions but not shade. Dispersal methods differ: some are clumping varieties, others have vigorous runners. Bamboo is vigorous & persistent and spreads rapidly, forming dense stands excluding all other vegetation.
<b>Banana passionfruit</b> ( <i>Passiflora tripartita</i> (all subspecies) and <i>P. tarminiana</i> )	Banana passionfruit is also known as Northern Banana passionfruit ( <i>Passiflora Mixta</i> , <i>P. Mollissima</i> ). Banana passionfruit is a high-climbing vine with pink tubular flowers year round. It produces thin-skinned oval fruit, which turn yellow or orange-yellow when ripe. Pulp is sweet, edible, and orange in colour. Habitats include shrublands, forest margins, roadsides, wetlands, farm and orchard hedges, and domestic gardens. It prefers light gaps on fertile soil. Dispersal is via seed and stem fragments through pigs, possums, rats and birds. Banana passionfruit is an aggressive vine that invades disturbed areas, smothers trees, and reduces biodiversity. All species are NPPA plants.
<b>Blackberry (Wild Aggregates: <i>Rubus fruticosus</i> agg.)</b>	Erect, scrambling, thorny perennial shrub. Grows in thickets <2m tall formed by arching stems or canes <7m long. Dark green shiny leaves are normally shed in winter. Small white or pink flowers between November – April and berries between January – March. Habitats include open areas, roadsides, stream banks, wetlands, pasture, and plantations. Dispersal occurs vegetatively via suckering stems and daughter plants and seeds are spread by birds & waterways. Blackberry quickly develops into a dense canopy cover and dominates native flora in swamps. It also reduces access to, and use of, pasture and provides shelter for animal pests.
<b>Blue Morning Glory</b> ( <i>Ipomoea indica</i> )	Tall growing, twining creeper with distinctive heart-shaped, 3-lobed leaves and purple tubular flowers all year round. Blue morning glory prefers full sun but will tolerate light shade. Frost-tender. It grows in wet & dry conditions including open areas, forest margins, roadsides, hedges and gardens. Dispersal is most via vegetative spread from stem fragments although some seeding white flowers have been found in Bay of Plenty. Blue morning glory is very fast growing and smothers native vegetation either as groundcover or climber. It is a NPPA plant.
<b>Brush wattle</b>	Brush Wattle is an evergreen tree, which can grow up to 10 metres tall. It has yellow-green flowers, which appear

Species	Description
<i>(Paraserianthes lophantha)</i>	between May to August, followed by flat brown seed pods. Once established it seeds freely and is very difficult to control. Brush Wattle will inhabit grasslands, scrub-lands, forest and riparian margins, marginal hill country, coastal habitats and waste ground. The impact of Brush Wattle is principally on indigenous biodiversity values. Its free-seeding characteristics mean that it can be spread by flowing water and soil and gravel movement. The plant matures quickly and competes very effectively with other tree seedlings for soil moisture, nutrients, and light. The plant thereby suppresses the regeneration of indigenous flora and may eventually eliminate indigenous seed sources.
<b>Cathedral Bells</b> <b>(Cobaea scandens)</b> <b>Also known as:</b> <b>Cup And Saucer Vine</b>	Cathedral bells is a perennial climbing vine, which produces large, bell-shaped, greeny-white to purple flowers between August - May. Light green, oval leaves, smooth-edged, hairless, prominent purplish vein & tendrils. Located in forest margins, roadsides, riverbanks, gardens and open areas. Cathedral bells is susceptible to frost and heavy shade but otherwise grows in a wide range of soils & climates. It is dispersed via winged seeds released from large green oval fruit that explode during summer. Seed is also dispersed over distance by water and soil movement and vegetatively via stem fragments. Cathedral bells is fast growing and smothers native vegetation, will kill larger plants, and suppresses growth of seedlings. It is a NPPA plant.
<b>Chinese Privet</b> <b>(Ligustrum sinense)</b> <b>Also known as: Small Leaved Privet</b>	Chinese privet is semi-deciduous in colder areas and only grows to 5m high. White tubular flowers appear between October-March with characteristic purple or mauve anthers. Habitats include hedgerows, roadsides, lowland & coastal forest and plantations. Chinese privet is widespread & common and tolerates a wide range of conditions. Seeds are dispersed by birds. Chinese privet displaces the forest shrub tier & marginal shrubs in alluvial forests. Its leaves & fruit are poisonous, and its perfume contributes to asthma.
<b>Chocolate Vine</b> <b>(Akebia quinata; also known as: Akebia, Rajania Quinata)</b>	Fast-growing, twining vine or vigorous ground cover, with chocolate-purple coloured flowers. The flowers have an odour that is similar to chocolate or vanilla and appear between August –October. Its habitat is terrestrial, in the open to semi shade along forest edges, riparian zones, road sides, or climbing over structures or trees. Birds can spread the seeds but it is usually spread by human activity. Shade and drought tolerant, it can invade many habitats. Once established, its dense growth prevents seed germination and seedling establishment of native plants. Akebia is a NPPA plant.
<b>Climbing Asparagus</b> <b>(Asparagus scandens)</b>	Climbing asparagus is a scrambling & climbing plant, which can also grow in trees as an epiphyte. Slender, extensively branched stems wrap around small trees & saplings. Fine, fern-like foliage, with small, delicate leaves attached to hook vines. Tiny white flowers appear in September-December and it also produces berries. It has a very shade tolerant habitat and prefers the interiors of undamaged & modified forest, forest edges, and riparian zones. Dispersal is via bird-spread seed and vegetative spread by tubers. Fast growing climbing asparagus is a rapid colonizer, which kills host plants by smothering or ring barking them. It also carpets the forest floor preventing regrowth of native seedlings. Climbing asparagus is a NPPA plant.
<b>Coastal Banksia</b> <b>(Banksia integrifolia)</b> <b>Also known as: Coastal Banksia</b>	Coastal banksia is an erect, fast-growing, evergreen tree < 8m tall. Leaves may be irregularly-toothed when young; upper side of leaves green, undersides silvery & felted. Masses of pale yellow flower spikes are produced between March and August. It prefers habitats which are sunny, poor, dry areas such as dunes, gumland scrub, and shrubland. Coastal banksia spreads locally by seed fall and is a threat to well-drained sites especially sand dunes. It forms dense thickets in open areas. Coastal banksia is under proposal to be added to the NPPA.
<b>Contorta Pine</b> <b>(Pinus contorta)</b> <b>Also known as: Lodgepole Pine</b>	Resinous large evergreen shrub, or small-med tree. Bark is reddish brown, grey on surface, fissured and forming small plates. Branches straight to twisted, usually on trunk almost to ground. Its habitat is disturbed and open forest, shrubland, tussockland, herbfield, fernland, bare land, mineralised places, screes, and volcanic habitats. It is dispersed by wind, occasionally by water. It is also found in planted woodlots, remnant plantations, and hedges. Pinus contorta is a prolific seeder, early maturing, tall, long-lived, and it forms dense stands especially on poor soils. It is tolerant of a range of conditions. For those reasons it becomes permanent canopy spp. Plantations remove ground water in summer, and fail to retain it in winter, causing drought and flooding. Leaf litter inhibits growth of understory spp, affects water quality, and can destroy freshwater habitats. Pinus contorta is a NPPA plant.
<b>Cotoneaster</b> <b>(Cotoneaster glaucophyllus, C. franchetii)</b>	An arching, spreading, evergreen shrub usually <3m tall (can grow up to 5m). It produces small white - pinkish flowers between October and January in clusters of 1-4 and distinctive bunches of small red berries between February and August. Its habitat is widespread & common in scrub, plantations, forest margins, coastal areas, riverbeds and quarries. It tolerates a wide range of habitats. Dispersal is through seed being dispersed by birds. Cotoneaster competes directly with native shrubs & forms pure stands.
<b>Darwin's barberry</b> <b>(Berberis darwinii)</b>	Darwin's barberry is a small woody evergreen shrub, which may grow up to four to five metres in height. The plant has small shiny dark green leaves, small many-pronged spines, deep orange flowers and small dark berries with a white coating. Darwin's barberry should not be confused with the semi-deciduous Barberry, Berberis glaucocarpa, found commonly throughout Taranaki. Darwin's barberry is very free seeding with the seeds being primarily spread by birds. The plant is capable of inhabiting forest and riparian margins, scrub-land, production forests and regenerating indigenous forests and degraded pasture. Once established, the plant is very invasive and can form dense colonies, which exclude and/or compete with other plant species for soil moisture, nutrients, and light. Darwin's barberry represents a particular threat to indigenous biodiversity values. Dense colonies will suppress the regeneration of indigenous flora and may eventually eliminate indigenous seed sources. The plant can also pose a problem on extensively farmed land and in forestry production areas, impacting on the carrying capacity of that land, and imposing additional control costs. It can sometimes obstruct or infest natural and recreational areas on



Species	Description
	occasion.
<b>Egeria oxygen weed</b> ( <i>Egeria densa</i> )	Egeria Oxygen Weed is a perennial aquatic herb, growing wholly submerged in fresh water. Egeria is usually found rooted in bottom mud but can be found as a free-floating mat. The plant has dark green leaves that grow from nodes on brittle branched stems. It may grow up to six metres long and has small white flowers that appear in summer and early autumn. Egeria has an exceptional ability to spread by vegetative fragments. Dispersed by water flow or by people transporting fragments on their boats, trailers and fishing nets, its biological characteristics are such that even a small fragment can become a problem infestation that is very difficult to control once established. Egeria poses an extraordinary threat to Taranaki waterways. The plant is extremely competitive and replaces indigenous aquatic flora species reducing species diversity in affected water bodies. Egeria may also increase sedimentation rates and alter the chemical and physical characteristics of a water body. By modifying habitats and smothering other useful flora species, Egeria affects the amount and type of food available for some fish species and may displace traditional food sources of value to Maori such as watercress. Extremely dense growth of Egeria below the water surface may retard water flow and may interfere with hydroelectric output and urban water supplies. Such growth can result in significant public costs of repairs and also the costs associated with lost production. Surface beds further reduce the aesthetic appeal of waterways and may interfere with recreational activities such as boating, swimming and fishing.
<b>Elaeagnus</b> ( <i>Elaeagnus x reflexa</i> )	Dense, spiny, vigorous, scrambling shrub. Previously grown as hedge. Brown, scaly stems with spines. Oval leaves green above & scaly brown on undersides. Hanging clusters of small, white fragrant flowers (Mar-May). Reddish-orange, drupe-like fruit. Habitats include shrublands, forest margins, roadsides, and wetland areas. Dispersal is through vegetative spread, and bird & mammal-spread seed. Elaeagnus forms large dense stands, smothering regenerating forest & is a problem in forest interiors & light gaps. Displaces native species up to mid-canopy level.
<b>Grateloupia (Devil's Tongue)</b> ( <i>Grateloupia turuturu</i> )	Grateloupia is native to Japan and Korea. It is a large perennial seaweed, with flat blades that change colour seasonally and are deep red, burgundy, or maroon in colour, and a holdfast for grasping on to firm, typically rough surfaces such as coralline algae (appearance of 'pink paint' on rocks). Blades that are detached from the plant can survive and go on to attach in other locations. Grateloupia reproduces both vegetatively from the edges of its blades, and by spores that settle after being in the plankton and produce small round discs that send up many upright 'shoots', which, in turn, can produce tens of thousands of additional spores. The alga can grow to a remarkably large size for a red seaweed, up to 3 metres in length. Grateloupia is found in the intertidal and upper subtidal in a wide range of habitats. Plants have been observed attached to rocks, pebbles, shells, aquaculture facilities and shellfish. Grateloupia is also tolerant to a range of water temperatures (4°C to 28°C), salinities (15-37) and is found in sheltered and exposed areas as well as in enclosed pools and in running water. In areas that are suitable for Grateloupia colonisation, this species tends to dominate the algal flora. Grateloupia has the potential to negatively impact on environmental marine values via competing with native alga for important resources like space, light, and nutrients, and altering habitats in the low intertidal and upper sub-tidal environments. It is capable of impacting upon environmental, commercial, Maori cultural and spiritual values, human health, and social values. Grateloupia has high impacts on marine values such as species diversity.
<b>Grey Willow</b> ( <i>Salix cinerea</i> ) Also known as: Pussy Willow, Shrub Willow, Sallow	Deciduous shrub or small tree <7m tall but usually 2m tall. Bark is rather smooth. Stems grey or greenish-grey & hairy, or reddish to dark purple and are not brittle. Leaves shiny on upper side and covered with fine grey hairs underneath, not bitter. Flowers (Sept-Oct) appear as separate male and female cylindrical catkins (no petals). Fruit may contain many seeds. Habitats include wetlands, riverbanks, wet areas behind coastal dunes and nearby drier places. Dispersal is seed spread via wind. Grey willow blocks waterways & modifies wetlands. Grey willow is a NPPA plant.
<b>Hawthorn</b> ( <i>Crataegus monogyna</i> )	Thorny, much-branched, deciduous hedge plant <10m high. Stiff spines on stems. Triangular, hairless leaves have 3-7 deep lobes & are often eaten by pear slugs. Covered in sweetly-scented white or pink flowers (Nov). Shiny, round, crimson berries. Habitats include hedgerows, roadsides, old house sites, and riparian zones. Prefers distinct seasons & cold winters. Dispersal is through seed spread by birds & probably possums. Hawthorn forms thick, impenetrable stands that displace native species. Host for fire blight disease.
<b>Hornwort</b> ( <i>Ceratophyllum demersum</i> )	Hornwort is a submerged freshwater weed found in still and flowing waters of streams, rivers, lakes and ponds. It has been found growing to depths of 16 metres in clear deep lakes. Leaves are finely divided, with minute teeth which make the plant feel rough to the touch. It lacks roots but has modified leaves that anchor the plant in bottom sediments. New plants can form from each piece of the easily broken stems. Hornwort rapidly invades water of varying clarity, temperature, light and nutrient level, and its dense growth habit crowds out native species. It is a major weed in hydroelectric dams, also impeding irrigation, drainage and other water uses. Hornwort is an unwanted organism under the Biosecurity Act 1993, and is banned from sale, propagation, and distribution under the National Plant Pest Accord.
<b>English Ivy</b> ( <i>Hedera helix</i> ssp. <i>Helix</i> ) Also known as: Common Ivy	Long-lived, woody, climbing, evergreen perennial. Stems <30m long, climb or creep with holdfast roots. Also has non-climbing fertile branches with unlobed leaves arranged spirally around stem. Leaves of non-fertile shoots 5-lobed. Yellowish-green flowers (Mar-May) in rounded, umbrella-shaped clusters. Purplish-black, berry-like fruit. Habitats include riparian zones, cliffs, open forest, plantations, and roadsides. Tolerates wide range of conditions including shade, frost, and damp. Dispersal is through seeds dispersed by birds and vegetative spread from stem fragments and garden refuse. Ivy carpets the forest floor & trees, climbing to top of tallest trees. Specialised rockland & epiphytic plants significantly impacted.

Species	Description
<b>Japanese Honeysuckle</b> ( <i>Lonicera japonica</i> )	Evergreen climber, can grow <15m/year. Oval leaves, lighter green underneath; in winter or low light conditions may be toothed or cut. Fragrant, paired, white or yellow tubular flowers (Sept-May). Black berries. Habitats include shrublands, forest margins, roadsides, plantations, coastal areas, wetland margins, and offshore islands. Well adapted to low light conditions. Frost, wind, drought tolerant. More vigorous in deeper valley soils. Dispersal is through seed spread by birds and garden refuse dumpings. Japanese Honeysuckle invades disturbed forests & margins and out-competes other plants by smothering. Japanese honeysuckle is a NPPA plant.
<b>Japanese walnut</b> ( <i>Juglans ailantifolia</i> )	Japanese Walnut is a quick growing, hardy, deciduous tree, which may grow up to 15 metres tall. Japanese Walnut has wide spreading branches and the leaves are large, up to 60 centimetres. The young branches and leaf stalks are hairy. The flowers, which appear between October and November, are green or pinkish in long catkins (spikelike group of flowers). These are followed by thick-shelled walnuts when mature. Japanese Walnut trees are often found near rivers and streams (as the nuts float downstream from mature trees and seed on the riverbanks and floodplains). However, the plant is frequently seen in farm and garden situations where the tree has been planted for shade or ornamental purposes. Japanese Walnut represents a potential threat to indigenous biodiversity values, particularly along riparian, wetland and forest margins. The plant matures very quickly and, once established, competes very effectively with other tree seedlings for soil moisture, nutrients and light. The plant thereby may suppress the regeneration of indigenous flora and reduce the vigour and density of indigenous flora species in such areas. The obstruction or infestation of drainage channels or natural and recreational areas by Japanese Walnut may also be a problem on occasion.
<b>Jasmine</b> ( <i>Jasminum polyanthum</i> )	Evergreen climber up to mid canopy height, twines around host. Opposite, compound leaves, 7 leaflets, small, shiny, dark green when mature; new growth red-tinged. Masses of highly scented, small white tubular flowers in spring; some flowers present all year round. Glossy black fruit with dark red pulp. Habitats include forest margins & gaps, shrubland, and roadsides. Tolerates frost, shade, moisture. Main dispersal method is via garden escapes or dumped garden refuse. Very rapid growth from stem fragments. Seed is also dispersed by birds. Jasmine forms an impenetrable groundcover, smothering all vegetation to mid-canopy level. Alters forest composition, suppresses regeneration.
<b>Lagarosiphon oxygen weed</b> ( <i>Lagarosiphon major</i> )	Lagarosiphon Oxygen Weed is a perennial aquatic plant, which grows wholly submerged in fresh water. The plant has spiralled green leaves on slender brittle stems that may grow up to five metres long. The plant has tiny pink flowers that appear in mid-summer. Lagarosiphon is spread by vegetative fragments. Dispersed by water flow or by people transporting fragments on their boats, trailers and fishing nets, it is very difficult to control once established. Lagarosiphon poses an extraordinary threat to Taranaki waterways. The plant is extremely competitive and shades out indigenous aquatic flora species, thereby reducing species diversity in affected water bodies. Lagarosiphon may also kill fish by depleting oxygen levels in water. The plant also liberates oxygen as it grows, but heavy infestations diminish oxygen available to fish by reducing water circulation and by the rotting of dead plants withdrawing oxygen. By modifying habitats and smothering other useful species, Lagarosiphon may displace traditional food sources of value to Maori such as watercress. Large dense mats of Lagarosiphon may impede water flow and may interfere with water utilisation. The plant has the potential to interfere with hydroelectric power generation output and urban water supplies resulting in significant public costs of repairs and also the costs associated with lost production. Surface beds further reduce the aesthetic appeal of waterways and may interfere with recreational activities such as boating, swimming and fishing.
<b>Periwinkle</b> ( <i>Vinca major</i> )	Prostrate, scrambling, hairless, evergreen perennial <50cm tall. Forms dense mats of long running stems with roots at nodes. Dark green, glossy, leathery leaves, opposite & oval, pointed tips, hairy midribs & edges. Blue-violet tubular flowers (with paler centres) <5cm in diameter all year round. Habitats include riparian zones, roadsides, banks, lowland & coastal forest, alluvial flats. Tolerates shade and wide range of soil conditions. Dispersed by seed & garden dumping. Moved with soil & on machinery. Similar to tradescantia, periwinkle forms a thick carpet that smothers other plants even in shade conditions. Stops regeneration of native seedlings.
<b>Pink ragwort</b> ( <i>Senecio glastifolius</i> )	Pink ragwort shares many of the same biological features of Yellow ragwort and both are biennial herbaceous perennials. Pink ragwort has purplish-pink flowers with a yellow centre and flowers from August to December. It can grow up to 1.5 metres tall. The majority of plants flower in their second season, from December to March, followed by mature seeds a few weeks after the first appearance of flowers. A large plant can produce 150,000 seeds in one season. It commonly grows 45 to 60 centimetres high. Both plants can be a serious pasture weed. However, they can also found in waste places, riparian margins, open forests and swamps. Once established, the plants have the ability to spread rapidly and invade 'clean' pasture areas. They seed freely and are dispersed principally by wind (for Ragwort, which is the more established plant, 99% of seeds fall within 14 metres of the parent plant) and, to a lesser extent, by water and animals, and in hay.
<b>Plectranthus</b> ( <i>Plectranthus ciliates</i> )	Trailing, herbaceous groundcover. Stems densely covered in purple hairs. Broad, oval, pungent leaves <12cm long by 7cm wide, green above & glossy purple underneath, with purple veins that are visible on upper surface. White flowers (Dec-Aug) speckled with small purple spots. Small, dark brown nutlets. Habitats include forest edges, roadsides, riparian zones, disturbed or low forest, garden sites. Prefers shady to semi-shady situations, & well-drained soils. Tolerates frost. Seed dispersal minimal, vegetative spread from vigorous sprawling runners. Plectranthus forms thick dense mats smothering native seedlings & suppressing regeneration. Can completely dominate roadsides. It is a NPPA plant.
<b>Potato Vine</b>	Woody vine. Arching, twining stems <15m long. Medium to purple green leaves (evergreen in mild locations), single or trifoliate, heart-shaped, prominently veined. Leaves alternate on the stem. Stary white flowers with blue & yellow

Species	Description
<b>(<i>Solanum jasminoides</i>)</b> <b>Also known as: Jasmine Nightshade</b>	stamens in loose clusters on end of stems, year round. Blue-black berries. Habitats include shrub, forest margins, and stream sides. Prefers full or part sun. Seeds dispersed by birds, however is a shy seeder. Also dispersed through dumped garden material. Forms dense, very vigorous growth smothering other vegetation.
<b>Reed Sweet Grass</b> <b>(<i>Glyceria maxima</i>)</b> <b>Also known as: Poa Aquatica</b>	Erect grass forming dense mats in wetlands, water edges. Shiny, bright green leaves soft, <600mm long, each blade ending in an abrupt point. Leaf edges rough to touch. Distinctive brown seed heads (Feb) <1.5m, long-lived seeds. Habitats include any wet ground: wetlands, stream banks, and lake edges. Dispersal is mainly seed spread by wind and water: rhizomes break off and root in damp ground. It is also spread by machinery, fishing gear, and animals. Reed sweet grass rapidly forms dense mat in wet ground, crowding out most native plants.
<b>Smilax</b> <b>(<i>Asparagus asparagoides</i>)</b> <b>Also known as: Bridal Creeper</b>	Climbing perennial creeping herb <3m. Grows from short rhizomes with tuberous roots. Smallish glossy thin green leaves, alternate, broadly ovate, with sharp point. Small greenish-white flowers (Jul-Aug). Small sticky red berries. Habitats include disturbed forest & margins, coastal areas, and roadsides. Prefers fertile, well-drained, lightly-textured soils, tolerates all but wettest soils. Dispersal method is mainly seed dispersed via birds, animals, machinery but can also be dispersed by dumped tubers in garden refuse. Out-competes other vegetation by forming pure colonies. Forms canopy over plants 2-3m high, even in shade. Serious threat to native plant communities. Particular threat to pohutukawa & kowhai. Smilax is a NPPA plant.
<b>Spanish heath</b> <b>(<i>Erica lusitanica</i>)</b>	Spanish Heath is an erect, woody perennial scrub that grows up to two metres tall. It can be identified by its upright woody stems and dense short narrow leaves, and an abundance of white to light pink flowers on the extremities, which make an impressive display through the spring and summer. The plant can grow in dense stands or in isolated patches and has dust-like seeds, which are easily spread by wind. Once established it is difficult to control. The current impacts of Spanish Heath are primarily on lightly grazed agricultural production. The plant adapts well to infertile soils and is capable of totally suppressing pasture or restricting stock grazing in affected areas. The impacts on farm productivity and the cost to land occupiers to control Spanish Heath may be significant – particularly on properties that are only marginally financially sustainable. It grows abundantly on some hillsides although it is largely confined to poor and acidic soils or open disturbed habitats such as steep embankments, roadside margins, and old landslides. Spanish Heath also represents a potential threat to indigenous biodiversity values by altering short, open indigenous scrub and tussock habitats, and displacing indigenous flora species in those areas.
<b>Sycamore</b> <b>(<i>Acer pseudoplatanus</i>)</b> <b>Also known as: Sycamore Maple</b>	Deciduous tree <20m tall. Smooth grey bark becoming rough with age. Dark green palmate leaves, 5 lobed, toothed margins (10-25 cm long), reddish petiole 5-10 cm long, opposite on stem. Leaf undersides pale grey-green, with light brown hairs on the veins. Yellow-green flowers (Spring) on pendulous racemes, 20-50 flowers on each stalk. Clusters of winged seed (2-5cm long). Habitats include partially modified & modified habitats, particularly in colder areas, riparian zones, and forests. Dispersal is via wind and gravity. Sycamore has started to naturalise throughout New Zealand.
<b>Tree Privet</b> <b>(<i>Ligustrum lucidum</i>)</b> <b>Also known as: Hedge Privet, Broad Leaf Privet</b>	Small med, hardy, fast growing, evergreen tree or dense shrub <10m high that can reach 14m in foliage diameter. Dark green, glossy oval leaves, pointed tips, smooth edges. Long panicles of strongly scented white flowers (Nov-Mar). Berry-like bluish or purplish-black drupes. Habitats include hedgerows, roadsides, lowland & coastal forest, wetlands, plantations. Tolerates wide range of conditions. Widespread & common. Tree privet is seed dispersed by birds, over long distances by Kereru. Replaces mid canopy trees (taraire, towai, pohutukawa) & completely dominates areas of forest if unhindered. Chinese privet displaces forest shrub tier & marginal shrubs in alluvial forests. Leaves & fruit poisonous, perfume contributes to asthma. Tree privet is a NPPA plant.
<b>Tutsan</b> <b>(<i>Hypericum androsaemum</i>)</b> <b>Also known as: Sweet Amber</b>	Evergreen or semi-evergreen erect shrub or subshrub <1.5m high. Reddish, ridged stems. Aromatic leaves oval, usually opposite, & greenish often with a red blush. Yellow flowers (Nov-Feb) with numerous stamens clustered on end of branches. Round, green, fruit ripen to red & then black. Habitats include riparian zones, coastal areas, roadsides, banks, disturbed areas, and non-intensively farmed land. Prefers wetter, cooler areas. Tolerates light shade. Dispersal is via birds, wind, soils disturbance & water. Tutsan forms extensive patches. Dense cover of branches & rotting leaves smothers existing low growing plants & seriously inhibits regeneration. Tutsan is a NPPA plant.
<b>Undaria</b> <b>(<i>Undaria pinnatifida</i>)</b>	Undaria is a golden-brown laminarian kelp, which can reach 1-2 metres in length. Mature Undaria is easily distinguished from native kelp by its 'frilly' spore-producing structure (the sporophyll) near the base of the plant, however, the plant's juvenile forms are difficult to distinguish from other native seaweeds. Since its initial discovery in the 1980s Undaria has become established in many ports and extensive parts of the eastern coastline. The plant has a rapid growth rate and tolerates a wide range of wave exposures – from sheltered marinas to the open coast. Although most commonly found at depths of 1-3 metres below the surface, Undaria can be found at up to 18 metres below the surface. It can grow on any hard surface, including artificial substrates such as mooring ropes, pylons, vessel hulls, and floating pontoons. Undaria is a highly invasive species. Once established it has the ability to replace or exclude native seaweed species and associated marine flora. By modifying coastal habitats and smothering other useful species, Undaria may displace paua, mussels and other traditional food sources of value to Māori and other seafood gatherers. Undaria would pose a significant threat to any marine farming proposed for Taranaki waters as it can interfere with marine activities by fouling mussel and salmon farms, and boats. Heavy infestations may also clog marine farming equipment, slow growth of mussels, and restrict water circulation. Heavy fouling of boats seriously decreases their efficiency.
<b>Wandering Willy</b>	Hairless, succulent creeping plant <50cm tall. Alternate, oval, shining leaves form a sheath around stem. Clusters

Species	Description
<p><b>(Tradescantia fluminensis)</b>  <b>Also known as:</b>  <b>Wandering Jew</b></p>	<p>of white star-shaped flowers (Aug-Nov). Habitats include riparian zones, alluvial flats, lowland forests, coastal areas, damp shrublands, and wetland margins. Prefers cool, moist, shaded conditions. Wandering willy does not set seed in New Zealand. Succulent stems break off &amp; root easily &amp; are dispersed by water, animals, people, &amp; machinery. Spread locally by creeping.</p> <p>Wandering willy is a serious forest floor competitor forming dense mats that smother vegetation &amp; prevent regeneration. Causes dermatitis in dogs &amp; other animals. It is a NPPA plant.</p>
<p><b>Woolly nightshade</b>  <b>(Solanum mauritianum)</b></p>	<p>Woolly Nightshade is a fast-growing, short-lived shrub or tree, which can grow up to 10 metres tall. Its small purple flowers are produced year-round, and develop into marble sized green/yellow bird-dispersed fruit. The plant tolerates semi-shade and can be invasive in forest margins, disturbed forests, rough pasture, coastal habitats and waste ground. The impact of Woolly Nightshade is principally on indigenous biodiversity values. Woolly Nightshade is very free seeding with the seeds mainly being spread by birds. The plant matures quickly and forms dense, often pure stands that restrict the regeneration rate of native species. Woolly Nightshade is moderately toxic to humans and livestock; the hairs from the leaves can irritate skin, eyes, nose and throat on contact.</p>
<p><b>Yellow bristle grass</b>  <b>(Setaria pumila)</b></p>	<p>Yellow bristle grass is an upright annual summer-growing plant growing 25–45 cm high, although in open pasture its first leaves are typically parallel to the ground. The leaves are yellow-green to green in colour and usually red or purple at the base. They are flat, hairless, soft and twisted and the leaf sheath is flattened. The seed head is distinctive, with cylindrical seed heads with many yellow-tinged bristles. Each seed head is a cylindrical 'spike' 2.5–10 cm long, which consists of many densely packed spikelets, each bearing a single seed. At the base of each spikelet are five to ten bristles 5–8 mm long. The bristles are initially green, but soon change to a golden-brown colour, which give the grass its name. Yellow bristle grass reproduces by seed, and seeds are dispersed by water, soil movement, animals, machinery, and as contaminants of crop seed and hay. The barbed seed heads are often carried in fur, feathers, or clothing. Seeds are hard-coated and most float on water. Germination typically starts in mid October and peaks from mid November to mid December depending on conditions. Early seed heads can appear as early as late December but mostly in January and February, and the plant is a prolific seeder, with up to 60 seed heads. Yellow bristle grass occurs in areas with adequate summer rainfall, and can tolerate dry conditions once established, but it is frost tender. It grows in areas where the soil has been disturbed, including cultivated areas, old pastures and along footpaths and the side of roads, especially where water collects. While yellow bristle grass is palatable to livestock during the vegetative stage, it has poor nutritive values and stock avoid it after seed heads emerge (mid January to May). There is also evidence that seed heads can cause lesions and ulcers to the mouths of grazing cattle. Studies have shown that dairy farms infested by the plant can see a 13 per cent drop in dry matter production, with the cost of supplementary feed required to maintain milk production estimated to be \$343 per hectare a year.</p>

## Appendix 3: Summary of Beneficiaries and Exacerbators

**Table 9:** Beneficiaries and Exacerbators

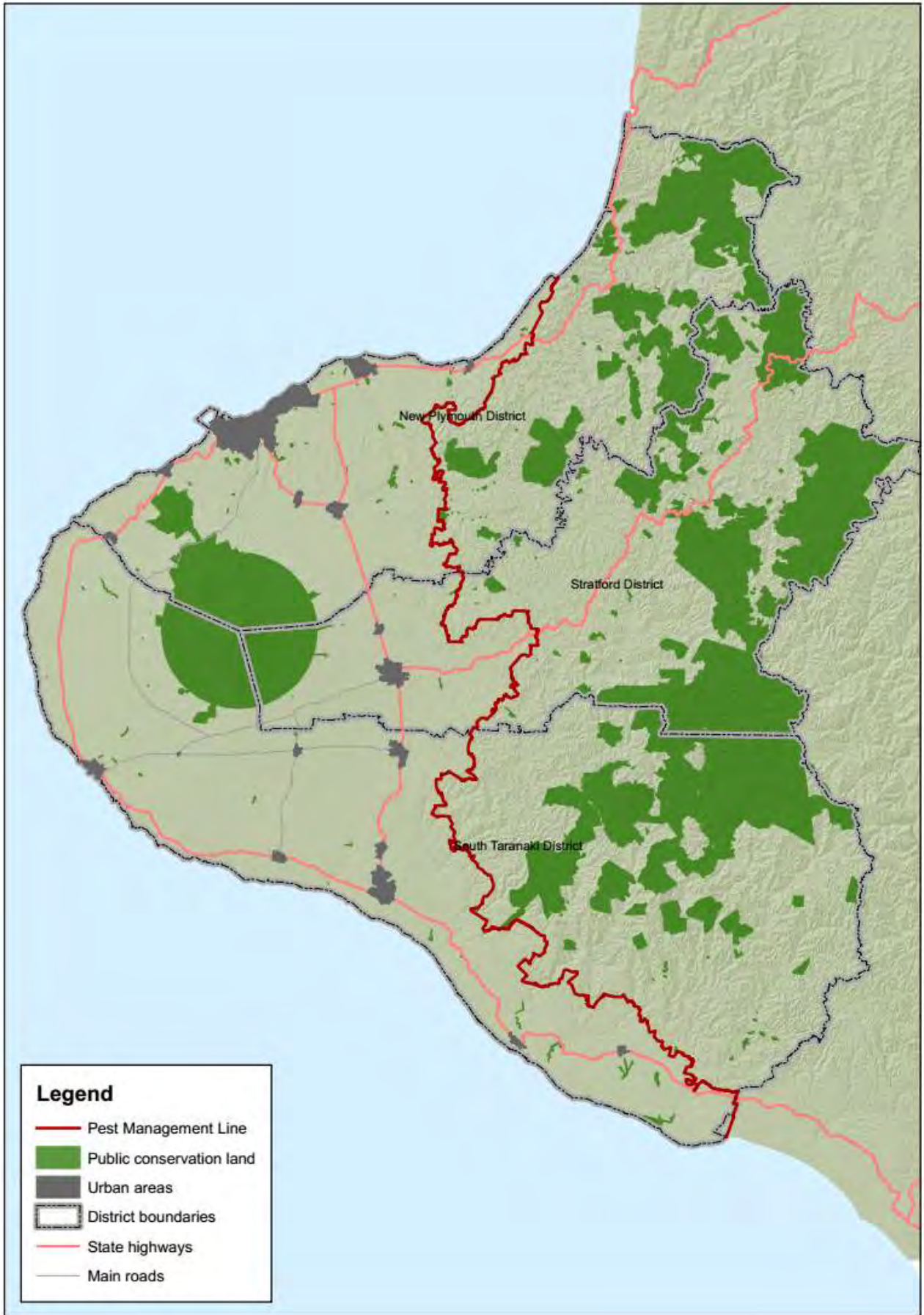
Pest/s	Beneficiaries	Exacerbators
<b>Eradication</b>		
<b>Climbing spindleberry</b>	<p>Forestry sector, which will benefit from the protection of their young trees during planting and re-planting phases.</p> <p>Rural owners/occupiers, who will benefit from their farm shelterbelts being protected from infestation.</p> <p>Regional community, who will benefit from the protection of indigenous biodiversity values.</p>	<p>Forestry sector, which does not control Climbing spindleberry on their sites or dispose of it incorrectly.</p> <p>Gardeners or those intentionally dumping or incorrectly disposing of Climbing spindleberry.</p>
<b>Giant reed</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of economic values.</p> <p>Regional community, who will benefit from the protection of water quality, species diversity and threatened species.</p>	<p>All land occupiers, both Crown and private, who do not control Giant reed infestations on their land or who intentionally or unknowingly spread the plant along pathways.</p> <p>Anyone who intentionally dumps or incorrectly disposes of Giant reed.</p>
<b>Madeira (Mignonette) vine</b>	<p>Regional community, who will benefit from the protection of native and plantation forests.</p>	<p>Gardeners or those intentionally dumping or incorrectly disposing of Madeira vine.</p>
<b>Senegal tea</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of waterways and wetlands, and aquatic flora and fauna species.</p> <p>Regional community, who will benefit from the protection of water quality, species diversity and threatened species</p>	<p>All land occupiers, both Crown and private, who do not control Senegal tea infestations on their land or who intentionally or unknowingly spread the plant along pathways.</p> <p>Gardeners or those intentionally dumping or incorrectly disposing of Senegal tea.</p>
<b>Sustained control</b>		
<b>Possums</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of dairy, forestry and horticulture economic production values.</p> <p>Regional community, who will benefit from the protection of environmental biodiversity, health, and social/ cultural values.</p>	<p>All land occupiers, both Crown and private, who do not control Possum infestations on their land to below 10% Residual Trap Catch.</p>
<b>Giant buttercup</b>	<p>All land occupiers in the dairy/ sheep and beef sector who will benefit from the protection of agricultural pastoral production values and animal health.</p> <p>All other land occupiers, both Crown and private, who will benefit from control of Giant buttercup.</p> <p>Regional community, who will benefit from the protection of regional and international economic values of pasture farmers, and of animal and human health.</p>	<p>All land occupiers in the dairy/ sheep and beef sector who do not control Giant buttercup infestations on their land.</p> <p>Land occupiers who intentionally dump or incorrectly dispose of Giant buttercup or who spread the weed along pathways through poor weed hygiene practices.</p> <p>Road controlling authorities / hay contractors who do not control Giant buttercup or who spread the pest along pathways through poor weed hygiene practices.</p>
<b>Giant gunnera</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of indigenous biodiversity and plantation forestry.</p> <p>Regional community, who will benefit from the protection of waterways and wetlands in respect of recreation and hazard risk values.</p>	<p>All land occupiers who do not control Giant gunnera infestations on their land.</p> <p>Land occupiers who intentionally dump or incorrectly dispose of Giant gunnera or who spread the weed along pathways through poor weed hygiene practices.</p>
<b>Gorse</b>	<p>All land occupiers in the dairy/ sheep and beef sector who will benefit from the protection of agricultural production values.</p> <p>Other land occupiers who will benefit from protection of waterways and lakes.</p>	<p>All land occupiers in the dairy/ sheep and beef sector who do not control Gorse infestations on their land.</p> <p>All other land occupiers who do not control Gorse infestations on their land.</p>

Pest/s	Beneficiaries	Exacerbators
	<p>Regional community, who will benefit from the protection of regional and international economic values of pasture farmers, species diversity, and social / cultural values.</p> <p>Plantation forestry sector that will benefit from the protection of production values.</p>	<p>Plantation forestry owners/ occupiers who do not control Gorse infestations on their land.</p>
<b>Nodding, Plumeless &amp; Variegated thistles</b>	<p>All land occupiers in the dairy/ sheep and beef sector who will benefit from the protection of agricultural production and animal health values.</p> <p>Other land occupiers who will benefit from protection of arable production values and international trade.</p> <p>Regional community, who will benefit from the protection of social/ cultural values.</p>	<p>All land occupiers in the dairy/ sheep and beef sector who do not control Nodding, Plumeless or Variegated thistle infestations on their land.</p> <p>All other land occupiers who do not control Nodding, Plumeless or Variegated thistle infestations on their land.</p> <p>Anyone who intentionally dumps or incorrectly disposes of Nodding, Plumeless or Variegated thistles or who spreads the weed along pathways through poor weed hygiene practices.</p>
<b>Old man's beard</b>	<p>Regional community, who will benefit from the protection of indigenous biodiversity and social/ cultural values.</p> <p>Plantation forestry sector that will benefit from the protection of production values.</p> <p>Land occupiers who will benefit from protection of arable and amenity values.</p>	<p>All land occupiers who do not control Old man's beard on their land.</p> <p>Anyone who intentionally dumps or incorrectly disposes of Old man's beard.</p>
<b>Pampas (Common and Purple)</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of forestry and pastoral production and indigenous biodiversity values.</p> <p>Regional community, who will benefit from the protection of economic production, and biodiversity values.</p>	<p>All land occupiers who do not control flowering Pampas on their land.</p>
<b>Wild broom</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of forestry and agricultural production values.</p> <p>Regional community, who will benefit from the protection of environmental and social / cultural values.</p>	<p>All land occupiers who do not control Wild broom on their land.</p> <p>All forestry occupiers/owners who do not control Wild broom on their land.</p>
<b>Wild ginger (Yellow and Kahili)</b>	<p>All land occupiers, both Crown and private, who will benefit from the protection of indigenous biodiversity and plantation forestry.</p> <p>Regional community, who will benefit from the protection of access to recreation and cultural sites.</p>	<p>All land occupiers who do not control Wild ginger (Yellow and Kahili) on their land.</p> <p>Anyone who intentionally dumps or incorrectly disposes of Wild ginger (Yellow or Kahili).</p>
<b>Yellow ragwort</b>	<p>All land occupiers in the dairy/ sheep and beef sector who will benefit from the protection of agricultural pastoral production values and animal health.</p> <p>All other land occupiers, both Crown and private, who will benefit from the protection of social / cultural values.</p> <p>Regional community, who will benefit from the protection of regional and international economic values and of animal health.</p>	<p>All occupiers of intensively farmed land west of the Pest Management line who do not control Yellow ragwort on their land.</p> <p>All land occupiers (Crown and private) on land east of the Pest Management line who do not control Yellow ragwort on their land.</p>
<b>Other unwanted organisms</b>	<p>All land occupiers, both Crown and private, and the regional community, who will benefit from site-led protection of production, environmental, and social / cultural values from one or more of the pests included in the 'other unwanted organisms' list.</p>	<p>All land occupiers, both Crown and private, and the regional community, who do not control one or more of the 'other unwanted organisms' listed in this Plan on their land.</p> <p>Anyone who intentionally dumps or incorrectly disposes of a pest plant.</p>

## Appendix A: Pest Management Line

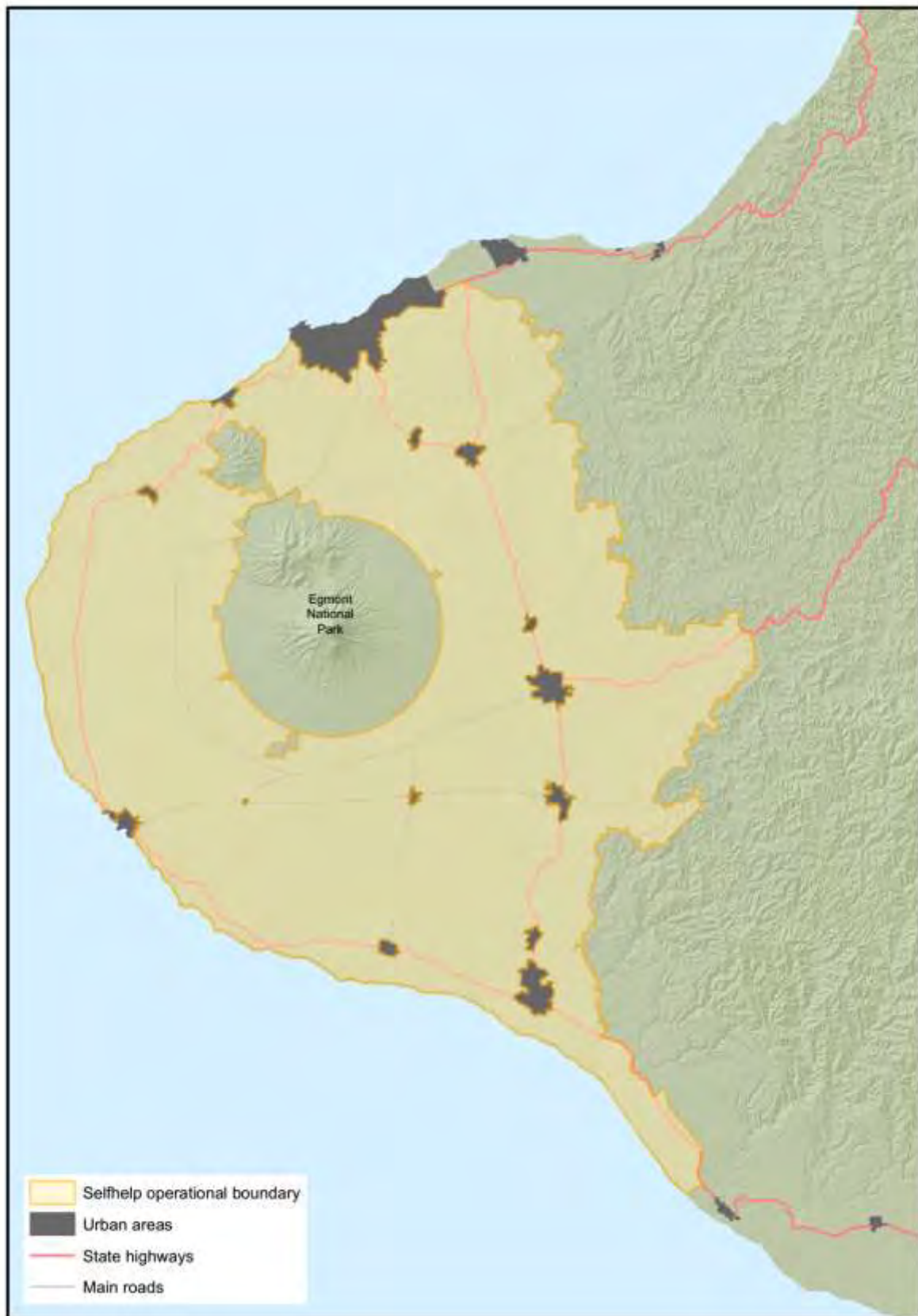
The Pest Management Line is used to demarcate that part of Taranaki that is predominantly intensive dairy farming land from that part of the region where other land uses predominate. It is based on the Land Use Capability database, which provides detail of land types across the whole country. The Pest Management Line is referred to in rules relating to Yellow ragwort.







## Appendix B: Self-Help Possum Control Programme (as at May 2017)



NB: More properties may be added during the lifetime of this Plan

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## Appendix C: Plants listed in the National Pest Plant Accord List

The National Pest Plant Accord (NPPA) is designed to prevent the sale, distribution and propagation of a set list of pest plants (the Accord list) within New Zealand. If allowed to spread further, these pest plants could seriously damage the New Zealand economy and environment. The NPPA is a cooperative agreement between:

- MPI
- New Zealand Plant Producers Incorporated (NZPPI)
- unitary and regional councils
- Department of Conservation.

All plants on the Accord list are unwanted organisms under the Biosecurity Act 1993. This means they cannot be distributed or sold in New Zealand. The NPPA is used alongside other pest management plans and strategies.

MPI consults with a group of key stakeholders and parties interested in the NPPA or the Accord list and the group is updated when the Accord list changes. Anyone interested in the NPPA and the Accord list can sign up.

It should be noted that the Accord List is current at the time of printing this Plan and will be altered in the future.

The full list, further information, and updates on the list can be obtained directly from Ministry of Primary Industries or by visiting their website on:

<http://www.mpi.govt.nz/protection-and-response/long-term-pest-management/national-pest-plant-accord>

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