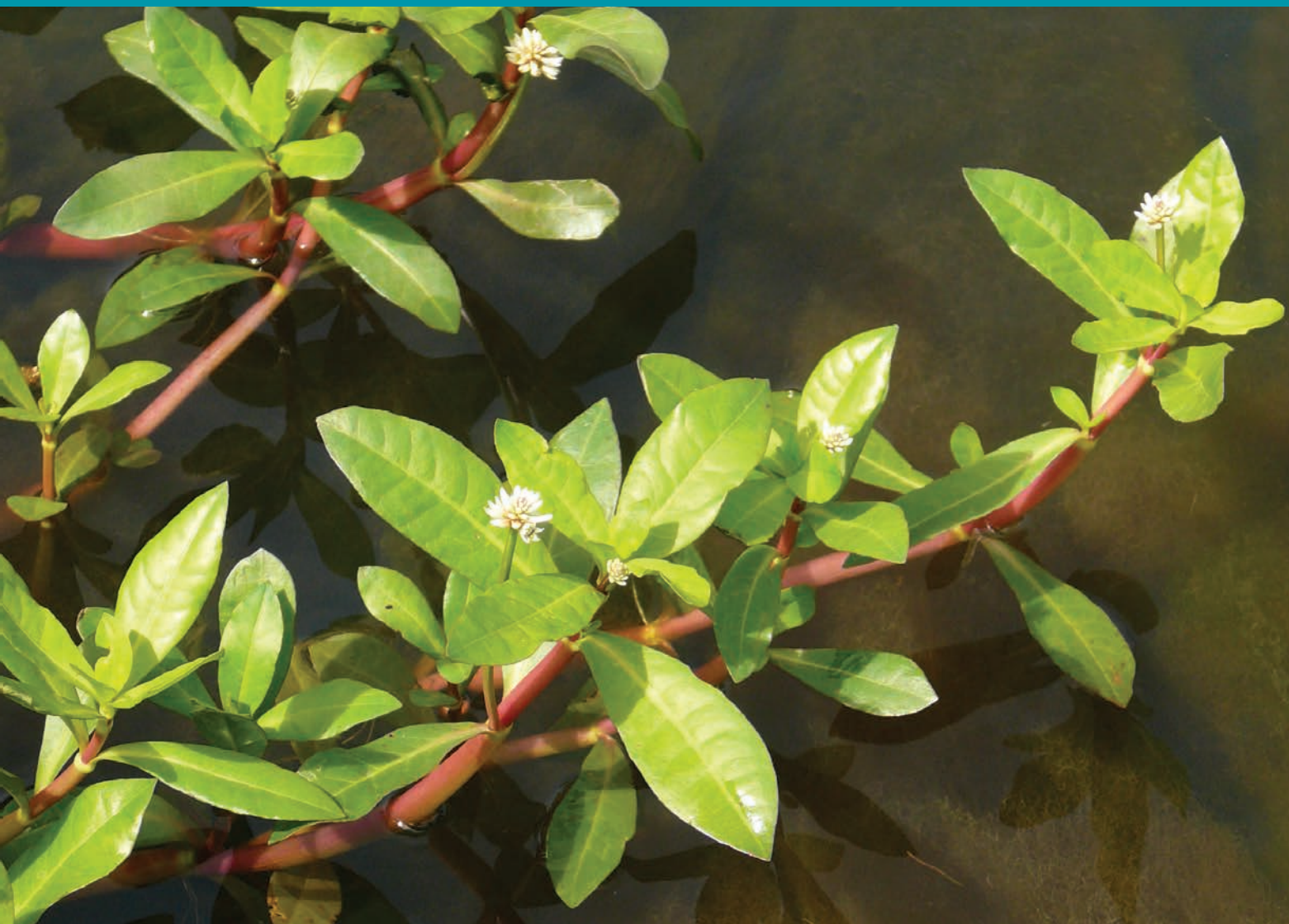


Part 2
Pest management
Whakaritenga kīrearea



4. Organisms declared as pests

Ngā rauropi kua huri hei kīrearea

The organisms listed in the following tables (tables 2-6) are to be managed through programmes within the RPMP for the Waikato region. The tables also indicate what management programme or programmes will apply to the pest in this Plan, and if a Good Neighbour Rule (GNR) applies.

Section 6 of this Plan sets out the detail of each of the management programmes. In summary they are:

- exclusion (keeping certain pests out of the region)
- eradication (eliminating pest populations)
- progressive containment (containing or reducing pest distribution)
- sustained control (ongoing control to reduce pest impacts)
- site-led (protecting values of places).

In addition to being included in the above programme(s), some pests are also subject to additional rules which apply to the general management of transport corridors (including cycle paths) and quarries, or when undertaking subdivision and/or land development activities. These rules are specified (where applicable) in each programme and the pests subject to these rules are identified in the tables.

The following should also be noted.

- There are **general administrative powers** of inspection and entry, contained in **Part 6 of the Act**, available to the Waikato Regional Council (refer Part 8 of the Plan).
- There are **statutory obligations** for any person under **sections 52 and section 53 of the Act**. These sections prohibit anyone from selling, propagating or distributing any pest, or part of a pest, should they be specified as such in an RPMP; non-compliance with section 52 and section 53 is an **offence** under section 1540 of the Act and may result in the penalties noted in section 157(1) of the Act).
- **Exemptions** to any Plan rule may apply under section 78 of the Act, except where specifically stated.

Table 2: Organisms classified as pest plants and their management programme

Exclusion programme			
Common name	Scientific name	GNR	Page
Broom corn millet	<i>Panicum miliaceum</i>		30
Chilean needle grass	<i>Nassella neesiana</i>		32
Freshwater eel grass	<i>Vallisneria australis</i>		34
Fringed water lily	<i>Nymphoides peltata</i>		36
Horsetail (field/common)	<i>Equisetum arvense</i>		38
Kudzu vine	<i>Pueraria lobata</i>		40
Marshwort	<i>Nymphoides geminata</i>		42
Subdivision and land development			
When undertaking subdivision or land development, if any of the above pest plants are present on the land to be subdivided and/or developed, occupiers must also comply with rules relating to these activities. These rules can be found in section 6.6 of the RPMP.			
Eradication programme			
Common name	Scientific name	GNR	Page
African feather grass	<i>Cenchrus macrourus</i> (also known as <i>Pennisetum macrourum</i>)		50
Cathedral bells	<i>Cobaea scandens</i>		52
Chilean flame creeper	<i>Tropaeolum speciosum</i>		54

Evergreen buckthorn	<i>Rhamnus alaternus</i>		56
Horse nettle	<i>Solanum carolinense</i>		58
Horsetail (rough horsetail)	<i>Equisetum hyemale</i>		60
Knotweed: Giant knotweed Japanese/Asiatic knotweed	<i>Fallopia sachalinensis</i> <i>Fallopia japonica</i>		62
Mile-a-minute	<i>Dipogon lignosus</i>		64
Nassella/fine stemmed needle grass/Mexican feather grass	<i>Nassella tenuissima</i>		66
Nassella tussock	<i>Nassella trichotoma</i>		68
Noogoora bur	<i>Xanthium strumarium</i>		70
Purple loosestrife	<i>Lythrum salicaria</i>		72
<i>Rhododendron ponticum</i>	<i>Rhododendron ponticum</i> L. subsp. <i>ponticum</i>		74
Sagittaria/arrowhead	<i>Sagittaria montevidensis</i>		76
Senegal tea	<i>Gymnocoronis spilanthoides</i>		78
Spartina: Common cordgrass Smooth cordgrass	<i>Spartina anglica</i> <i>Spartina alterniflora</i>		80
Thistle (variegated thistle)	<i>Silybum marianum</i>		82
Water poppy	<i>Hydrocleys nymphoides</i>		84

Subdivision and land development

When undertaking subdivision or land development, if any of the above pest plants are present on the land to be subdivided and/or developed, occupiers must also comply with rules relating to these activities. These rules can be found in section 6.6 of the RPMP.

Progressive containment programme

Common name	Scientific name	GNR	Page
Alligator weed	<i>Alternanthera philoxeroides</i>		91
Banana passionfruit (Taupō and Rotorua districts)	<i>Passiflora tripartita</i>		93
Boneseed	<i>Chrysanthemoides monilifera</i>		95
Chocolate vine	<i>Akebia quinata</i>		97
Climbing spindleberry	<i>Celastrus orbiculatus</i>		99
Darwin's barberry	<i>Berberis darwinii</i>		101
Giant gunnera	<i>Gunnera tinctoria</i> <i>Gunnera manicata</i>		103
Golden dodder	<i>Cuscuta campestris</i>		105
Lantana	<i>Lantana camara</i>		107
Mexican water lily	<i>Nymphaea mexicana</i>		109
Moth plant (Taupō and Rotorua districts)	<i>Araujia hortorum</i>		111
Old man's beard	<i>Clematis vitalba</i>		113
Velvetleaf	<i>Abutilon theophrasti</i>		115

Wilding conifers:		✓	117
Bishop pine	<i>Pinus muricata</i>		
Contorta pine	<i>Pinus contorta</i>		
Corsican pine	<i>Pinus nigra</i>		
Douglas fir	<i>Pseudotsuga menziesii</i>		
Dwarf mountain pine	<i>Pinus mugo</i>		
European larch	<i>Larix decidua</i>		
Maritime pine	<i>Pinus pinaster</i>		
Mountain pine	<i>Pinus uncinata</i>		
Ponderosa pine	<i>Pinus ponderosa</i>		
Radiata pine	<i>Pinus radiata</i>		
Scots pine	<i>Pinus sylvestris</i>		
Wild kiwifruit	<i>Actinidia</i> spp.		120
Woolly nightshade (Taupō and Rotorua districts)	<i>Solanum mauritianum</i>		122
Yellow flag iris	<i>Iris pseudacorus</i>		124
Subdivision and land development			
When undertaking subdivision or land development, if any of the above pest plants are present on the land to be subdivided and/or developed, occupiers must also comply with rules relating to these activities. These rules can be found in section 6.6 of the RPMP.			
Sustained control programme			
Common name	Scientific name	GNR	Page
Banana passionfruit (excluding Taupō and Rotorua districts)	<i>Passiflora tripartita</i>	✓	131
Broom *	<i>Cytisus scoparius</i>	✓	133
Gorse *	<i>Ulex europaeus</i>	✓	135
Moth plant (excluding Taupō and Rotorua districts)	<i>Araujia hortorum</i>	✓	137
Pampas *	<i>Cortaderia jubata</i> , <i>Cortaderia selloana</i>		139
Ragwort *	<i>Jacobaea vulgaris</i>	✓	141
Thistle: *		✓	
Nodding thistle	<i>Carduus nutans</i>		143
Plumeless thistle	<i>Carduus acanthoides</i>		144
Tutsan	<i>Hypericum androsaemum</i>	✓	147
Wild ginger	<i>Hedychium gardnerianum</i> , <i>Hedychium flavescens</i>	✓	149
Woolly nightshade (excluding Taupō and Rotorua districts)	<i>Solanum mauritianum</i>	✓	151
Transport corridors and quarries *			
Additional rules apply to management of certain pest plants in the sustained control programme on transport corridors (including cycle paths) and in quarries. These pest plants are identified in the table above by * and specific rules are listed in the management regime for each relevant pest plant.			

Table 3: Organisms classified as pest animals

Exclusion programme			
Common name	Scientific name	GNR	Page
Wallaby:			45
Bennett's wallaby	<i>Macropus rufogriseus</i>		
Brush-tailed rock wallaby	<i>Petrogale penicillate</i>		
Parma wallaby	<i>Macropus parma</i>		
Swamp wallaby	<i>Wallabia bicolor</i>		
Eradication programme			
Rook	<i>Corvus frugilegis</i>		87
Progressive containment programme			
Dama wallaby	<i>Macropus eugenii</i>		127

Sustained control programme			
Common brushtail possum (excluding in Hūnua Ranges Pest Management Area)	<i>Trichosurus vulpecula</i>	✓	154
Feral rabbit	<i>Oryctolagus cuniculus</i>		156
Magpie	<i>Gymnorhina tibicen</i>		158
Wasps:			160
Common wasp	<i>Vespula vulgaris</i>		
German wasp	<i>Vespula germanica</i>		

Table 4: Organisms classified as pests as part of the Hūnua Ranges Pest Management Area site-led programme

Site-led programme – Hūnua Ranges Pest Management Area			
Common name	Scientific name	GNR	Page
Common brushtail possum	<i>Trichosurus vulpecula</i>		166
Feral cat	<i>Felis catus</i>		166
Feral deer	<i>Cervus, Axis, Dama, Odocoileus or Elaphurus</i> spp. (including any hybrids)		167
Feral goat	<i>Capra hircus</i>		166
Feral pig	<i>Sus scrofa</i>		167
Mustelids:			167
Ferret	<i>Mustela furo</i>		
Stoat	<i>Mustela erminea</i>		
Weasel	<i>Mustela nivalis vulgaris</i>		
Kauri dieback	<i>Phytophthora agathidicida</i>		166

Table 5: Organisms classified as pests as part of the Wetlands site-led programme

Site-led programme – Wetland pests (page 172)			
PLANT SPECIES			
Common name	Scientific name	GNR	
Alder	<i>Alnus glutinosa</i>	✓	
Arum lily	<i>Zantedescia aethiopica</i> <i>Zantedescia aethiopica</i> 'green goddess'	✓	
Blackberry	<i>Rubus fruticosus</i> agg.	✓	
Broom sedge	<i>Carex scoparia</i>	✓	
Bulbous rush	<i>Juncus bulbosus</i>	✓	
Californian club rush	<i>Schoenoplectus californicus</i>	✓	
Chinese privet	<i>Ligustrum sinense</i>	✓	
Crack willow	<i>Salix fragilis</i>	✓	
Giant gunnera	<i>Gunnera tinctoria</i> <i>Gunnera manicata</i>	✓	
Gorse	<i>Ulex europeaus</i>	✓	
Grey willow	<i>Salix cinerea</i>	✓	
Heath rush	<i>Juncus squarrosus</i>	✓	
Japanese honeysuckle	<i>Lonicera japonica</i>	✓	
Japanese walnut	<i>Juglans sieboldiana</i>	✓	
Manchurian wild rice	<i>Zizania latifolia</i>	✓	
Old man's beard	<i>Clematis vitalba</i>	✓	
Oval sedge	<i>Carex ovalis</i>	✓	

Pampas	<i>Cortaderia jubata</i> , <i>Cortaderia selloana</i>	✓
Purple loosestrife	<i>Lythrum salicaria</i>	✓
Reed canary grass	<i>Phalaris arundinacea</i>	✓
Reed sweet grass	<i>Glyceria maxima</i> , <i>Glyceria fluitans</i>	✓
Royal fern	<i>Osmunda regalis</i>	✓
Sharp rush	<i>Juncus acutus</i>	✓
Yellow flag iris	<i>Iris pseudacorus</i>	✓
ANIMAL SPECIES		
Common name	Scientific name	GNR
Box turtle	<i>Terrapene carolina</i>	
Murray River turtle	<i>Emydura macquarii macquarii</i>	
Red-eared slider turtle (and related sub-species)	<i>Trachemys scripta elegans</i> , <i>T. s. scripta</i> , <i>T. s. troostii</i>	
Snake-necked turtle	<i>Chelodina longicollis</i>	

Table 6: Organisms classified as pests as part of the Project Yellow site-led programme

Site-led programme – Project Yellow pests (page 175)		
Common name	Scientific name	GNR
Broom	<i>Cytisus scoparius</i>	✓
Gorse	<i>Ulex europaeus</i>	✓
Tree lupin	<i>Lupinus arboreus</i>	✓

4.1 Unwanted organisms

In addition to the pests listed in the tables above, the release, sale, breeding, multiplying and propagation of any unwanted organism (UO) (as recognised and registered by a Chief Technical Officer employed under the State Sector Act 1988) is controlled under sections 52 and 53 of the Biosecurity Act 1993.

Part 9 of the Biosecurity Act allows for the national registration of UOs, being those capable or potentially capable of causing harm to any natural and physical resources or human health. Identification of a species as UO means regulatory programmes can be developed to address that organism without it needing to be included in a pest management plan. In such instances, the powers under the Biosecurity Act are held by central government (MPI), and the council has a general monitoring and surveillance role which sits outside of the RPMP.

While the council can still manage UOs outside of an RPMP, enforcement relies on delegation of powers from MPI to the council. UOs can also be included in RPMPs if that inclusion will enable more effective management responses, as is the case for wallabies.

The UO register¹ maintained by MPI contains a list of plants and animals including insects and other invertebrates, as well as diseases – not all of which appear in this RPMP. Waikato Regional Council will support other agencies that have clear pest management leads.

¹ Official New Zealand Pest Register - MPI

5. Pest management framework

Pou tarāwaho mō ngā whakaritenga kīrearea

5.1 Pest management programmes

One or more pest management programmes will be used to control pests covered by this RPMP. The types of programmes are aligned with the NPD and reflect outcomes in keeping with:

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

The intermediate outcomes for the five programmes in this RPMP are described below.

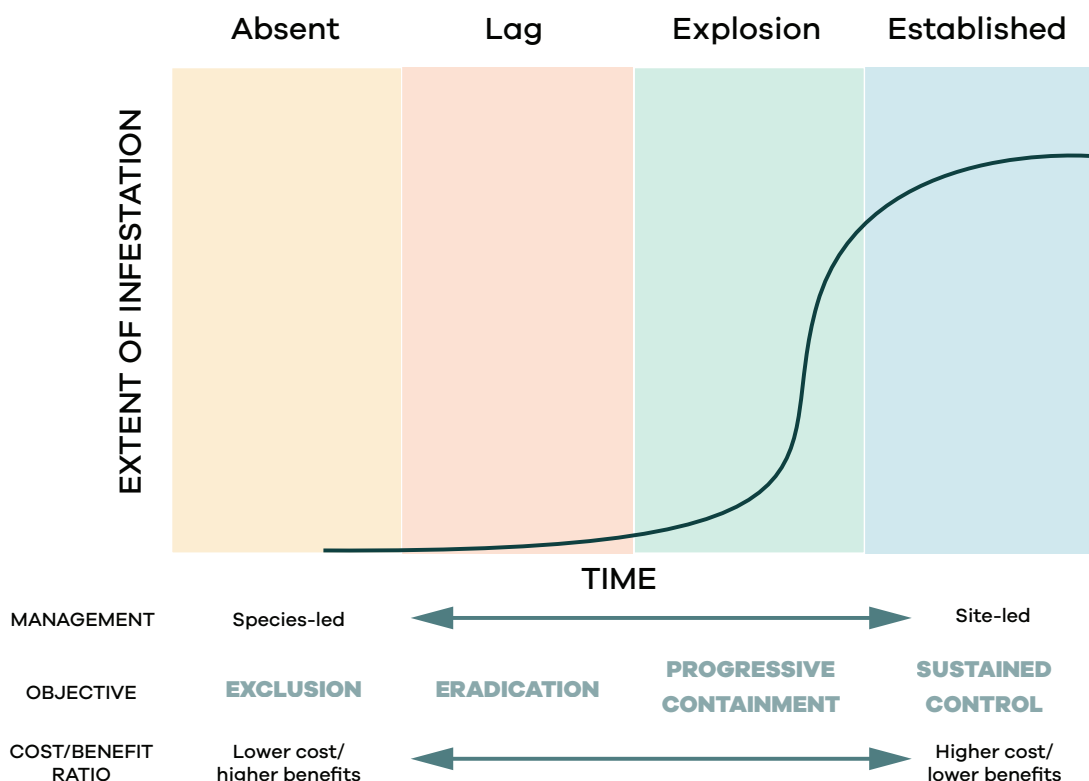
- 1. Exclusion programme:** To prevent the establishment of the subject, or an organism being spread by the subject, that is present in New Zealand but not yet established in an area.
- 2. Eradication programme:** To reduce the infestation level of the subject, or an organism being spread by the subject, to zero levels (density) in an area in the short to medium term.
- 3. Progressive containment programme:** To contain or reduce the geographic distribution of the subject, or an organism being spread by the subject, to an area over time.

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

5. Site-led pest programme: That the subject capable of causing damage to a place, or an organism being spread by the subject, 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.

Pest Invasion Curve

Figure 3: Pest Invasion Curve



The Pest Invasion Curve (figure 3, previous page) is a simple descriptive model of basic pest population dynamics. The council has used it in decision making on pest management to help determine the most appropriate management programme and option(s) for any given pest. The invasion curve has four stages, which are explained here.

- 1. Absent:** These pests have not yet established in the Waikato region, or all known sites have been eradicated. The most effective form of management is to continue to exclude them.
- 1. Lag stage:** This is the initial slow establishment stage. Pest numbers are low, the rate of population increase is slow and the distribution of the species in the Waikato region is limited. The most effective option during this stage is to eradicate to prevent the species becoming established and spreading.
- 2. Explosion stage:** This occurs once a pest has adapted to its environment and has reached a population base that allows rapid growth in population size and range. At this stage it is not realistic or cost-effective to eradicate the pest, but it may be possible to prevent further spread through containment. This containment may be for all or part of the region.
- 3. Established stage:** This stage occurs when the rapid growth in population size and range slows as the pest fills most of its available habitat in all or part of the region. At this stage pests can only be managed to mitigate their impacts (for example, through sustained control or a site-led programme).

5.2 Objectives

Objectives have been set for each pest or class of pests. As required by clause 4 of the NPD, the objectives include:

- the particular adverse effect/s (section 54(a) of the Act) to be addressed
- the intermediate outcomes of managing the pest
- the geographic area to which the outcome applies
- the extent to which the outcome is achieved, if applicable
- the period for achieving the outcome
- the intended outcome in the first 10 years of the Plan (if the period is greater than 10 years).

5.3 Principal measures to manage pests

The principal measures used in the RPMP to achieve the objectives are described in the following five categories. Each category contains a suite of tools that can be applied in appropriate circumstances as a means of achieving the Plan's objectives. These will be monitored or measured, and are summarised as follows.

1. Requirement to act

Occupiers or other persons may be required to act where RPMP rules dictate:

- a) pests are to be controlled
- b) the presence of pests is to be reported
- c) actions are to be reported (type, quantity, frequency, location, programme completion)
- d) management plans are to be prepared and submitted
- e) pests are not to be spread (propagated, sold, distributed) and pathways are to be managed (for example, machinery, gravel or animals).

2. Council inspection

Inspection by council may include authorised person(s):

- a) visiting properties or doing surveys to determine:
 - a. whether pests are present
 - b. rules and management programmes are complied with, or
 - c. 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
- d) monitoring effectiveness of control.

3. Service delivery:

Authorised person(s) on behalf of the council will deliver the service:

- a) within the limits of any available annual budget, and
- b) using the most appropriate and cost-effective management regime.

Services may also include the provision of control tools, including the sourcing and distribution of biological control agents, or pest control chemicals.

4. Advocacy and education

The council may:

- a) provide general purpose education, advice, awareness and publicity activities to occupiers and the public about pests and pathways (and control of them)
- b) encourage occupiers to control pests
- c) facilitate or fund self-help groups
- d) help other agencies with control, advocacy and the sharing or sourcing of funding
- e) promote industry requirements and best practice to contractors and occupiers

- f) encourage occupiers and other persons to report any pests they find or to control them
- g) facilitate or commission research.

5. Alternative pest management arrangements

The council may develop alternative pest management arrangements (i.e. biosecurity management plans or memoranda of understanding) with agencies and occupiers to achieve the objectives of the Plan. This may include:

- establishing agreed levels of service
- establishing by who and how any control work will be undertaken
- deferring enforcement action on rules in this Plan in preference to pragmatic levels of service.

5.4 Rules

Rules play an integral role in securing many of the pest management outcomes sought by the objectives of the RPMP. They create a safety net to protect occupiers from the effects of the actions or inactions of others where non-regulatory means are inappropriate or unsuccessful. 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 (GNRs) in RPMPs. Section 73 of the Act prescribes the matters that may be addressed by rules, and the need to:

- specify if the rule is to be designated as a GNR
- specify if breaching the rule is an offence under the Act.

Rules can apply to occupiers or to a person's actions in general. The term 'occupier' is used in the rules which follow as it has been defined under the Biosecurity Act:

- *"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."

Under this RPMP:

- several rules have been designated as GNRs in accordance with Clause 8 of the NPD (Clause 8 sets out the matters which must be satisfied before a rule can be identified as a GNR)
- a breach of any rules creates an offence under section 154N(19) of the Biosecurity Act
- exemptions may apply to any or all of the rules contained within this RPMP under section 78 of the Act (except where specifically stated) on written application to Waikato Regional Council
 - the council will keep and maintain a register of the number and nature of exemptions granted and the public will be able to inspect the register during business hours
 - exemptions may or may not be subject to conditions – each rule has an accompanying explanation
- the purpose of each rule has been explained.

6. Pest descriptions and programmes

Whakaaturanga a te kīrearea me ōna hōtaka

The following section lists the pests to be managed under the Plan according to the management programme(s) to which they are assigned. It includes a description of each pest, lists their adverse effects, the Plan's objectives for each, and the principle measures (including any rules) to be used to achieve the objectives.

The Biosecurity Act also requires that Waikato Regional Council be satisfied that the pests are capable of causing at some time an adverse effect on at least one of a number of values. To inform the evaluation of the funding of the RPMP (Section 10), Waikato Regional Council has grouped the pests into three broad categories.

- *Production pests* – those pests that affect economic or animal welfare values.
- *Environmental pests* – those pests that affect the viability of threatened species, indigenous plants or animals, or affect the sustainability of natural ecosystems, ecological processes and biodiversity, or affect soil resources and water quality.
- *Social/amenity pests* – those pests that affect human health, social and cultural wellbeing, or affect the enjoyment and the recreational value of the natural environment, or affect the relationship between Māori, their culture and their traditions and their ancestral lands, waters, sites, wāhi tapu and taonga.

These effects are reported under 'Reason for inclusion' at the beginning of each programme for each pest or group of pests listed in tables 7-9, 11, 12, 14, 15 and 16 in this Plan.

6.1 Exclusion programme – overview

Waikato Regional Council's exclusion programme covers species that the council has opted to be the lead agency or partner in managing. Most of these pests are at present outside the Waikato region, or have recently been eradicated from it, and have the potential to establish here or expand their range and become a problem.

Table 7 provides an overview of the pests included in this programme.

Table 7: Quick reference guide to plant and animal pests in the exclusion programme and their reasons for inclusion

Pest plants	Status/reason for inclusion	Page
Broom corn millet	Production pest	30
Chilean needle grass	Production pest	32
Freshwater eel grass	Production, environmental and social/amenity pest	34
Fringed water lily	Environmental and social/amenity pest	36
Horsetail (field/common)	Production and environmental pest	38
Kudzu vine	Production, environmental and social/amenity pest	40
Marshwort	Environmental and social/amenity pest	42
Pest plants	Status/reason for inclusion	Page
Wallabies: Bennett's wallaby Brush-tailed rock wallaby Parma wallaby Swamp wallaby	Production, environmental and social/amenity pest	45

Reason for inclusion

Classed as production, environmental and/or social/amenity pests, Waikato Regional Council believes the pests in the exclusion programme are capable of causing adverse effects as detailed under each species description.

Intermediate outcome

The intermediate outcome for the exclusion programme is to prevent the establishment of a pest which is present in New Zealand but not yet established in the region, and which has the potential to become a serious pest in the future. Section 100V of the Act may be used to instigate emergency control of new incursions of pests that are not otherwise included in this Plan. This intermediate outcome applies to all pests in the exclusion programme.

6.1.1 Management regime for the exclusion programme – pest plants

The following statutory obligation and note regarding subdivision and land development applies to all pest plants in the exclusion programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism. Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

Note:

Subdivision and land development

When subdivision or land development will involve redistribution of materials that may contain propagules or seeds of exclusion programme pest plants listed in section 6.1, table 7 of this Plan, or when it may create bare ground prone to weed infestation, the activity must be carried out in accordance with the subdivision and land development rules in section 6.6 of this Plan.

6.1.1.1 Broom corn millet (*Panicum miliaceum*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

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



Photos: Trevor James

Adverse effects

Broom corn millet competes with maize and sweetcorn for water and nutrients early on in its life cycle and can eventually shade other plants because it can grow to over 2 metres in height. It reduces crop yields via competition and interferes with harvest by clogging machinery. It may reduce crop yield by 13-22 per cent when present at a density of 10 plants/m².¹

Management regime – exclusion

Objective	Over the duration of this Plan, preclude the establishment of broom corn millet within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).</p>
	<p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of broom corn millet to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.</p>
	<p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of broom corn millet, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.</p>

¹ <http://agpest.co.nz/?pesttypes=broom-corn-millet>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of broom corn millet to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules**BCM -1**

All persons shall inform Waikato Regional Council of the presence of broom corn millet in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If broom corn millet is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule BCM-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent broom corn millet becoming established in the Waikato region.

6.1.1.2 Chilean needle grass (*Nassella neesiana*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Chilean needle grass is an erect, tufted perennial tussock which can grow up to 1 metre tall when not subjected to grazing pressure. It is drought tolerant and very competitive with pasture species. Seeds are approximately 7 centimetres long with sharp, needle-like tips that can penetrate skin and flesh. A corkscrew-like awn helps force the seed through the skin and muscle. Seeds also have backward-pointing bristles which make them hard to remove once they are embedded. Leaves are bright green, 1-5 millimetres wide and up to 30 centimetres long. They roll inwards when plants are under drought stress. Leaves are covered with small erect hairs giving them a shaggy appearance. The upper leaf surface is strongly ribbed, and leaf edges feel rough to the touch. Once established, Chilean needle grass is very hard to eradicate as it seeds prolifically and builds up large seed reserves in the soil.



Photos: Trevor James

Adverse effects

Chilean needle grass can outcompete and displace other pasture species. Seeds of Chilean needle grass can contaminate wool and damage sheep pelts, as well as adversely affecting cattle, horses and even dogs, leading to considerable economic losses. Lambs are particularly vulnerable to damage and the seeds can cause blindness. If Chilean needle grass becomes established, land with infestations should not be grazed during flowering and seeding periods, effectively reducing the stock carrying-capacity of the grazing land.

Management regime – exclusion	
Objective	Over the duration of this Plan, preclude the establishment of Chilean needle grass within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).
	Inspection and monitoring Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of Chilean needle grass to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.
	Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of Chilean needle grass, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of Chilean needle grass to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules**CNG-1**

All persons shall inform Waikato Regional Council of the presence of Chilean needle grass in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If Chilean needle grass is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule CNG-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent Chilean needle grass becoming established in the Waikato region.

6.1.1.3 Freshwater eel grass (*Vallisneria australis*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Freshwater eel grass is a submerged, perennial aquatic plant with leaves that can grow to more than 3 metres long. Its mass of strap-like leaves arises from stout rhizomes and it can form dense beds of vegetation. It can establish in the muddy and sandy beds of streams, ditches, lakes, and ponds. The size of the plant depends on habitat extent, with large infestations occurring in larger waterbodies. Eel grass should not be confused with the native marine eel grass (*Zostera*) that is found in estuaries.

Adverse effects

Freshwater eel grass forms dense beds of vegetation which displace native plants and can block dams, waterways and drains, leading to flooding. These dense beds can also choke hydro-electric turbines and disrupt recreational activities. Freshwater eel grass currently has a relatively restricted distribution primarily because it does not spread easily into new waterbodies. It is not known to produce viable seed in New Zealand, and it's spread to new sites in other parts of the country has been mainly by intentional planting. Once established, eel grass can spread rapidly by sending out runners, producing new plants at frequent intervals.



Photos: Trevor James

Management regime – exclusion

Objective	Over the duration of this Plan, preclude the establishment of freshwater eel grass within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).
	Inspection and monitoring Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of freshwater eel grass to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.
	Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of freshwater eel grass, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of freshwater eel grass to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules**FEG-1**

All persons shall inform Waikato Regional Council of the presence of freshwater eel grass in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If freshwater eel grass is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule FEG-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent freshwater eel grass becoming established in the Waikato region.

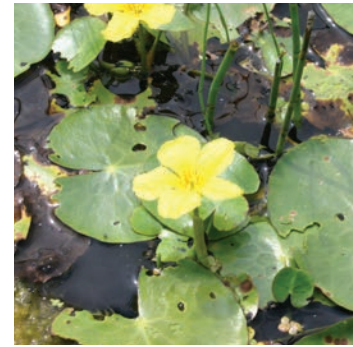
6.1.1.4 Fringed water lily (*Nymphoides peltata*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

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

Adverse effects

Although fringed water lily is of extremely limited distribution in New Zealand, it has the potential to spread and become a very serious problem. It forms dense mats of vegetation that block waterways, impede drainage and disrupt recreational activities. It reduces light penetration, outcompetes native species and degrades water quality.

Management regime – exclusion	
Objective	Over the duration of this Plan, preclude the establishment of fringed water lily within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).
	Inspection and monitoring Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of fringed water lily to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.
	Service delivery Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of fringed water lily, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage. Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.
	Advocacy and education Waikato Regional Council will provide advice and information on the identification, impacts and control of fringed water lily to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the Plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules**FWL-1**

All persons shall inform Waikato Regional Council of the presence of fringed water lily in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If fringed water lily is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule FWL-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent fringed water lily becoming established in the Waikato region.

6.1.1.5 Horsetail: field/common (*Equisetum arvense*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare



Description

Field horsetail (also known as common horsetail) is a perennial fern ally that grows preferentially on damp open ground. It has a thick underground, tuber-bearing root system and asparagus-like fertile stems with whorls of needle-like leaves. The extensive underground rhizomes can penetrate to great depths (>2m) along river and lake margins. It can form dense swards that smother smaller plants and outcompete desirable vegetation. Field horsetail is extremely difficult to manage once it becomes established and is resistant to most herbicides.

Adverse effects

It can form pure stands in a wide range of damp habitats, outcompeting native vegetation and preventing native seedlings from establishing. It blocks and alters watercourses, causing flooding; it invades pastures and can grow through and damage footpaths and roadways, and is also toxic to stock.²



Photos: Trevor James

Management regime – exclusion

Objective	Over the duration of this Plan, preclude the establishment of field/common horsetail within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of field/common horsetail to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of field/common horsetail, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.</p>

² <https://www.weedbusters.org.nz/what-are-weeds/weed-list/field-horsetail/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of field/common horsetail to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the Plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules

HTFC -1

All persons shall inform Waikato Regional Council of the presence of field/common horsetail in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If field/common horsetail is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule HTFC-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent field/common horsetail becoming established in the Waikato region.

6.1.1.6 Kudzu vine (*Pueraria lobata*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare

Description

Kudzu vine is a large, semi-woody, trailing or climbing perennial vine (10-30 metres long) with large leaves comprised of three dark green, slightly lobed leaflets with hairy undersides. Tuberos, semi-woody, fibrous roots can grow to over 3 metres deep, and stems grow in all directions and root at each node (junction of leaf stalk and stem). Spikes of reddish-purple, pea-like flowers have a grape-like fragrance and are followed by hard oval seeds in flattened, hairy, brown, bean-like pods.³



Photos: Auckland Council

Adverse effects

Kudzu vine is an extremely vigorous, aggressive vine capable of growing up to 2 metres a week. It can even invade intact native plant communities, forming large smothering monocultures, and completely cover shrubs and trees up to 20 metres in height. It is also a nitrogen fixer and has the potential to leach additional nitrogen into streams, increasing eutrophication. Kudzu can also reduce the amenity values of natural areas by impeding access, and would pose a significant threat to many vulnerable taonga species if it were to establish in the region. Through historic intentional planting and natural spread, kudzu vine now infests over 2.5 million hectares in the United States. Kudzu can grow in urban areas, agricultural areas, disturbed areas, forests, riparian zones and shrublands. It has been discovered and destroyed at sites in the neighbouring Bay of Plenty region.

Management regime – exclusion

Objective Over the duration of this Plan, preclude the establishment of kudzu vine within the Waikato region to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of kudzu vine to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of kudzu vine, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.

3 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/kudzu-vine/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of kudzu vine to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the Plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules

KUD-1

All persons shall inform Waikato Regional Council of the presence of kudzu vine in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If kudzu vine is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule KUD-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent kudzu vine becoming established in the Waikato region.

6.1.1.7 Marshwort (*Nymphoides geminata*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare



Description

Marshwort is a water lily-like perennial aquatic plant which spreads across the margins of lakes just beneath the water surface. The leaves are bright green, heart-shaped, and up to 10cm across. Its flowers have five bright yellow petals with fringed margins. It is spread by creeping stem growth, fragmentation, and deliberate planting.

Adverse effects

Marshwort grows rapidly, colonising shallow water and forming dense mats that impede drainage and shade out other aquatic plants, block access to water and interfere with recreational activities.⁴

Management regime – exclusion

Objective Over the duration of this Plan, preclude the establishment of marshwort within the Waikato region to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of marshwort to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of marshwort, in accordance with section 5.3 of the Plan, to remove the risks of widespread establishment at an early stage.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of marshwort to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.

⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/marshwort/>

Monitoring and anticipated outcomes

Monitoring for the presence of exclusion pests will be undertaken in accordance with section 7 of the Plan to ensure that no pests in the exclusion programme become established in the Waikato region.

Rules**MAR-1**

All persons shall inform Waikato Regional Council of the presence of marshwort in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If marshwort is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule MAR-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to prevent marshwort becoming established in the Waikato region.

6.1.2 Management regime for the exclusion programme – animal pests

The following statutory obligation applies to all animal pests in the exclusion programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.

Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, bred or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

6.1.2.1 Wallaby: Bennett's wallaby (*Macropus rufogriseus*), brush-tailed rock wallaby (*Petrogale penicillate*), parma wallaby (*Macropus parma*), swamp wallaby (*Wallabia bicolor*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Bennett's wallaby

Bennett's wallaby, often called red-necked wallaby, stands up to 80 centimetres tall and has a tail length of around 62 centimetres. Males can reach over 20 kilograms in weight with females reaching 14 kilograms. They have a greyish-brown upper body, pale grey chest and belly, and reddish-brown (rufous) colour on the shoulders. Their hind feet and tail are black tipped. Bennett's wallaby is currently only present in the South Island of New Zealand.

Brush-tailed rock wallaby

The brush-tailed rock wallaby has a long and bushy, dark rufous-brown tail that is bushier towards its tip. It has long, thick, brown body fur that tends to be rufous on the rump and greyer on the shoulders. The fur on its chest and belly are paler, and some individuals have a white blaze on their chest. It also has a characteristic white cheek stripe and a black stripe from its forehead to the back of its head. The average weight of this species is about 8 kilograms for males and 6 kilograms for females.⁵ The brush-tailed rock wallaby has a limited distribution within New Zealand, currently being confined to Kawau Island in the Hauraki Gulf.

Parma wallaby

Parma wallabies have a white throat and chest, and a white stripe on their cheeks. Their grey-brown back and shoulders, with a dark dorsal stripe extending to mid-back, are also defining features. Males are generally larger and measure 48-53 centimetres, while females range from 45-53 centimetres. Tail length in males is from 49-54 centimetres, and in females from 41-51 centimetres. Males weigh from 4.1-5.9 kilograms and females weigh from 3.2-4.8 kilograms.⁶ The parma wallaby has a limited distribution within New Zealand, currently being confined to Kawau Island in the Hauraki Gulf.



Bennett's wallaby
Photo: Nasser Halaweh
Licence: Creative Commons



Brush-tailed rock wallaby
Photo: Doug Beckers
Licence: Creative Commons



Parma wallaby
Photo: Mitch Ames
Licence: Creative Commons



Swamp wallaby
Photo: Rufus46
Licence: Creative Commons

⁵ <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10605>
⁶ https://animaldiversity.org/accounts/Macropus_parma/

Swamp wallaby

Swamp wallabies are one of the larger species of wallaby. The average length is 76 centimetres for males, and 70 centimetres for females (excluding the tail). The tail of both sexes is approximately equal in length to the rest of the body. The average weight for males is 17 kilograms, with females averaging 13 kilograms.

Its coat has a dark brown, dark grey to black region on the back and is light yellow to rufous orange on the belly. There are usually yellow stripes on the cheeks, and the extremities of the body generally show a darker colouring, except for the tip of the tail which is often white. Their gait differs from other wallabies, with the swamp wallaby carrying its head low and tail out straight.⁷ The swamp wallaby has a limited distribution within New Zealand, currently being confined to Kawau Island in the Hauraki Gulf.

Adverse effects

Wallabies compete directly with livestock for pasture and have a substantial dietary overlap with sheep, resulting in large production losses in the sheep and beef industry. They also damage newly planted radiata pine plantations.

Wallabies have significant impacts on native ecosystems by grazing and browsing native plant species. When present in high densities, wallaby browsing of native vegetation can halt regeneration and change the pattern of succession, or at least alter the local abundance of different species. In this regard, wallabies can have a similar effect to possums.

Wallabies will eat a range of taonga plant species and can destroy ground vegetation at culturally important sites (for example, wāhi tapu or urupa), potentially leading to erosion of archaeological features. The erosion of soil can also lead to increased sedimentation in waterways.

Management regime – exclusion

Objective	Over the duration of this Plan, preclude the establishment of Bennett’s, brush-tailed rock, parma and swamp wallabies within the Waikato region to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.1.2 for further detail).
	Inspection and monitoring Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of wallabies to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.
	Service delivery Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of wallaby, in accordance with section 5.3 of the Plan, to prevent the establishment of wallabies
	Advocacy and education Waikato Regional Council will provide advice and information on the identification, impacts and control of wallaby to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

⁷ <https://australian.museum/learn/animals/mammals/swamp-wallaby/>

Rules

WAL-1

All persons shall inform Waikato Regional Council of the presence of Bennett's, brush-tailed rock, parma or swamp wallaby in the Waikato region, within five working days of the presence first being suspected.

WAL-2

No person shall possess a live Bennett's, brush-tailed rock, parma or swamp wallaby in the Waikato region.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of the rules

The purpose of rules WAL-1 and WAL-2 is to prevent these species of wallaby becoming established in the Waikato region. Rule WAL-1 and WAL-2 are in accordance with section 73(5)(a) and 73(5)(e), respectively, of the Biosecurity Act 1993.

6.2 Eradication programme – overview

Waikato Regional Council's eradication programme covers species that are present in the region, but that the council considers can be eradicated from the region over the duration of the Plan due to their low density and/or distribution. Table 8 provides an overview of the pests included in this programme.

Table 8: Quick reference guide to plant and animal pests in the eradication programme and their reasons for inclusion

Plant pest	Status/reason for inclusion	Page reference
African feather grass	Production, environmental and social/amenity pest	50
Cathedral bells	Production, environmental and social/amenity pest	52
Chilean flame creeper	Environmental and social/amenity pest	54
Evergreen buckthorn	Environmental and social/amenity pest	56
Horse nettle	Production and social/amenity pest	58
Horsetail (rough)	Production, environmental and social/amenity pest	60
Knotweed (giant and Japanese/Asiatic)	Environmental and social/amenity pest	62
Mile-a-minute	Environmental and social/amenity pest	64
Nassella (fine stemmed needle grass/Mexican feather grass)	Production and environmental pest	66
Nassella tussock	Production and environmental pest	68
Noogoora bur	Production and social/amenity pest	70
Purple loosestrife	Production and environmental pest	72
Rhododendron ponticum	Production, environmental and social/amenity pest	74
Sagittaria/arrowhead	Environmental and social/amenity pest	76
Senegal tea	Environmental and social/amenity pest	78
Spartina (common cordgrass/smooth cordgrass)	Environmental and social/amenity pest	80
Thistle (variegated)	Production pest	82
Water poppy	Environmental and social/amenity pest	84
Animal pest	Status	Page reference
Rook	Production pest	87

Reason for inclusion

Classed as production, environmental and/or social/amenity pests, Waikato Regional Council believes the pests in the eradication programme are capable of causing adverse effects as detailed under each species description

It is appropriate that the council be involved in managing these pests rather than relying on voluntary action because:

- successful eradication requires coordination of action at a regional scale
- the benefits of the control of many of these pests accrue to a wider community than those directly affected by the presence of the pests on their property.

Occupiers are duty bound to inform Waikato Regional Council of the presence of these pests and allow authorised person(s) on behalf of the council to undertake management, otherwise the eradication objective for these pests is compromised.

Intermediate outcome

The intermediate outcome for the eradication programme is to reduce the infestation level of a pest to zero density at any sites they occur in the short to medium term. The eradication programme covers pests which Waikato Regional Council has opted to be the lead agency or partner for in the eradication of them from the Waikato region. These pests are present in the Waikato region but are limited in their size or extent of infestation, or their eradication is feasible and a cost-effective solution to protecting production, environmental and/or social/amenity values into the future. This intermediate outcome applies to all pests included in the eradication programme.

6.2.1 Management regime for the eradication programme – pest plants

The following statutory obligation and note regarding subdivision and land development applies to all pest plants in the eradication programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism. Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

Notes:

Subdivision and land development

When land subdivision or development will involve redistribution of materials that may contain propagules or seeds of eradication programme pest plants listed in section 6.2, table 8 of this Plan, or when it may create bare ground prone to weed infestation, the activity must be carried out in accordance with the subdivision and land development rules in section 6.6 of this Plan.

6.2.1.1 African feather grass (*Cenchrus macrourus* – also known as *Pennisetum macrourum*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Northland Regional Council, top, and Trevor James

Description

African feather grass is a robust perennial grass which forms large clumps up to 2 metres high, resembling pampas grass. Round erect purplish-white stems (up to 2 metres tall) have many fine hairs that break off when touched, causing skin irritations. Its narrow, cylindrical, spike-like flower heads (10-30 centimetres long, 10-20 millimetres diameter) contain many seeds, each with bristles (10 millimetres).⁸

Adverse effects

African feather grass can completely suppress other low growing plants. Its dense clumps can totally inhibit the movement of animals, people, and machinery, and will block drains and impair visibility along roads. Dense patches provide habitat for rabbits and are also fire hazards. Fine hairs on the plant's stems can cause skin irritations.

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of African feather grass within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring
Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of African feather grass to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery
Authorised person(s) on behalf of Waikato Regional Council will undertake control of African feather grass in accordance with section 5.3 of the Plan.

8 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/african-feather-grass/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of African feather grass to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

AFG-1

All persons shall inform Waikato Regional Council of the presence of African feather grass in the Waikato region, within five working days of the presence first being suspected.

Note:

3. A breach of this rule will create an offence under section 154N(19) of the Act.
 4. Enforcement will be in accordance with section 9 of the Plan.
 5. If African feather grass is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule AFG-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.2 Cathedral bells (*Cobaea scandens*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Cathedral bells, a native of Central and South America, is an evergreen, climbing vine (to 6 metres), with angled stems, and branches with hook like tips. Leaves are arranged alternately on stems and are made up of three pairs of oval leaflets (including a small basal pair) that are dark green above and whitish below. Branched tendrils are purplish when young and woody at the base. Midrib has twining tendrils. It produces bell-shaped flowers, from December to May, that are initially green and smelly but become deep purple. These develop into green seed capsules containing winged seeds.⁹



Photos: C Lewis, top, and Trevor James

Adverse effects

The vines of cathedral bells can establish in a range of habitats. They grow over trees and shrubs forming a dense canopy, smothering native plants and preventing recruitment of native seedlings. Dense walls of vines obstruct access to forest.

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of cathedral bells within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of cathedral bells to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of cathedral bells in accordance with section 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of cathedral bells to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

⁹ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/cathedral-bells/>

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

CAB-1

All persons shall inform Waikato Regional Council of the presence of cathedral bells in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If cathedral bells is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule CAB-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.3 Chilean flame creeper (*Tropaeolum speciosum*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Chilean flame creeper is a climbing perennial, often reaching high into the canopy, usually hairless with a thick rootstock and slender stems with curling tendrils and watery sap. It has dull, soft, light green leaves with five leaflets and solitary tubular scarlet flowers. The flowers have five irregular petals with the bottom three having a very slender claw. Flowers appear from November to April and are followed by a thin, fleshy, deep blue seed capsule which is made up of three round parts.¹⁰

Adverse effects

This species has shown serious invasive potential in other regions of New Zealand. Chilean flame creeper can climb into the canopy, altering light levels of natural areas and preventing the establishment of native species.¹¹ Dense infestations can also restrict recreational access.¹² Chilean flame creeper is difficult to control.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of Chilean flame creeper within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of Chilean flame creeper to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of Chilean flame creeper, in accordance with section 5.3 of the Plan.</p>

¹⁰ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/chilean-flame-creeper/>

¹¹ Ibid

¹² http://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/weeds_chilean-flame-creeper

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of Chilean flame creeper to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

CFC-1

All persons shall inform Waikato Regional Council of the presence of Chilean flame creeper in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If Chilean flame creeper is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule CFC-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.4 Evergreen buckthorn (*Rhamnus alaternus*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Evergreen buckthorn is a hardy evergreen shrub or tree (often multi-stemmed) to 2-3 metres tall (occasionally to 15 metres, or as short as 60-100 centimetres in exposed sites) with hairy, angular, purplish shoots. It has ovalish, leathery leaves which are glossy above, entire or toothed sharply or blunt along the edges. Plants are either male or female, with small, green, petal-less fragrant flowers produced from May to November, followed by many showy, glossy berries that ripen from dark red to black from December to January.¹³

Adverse effects

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

Evergreen buckthorn's tolerance of drought, shade, frost, and poorly drained soils means it can colonise a wide range of ecosystems, including stream and forest margins and disturbed forests. It can form dense colonies, altering the structure of native ecosystems in a short period of time.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of evergreen buckthorn within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
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Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).
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Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of evergreen buckthorn to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of evergreen buckthorn in accordance with section 5.3 of the Plan.

¹³ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/evergreen-buckthorn/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of evergreen buckthorn to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

EGB-1

All persons shall inform Waikato Regional Council of the presence of evergreen buckthorn in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If evergreen buckthorn is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule EGB-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.5 Horse nettle (*Solanum carolinense*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Horse nettle is a prickly, perennial herbaceous plant that grows up to 1 metre tall. Its stems (which become woody with age) and leaves are covered in tiny thorns, with each stem producing star shaped white flowers in spring. The fruit is a green berry that ripens to yellow when mature. It grows in pasture and can tolerate a wide range of soil types. The plant characteristically regenerates readily from root fragments spread by cultivation.



Photos: Trevor James

Adverse effects

Horse nettle spreads rapidly, reducing pastoral potential. All parts of the plant are toxic, with the berries especially poisonous to livestock and humans. Its rhizomatous roots can remain dormant for several years before resprouting.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of horse nettle within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of horse nettle to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of horse nettle in accordance with section 5.3 of the Plan.</p> <hr/> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of horse nettle to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**HNE-1**

All persons shall inform Waikato Regional Council of the presence of horse nettle in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If horse nettle is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule HNE-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.6 Horsetail: rough horsetail (*Equisetum hyemale*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare

Description

Rough horsetail is an erect, colony-forming, summer-green perennial, primitive fern ally. It grows to 2 metres tall with extensive, deep, freely branching rhizomes. The plant has dark green, ridged, hollow stems that occasionally branch and feel hard and rough. The stems are jointed and break easily at the joints. The scale-like leaves are reduced and fused into toothed black sheaths that encircle each joint along the stems, with distinctive stem-ringing black bands top and bottom of each sheath.¹⁴



Photos: Trevor James

Adverse effects

Rough horsetail is highly competitive. It frequently excludes other vegetation, preventing native species from establishing, and blocks and alters watercourses. Wetland and riparian margin habitats are most at risk. It is resistant to most herbicides and underground rhizomes make it very hard to control.¹⁵ Rough horsetail has the potential to impact the mauri of wai māori and adjoining terrestrial ecosystems.¹⁶ It can quickly become widely distributed on river and stream banks and in wet paddocks and natural areas.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of rough horsetail within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of rough horsetail to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold..</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of rough horsetail in accordance with section 5.3 of the Plan.</p>

¹⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/rough-horsetail/>

¹⁵ Ibid

¹⁶ Auckland Council Cost Benefit Analysis for Rough horsetail

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of rough horsetail to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

HTR-1

All persons shall inform Waikato Regional Council of the presence of rough horsetail in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If rough horsetail is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule HTR-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.7 Knotweed: giant knotweed (*Fallopia sachalinensis*) and Japanese/Asiatic knotweed (*Fallopia japonica*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Giant knotweed. Photo: Trevor James



Japanese/Asiatic knotweed
Photo: weedbusters.org.nz

Description

Giant knotweed

Giant knotweed is a many-stemmed, thicket-forming perennial shrub (2-4 metres tall). Its stems are smooth, hollow, green, and hairless, and woody at the base. Its rhizomatous roots can extend to depths of over 2 metres. The deep or bright green leaves are heart-shaped at the base and pointed at the tip, usually borne on reddish stalks, with more than 14 pairs of lateral veins that are bluish below. Giant knotweed has white or greenish flowers in branched, densely hairy clusters that appear from November to April, with no seed produced in New Zealand.^{17 18}

Japanese/Asiatic knotweed

Japanese/Asiatic knotweed is a many-stemmed, thicket-forming perennial shrub (1-3 metres tall) with rhizomatous roots and numerous, zigzagging, hairless, bluish to reddish stems that are hollow. It has broadly ovate, pointed green leathery leaves that are heart-shaped at the base. Each leaf has less than 14 pairs of lateral veins, is bluish below and borne on dark crimson stalks. White flowers in densely hairy, branched hanging clusters appear from December to April and are followed by glossy brown nuts.¹⁹

Adverse effects

Once established, giant knotweed and Japanese/Asiatic knotweed spread very quickly and invasively to form monocultural stands. Their rhizome systems can be up to 3 metres deep and can extend up to 7 metres from the parent plant, producing allelopathic chemicals that inhibit the germination and establishment of other plants.²⁰ Dislodged rhizome fragments can spread via floods and drain cleaning machinery, enabling them to rapidly colonise new areas. These plants are usually associated with wet river margins but can also cope with dry conditions. They have the potential to narrow waterway channels, impede water flow leading to siltation and impact on recreational values of waterways. Both knotweeds grow principally in disturbed areas, roadsides, and riverbanks. They can also have adverse effects on infrastructure as they are known for damaging hard structures like concrete foundations, paving and roads in the built environment.²¹

17 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/asiatic-knotweed/>

18 Giant knotweed identification and control: *Fallopia sachalinensis* or *Polygonum sachalinense* - King County - <https://kingcounty.gov/services/environment/animals-and-plants/noxious-weeds/weed-identification/invasive-knotweeds/giant-knotweed.aspx>

19 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/asiatic-knotweed/>

20 The impact of invasive knotweed species (*Reynoutria* spp.) on the environment: review and research perspectives (ufl.edu) - <https://apirs.plants.ifas.ufl.edu/site/assets/files/376593/376593.pdf>

21 <https://www.cabi.org/isc/datasheet/23875#toImpactEconomic>

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of giant knotweed and Japanese/Asiatic knotweed within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of giant knotweed and Japanese/Asiatic knotweed to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of giant knotweed and Japanese/Asiatic knotweed in accordance with section 5.3 of the Plan.</p> <hr/> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of giant knotweed and Japanese/Asiatic knotweed to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p> <hr/>
Monitoring and anticipated outcomes	Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

KNW-1

All persons shall inform Waikato Regional Council of the presence of giant knotweed and Japanese/Asiatic knotweed in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If giant knotweed or Japanese/Asiatic knotweed is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The purpose of rule KNW-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

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

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: C Lewis

Description

Mile-a-minute is an evergreen, climbing vine with rounded, moderately hairy stems that are woody towards their base. Its dark to medium green leaves are made up of three heart-shaped leaflets. Pea-like white, lavender and white or pink to reddish purple flowers are produced from spring to summer and develop into sickle-shaped seed pods (each containing 4-6 seeds which can remain dormant in the soil for some years) that ripen and split to explosively release the seeds up to several metres.²² It occurs along forest margins, in open scrubland and roadsides and can be spread via water, birds and garden waste.²³

Adverse effects

Mile-a-minute is a vigorously growing climbing plant that can threaten a range of native habitats. It smothers low growing plants, shrubs and regenerating trees, covering the canopy, and eventually taking over completely by shading out plants beneath it. It thrives in bare sites with seed germination stimulated by disturbance. Symbiotic bacteria in mile-a-minute roots fix nitrogen that increase nitrogen levels in naturally impoverished soil types, which can change the species assemblages that can grow there to a high fertility weed community.²⁴

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of mile-a-minute within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring
Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of mile-a-minute to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery
Authorised person(s) on behalf of Waikato Regional Council will undertake control of mile-a-minute in accordance with section 5.3 of the Plan.

²² <https://www.weedbusters.org.nz/what-are-weeds/weed-list/mile-a-minute/>

²³ *Dipogon lignosus* - Wikipedia - https://en.wikipedia.org/wiki/Dipogon_lignosus

²⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/mile-a-minute/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of mile-a-minute to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

All persons shall inform Waikato Regional Council of the presence of mile-a-minute in the Waikato region, within five working days of the presence first being suspected.

Rules**MAM-1**

All persons shall inform Waikato Regional Council of the presence of mile-a-minute in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If mile-a-minute is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
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Explanation of purpose of the rules

The purpose of rule MAM-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

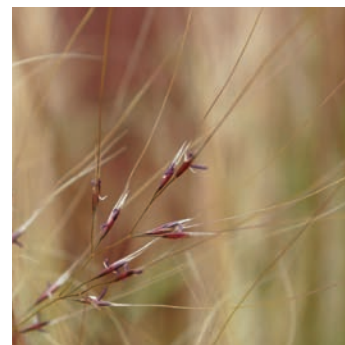
6.2.1.9 Nassella: fine stemmed needle grass/Mexican feather grass (*Nassella tenuissima*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Closely related to nassella tussock, which has plagued farmers for decades, particularly in the South Island, fine stemmed needle grass has been mistakenly distributed as a native grass in several instances. It is an exceptionally fine grass with extremely tough, thin, round blades that do not break when pulled and are rough to touch. Drooping flowering stems with open seed heads appear in spring, and the seeds give the plant a purplish-pink tinge when they ripen.²⁵

Adverse effects

Fine stemmed needlegrass forms dense colonies, producing masses of highly viable, well dispersed seeds that last a long time in the soil and can be spread via boots, clothing, wool, animal pelts and wind. Stock cannot digest this grass, and it forms balls in their stomachs, causing ill-thrift. The plant tolerates a wide range of climates and conditions and is a threat to tall and short tussock-lands in New Zealand, where it outcompetes native species.²⁶

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of nassella (fine stemmed needle grass/Mexican feather grass) within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of nassella (fine stemmed needle grass/Mexican feather grass) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of nassella (fine stemmed needle grass/Mexican feather grass) in accordance with section 5.3 of the Plan.</p>

²⁵ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/finestem-needlegrass/>

²⁶ Ibid

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of nassella (fine stemmed needle grass/Mexican feather grass) to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**NAS-1**

All persons shall inform Waikato Regional Council of the presence of nassella (fine stemmed needle grass/Mexican feather grass) in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If nassella (fine stemmed needle grass/Mexican feather grass) is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule NAS-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.10 Nassella tussock (*Nassella trichotoma*)

Management programme

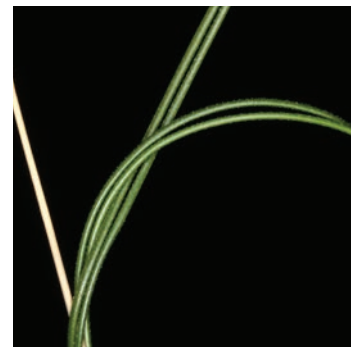
Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Nassella tussock is a perennial tussock grass with erect or drooping leaves, which grows up to 70 centimetres high and 80 centimetres wide and forms dense clumps. The stem is swollen just above ground level – like a shallot. Light green or yellowish-green leaves are thin and tightly rolled; they do not break when pulled. When fingers are run down the leaf, the leaves feel needle-like and very tough. Leaf sheaths are white to light brown. Similar looking tussocks have no ligule or a ligule with hairs. Plants usually flower between October and early summer when they have a purplish tinge. Flowering stems can be up to 1 metre tall. Flower heads are open, with a branched seed head 25-95 centimetres long and produced between November and January. Ripe seeds are purplish with a 3-centimetre-long bristle.²⁷



Photos: Trevor James

Adverse effects

Nassella tussock can be seriously invasive, completely dominating low-producing grassland. Pasture carrying capacity can be significantly reduced because the leaves are unpalatable to and indigestible by stock. It forms pure stands in low-growing plant communities, especially in harsh sites, and prevents the seedlings of native species establishing.²⁸

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of nassella tussock within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective

Requirement to act

All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of nassella tussock to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of nassella tussock in accordance with section 5.3 of the Plan.

²⁷ <https://agpest.co.nz/?pesttypes=nassella-tussock-serrated-tussock>

²⁸ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/finestem-needlegrass/>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of nassella tussock to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**NTU-1**

All persons shall inform Waikato Regional Council of the presence of nassella tussock in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If nassella tussock is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule NTU-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.11 Noogoora bur (*Xanthium strumarium*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Noogoora bur is a tall growing (up to 3 metres tall when growing in maize) annual herb with a stout tap root and extensive root system. It has two growth forms, either erect and single stemmed or very branched and spreading, depending on whether it is growing in competition with other plants or in the open. Leaves are dark green, sometimes mottled purple and similar in shape to grape leaves. Stems have short coarse hairs and may be covered with purple blotches. Flowers are inconspicuous in the leaf axils. Fruit are woody burs, covered in hooked spines which can attach to livestock wool or hair and clothing.

Adverse effects

Noogoora bur seeds and seedlings are poisonous to all livestock (especially pigs and cattle), horses and poultry. Dry burs may cause discomfort and injury, particularly to sheep, and damage wool. It can also cause contact dermatitis in humans and animals.²⁹ Plants can compete with pasture species and carry fungal diseases capable of infecting horticultural plants.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of noogoora bur within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of noogoora bur to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of noogoora bur in accordance with section 5.3 of the Plan.</p>

²⁹ <https://agpest.co.nz/?pesttypes=noogoora-bur>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of noogoora bur to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**NGB-1**

All persons shall inform Waikato Regional Council of the presence of noogoora bur in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If Noogoora bur is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule NGB-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.12 Purple loosestrife (*Lythrum salicaria*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Purple loosestrife is an erect, hairy, summer-green perennial herb to 1-2 metres tall (occasionally to 3 metres), with a taproot and fibrous roots that form dense surface mats and produce up to 50 stems per rootstock. Its much-branched stems are four-to-eight-sided, pink at the base and die off in winter. Its narrow leaves are usually paired. From December to February a showy, densely hairy flower head spike is produced, made up of purple-magenta flowers with five to six petals, which are followed by blackish seed capsules.³⁰

Adverse effects

Purple loosestrife forms massive, tall, impenetrable stands, that exclude all other plant species. It modifies wetland and marginal habitats and food sources for many fish and bird species, and causes blockages and flooding. It is one of the worst agricultural and environmental weeds in North America, invading large areas and displacing desirable plants.³¹

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of purple loosestrife within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with, suspected or confirmed infestations of purple loosestrife to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of purple loosestrife in accordance with section 5.3 of the Plan.</p>

³⁰ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/purple-loosestrife/>

³¹ http://www.iucngisd.org/gisd/100_worst.php

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of purple loosestrife to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**PLS-1**

All persons shall inform Waikato Regional Council of the presence of purple loosestrife in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If purple loosestrife is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule PLS-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.13 Rhododendron ponticum (*Rhododendron ponticum* L. subsp. *ponticum*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Rhododendron ponticum is an evergreen shrub to small tree, which can grow 2-8 metres tall. *R. ponticum* forms a compact shrub in open areas, while in the shade it adopts a larger spreading habit as it competes for light and other resources. The leaves are smooth, dark green glossy above, paler beneath, oblong to elliptic in shape, and up to 22 centimetres long. The wood is hard and light brown with the bark rough, brown to dark brown. The flowers can vary in colour from lilac pink to various light and dark shades of purple, spotted with brown and orange. Flowers occur in compact racemes borne from the glabrous (smooth) pedicel. The flowers present 10 stamens with curved filaments. The fruit is a woody capsule that can persist for up to three years bearing multiple seeds.³² It spreads via its abundant seed production, and root suckering.

Adverse effects

In the British Isles, this species is responsible for the widespread destruction of native woodland habitats, forming dense impenetrable thickets of stems, reducing the diversity of both native animal and plant communities. In Northern Ireland, *R. ponticum* is known to host the plant pathogen *Phytophthora ramorum*, which has the potential to attack and cause disease in native woody species there.³³ The leaves and roots are toxic to humans and animals, and it suppresses regeneration of other plant species by the accumulation of its toxic leaf litter. Sites can only be restored after this litter's removal.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of <i>Rhododendron ponticum</i> within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

³² <https://www.cabi.org/isc/datasheet/47272>

³³ http://issg.org/database/species/reference_files/rhophon/rhophon_man.pdf

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of *Rhododendron ponticum* to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of *Rhododendron ponticum* in accordance with section 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of *Rhododendron ponticum* to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**RHOD-1**

All persons shall inform Waikato Regional Council of the presence of *Rhododendron ponticum* in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If *Rhododendron ponticum* is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule RHOD-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.14 Sagittaria: arrowhead (*Sagittaria montevidensis*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Arrowhead is a marginal aquatic perennial (occasionally annual) with thick vertical basal rhizomes which produces buds. The plant has soft, spongy three-sided stems, with strap-like submerged leaves found mostly on young plants. Emergent leaves are strongly arrowhead shaped. The flower head has whorls of two to 12 white flowers with a purple patch at the base of each petal, with male flowers above females. It produces many seeds.³⁴



Photos: Trevor James

Adverse effects

Sagittaria species like arrowhead generally displace native species. They may also impede water flow, block waterways, and contribute to flooding and siltation. They are also capable of impeding recreational water use, including fishing, boating and swimming, and have the potential to impact on mauri of wai māori.³⁵ Arrowhead typically occurs in flowing or still shallow water, marshes, swamps and streams. Seeds are spread by water flow and possibly waterfowl. It can also escape from ponds when they flood. Spread can also occur through intentional planting and via contaminated diggers and livestock.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of arrowhead within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of arrowhead to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake control of arrowhead in accordance with section 5.3 of the Plan.</p>

³⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/arrowhead/>

³⁵ Auckland Council Cost Benefit Analysis for *Sagittaria*

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts and control of arrowhead to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

SAG-1

All persons shall inform Waikato Regional Council of the presence of arrowhead in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If arrowhead is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan
-

Explanation of purpose of the rules

The purpose of rule SAG-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.15 Senegal tea (*Gymnocoronis spilanthoides*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photo: John Tann
Licence: Creative Commons

Description

Senegal tea is a perennial aquatic to semi-aquatic herb with finely fibrous roots and an ability to also grow aerially from stem nodes. Hollow, inflated, floating stems initially upright, become prostrate and branching and take root at nodes. Its dark green, slightly waxy, lance-shaped leaves (4-20 centimetres long and 1.5-8 centimetres wide) are hairless, have serrated edges, are oppositely arranged along the stems, and borne on short stalks.³⁶ From November to April, fluffy clover-like flower heads are produced with many thin white 'petals' (florets), followed by yellow-brown seeds.³⁷



Photos: Trevor James

Adverse effects

Senegal tea is an extremely aggressive freshwater weed that inhabits wetlands, ponds, and streams. It forms dense floating mats of vegetation, which can quickly cover waterways or wetland areas causing serious adverse effects such as blocking streams and drainage channels, changing flow dynamics, and exacerbating flooding.³⁸ It can also exclude and replace submerged native plants. By modifying habitats and smothering other useful species, Senegal tea may displace traditional food sources of value to Māori. It may also impede water flow and interfere with water use, including navigation and recreational activities.

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of Senegal tea within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato 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.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of Senegal tea in accordance with section 5.3 of the Plan.

³⁶ <https://weeds.brisbane.qld.gov.au/weeds/senegal-tea>

³⁷ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/senegal-tea/>

³⁸ Ibid

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of Senegal tea to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP

Rules

SEN-1

All persons shall inform Waikato Regional Council of the presence of Senegal tea in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If Senegal tea is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
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Explanation of purpose of the rules

The purpose of rule SEN-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.16 Spartina: common cordgrass (*Spartina anglica*) and smooth cordgrass (*Spartina alterniflora*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Smooth cordgrass



Common cordgrass
Photos: Trevor James

Description

Spartina species (common and smooth cordgrass) are perennial, clump-forming grasses that grown in estuarine intertidal habitats with soft sediment. They have fleshy rhizomes, fibrous roots, and erect stems with many brownish leaf sheaths (1-1.5 metres tall). Alternate leaves are deeply wide ribbed on the upper surface and have ligules. Seed heads are occasionally seen (in *S. anglica*), and seed is occasionally produced at some sites.^{39 40}

Adverse effects

Spartina can colonise bare estuarine intertidal areas, forming dense clumps that trap sediment and completely change the dynamics of the ecosystem.^{41 42} Should it become established, the resultant loss of natural saltmarsh and mudflat habitat (for wading birds, fish spawning sites and shellfish), recreational fisheries and seafood resources for Māori would have serious consequences for the region, although these have not been quantified. Excessive growth would also cause navigation problems.

The Department of Conservation (DOC) is the lead management agency within the Waikato region for the control of spartina. The majority of spartina infestations occur on public conservation land in the coastal marine area (CMA), with some small infestations on rateable land. Waikato Regional Council supports DOC in this role by managing spartina on rateable land.

Management regime – eradication

Objective	Over the duration of this Plan, reduce the level of infestation of spartina (common and smooth cordgrass) within the Waikato region to zero density to prevent adverse effects and impacts as identified above.
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Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).
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39 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/spartina/>

40 <https://www.nzpcn.org.nz/flora/species/spartina-anglica/>

41 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/spartina/>

42 <https://www.stuff.co.nz/environment/90756527/search-and-destroy-invasive-weed-on-brink-of-eradication-in-top-of-the-south-island>

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of spartina (common and smooth cordgrass) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of these pest plants being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of spartina (common and smooth cordgrass) on rateable land in accordance with section 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of spartina (common and smooth cordgrass) to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules**SPA-1**

All persons shall inform Waikato Regional Council of the presence of spartina (common and smooth cordgrass) in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If spartina (common and smooth cordgrass) is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule SPA-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where these pest plants are present to ensure control work can be undertaken to achieve the objective.

6.2.1.17 Thistle: variegated (*Silybum marianum*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Variegated thistle is a biennial rosette-forming plant to 2 metres tall. Its most characteristic feature is its large and very spiny seed heads, although the large-leaved rosettes, with white veins on the upper surface of the leaf, are also distinctive. Flower heads are large, with reddish purple petals, and are surrounded by very sharp, long spines. Flower stems are branched towards the top, but do not have wings running up them. Lobes of the leaves are tipped with long, sharp spines. Plants often occur in large, dense colonies.⁴³



Photos: Trevor James

Adverse effects

Variegated thistle prefers high fertility soils, in pastures, stock yards and alluvial areas. It can be poisonous to cattle and, to a lesser extent, sheep. Its broad leaves also smother pasture, providing favourable sites for the next crop of thistles. This reduces the carrying capacity of agricultural land. The consequential need to control the plant imposes added farm production costs on the occupier.

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of variegated thistle within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of variegated thistle to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of variegated thistle in accordance with section 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of variegated thistle to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

⁴³ <https://agpest.co.nz/?pesttypes=other-thistle-species>

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

THI(VAR)-1

All persons shall inform Waikato Regional Council of the presence of variegated thistle in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the plan.
 3. If variegated thistle is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the plan.
-

Explanation of purpose of the rules

The purpose of rule THI(VAR)-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.1.18 Water poppy (*Hydrocleys nymphoides*)

Management programme

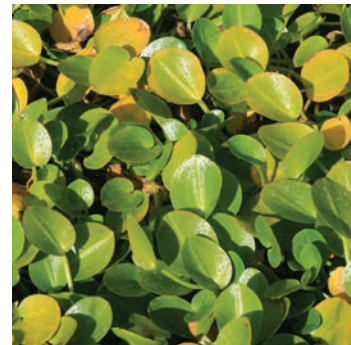
Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Water poppy is a perennial water-lily-like plant with thick, shiny, oval, bright green leaves that float on the water surface and have an inflated main vein on the underside. Leaves and roots grow in clusters from nodes along the stems, which float just below the water surface. A distinctive poppy-like, three-petalled yellow flower with a purple centre is produced from November to April.⁴⁴



Photos: Trevor James

Adverse effects

The plant's dense growth can choke streams, shallow ponds, and lake margins, causing flooding. It shades out other plants, reduces nutrient availability, and alters the habitat for other organisms.⁴⁵ The plant can obstruct recreational water access and use and has the potential to have impacts on mauri of wai māori.⁴⁶

Management regime – eradication

Objective Over the duration of this Plan, reduce the level of infestation of water poppy within the Waikato region to zero density to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of water poppy to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake control of water poppy in accordance with section 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of water poppy to affected occupiers, water users and other interested parties in accordance with section 5.3 of the Plan.

⁴⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/water-poppy/>

⁴⁵ Ibid

⁴⁶ Auckland Council Cost Benefit Analysis for Water poppy

Monitoring and anticipated outcomes

Monitoring for the presence of eradication pests will be undertaken in accordance with section 7 of the Plan to ensure that all known or new pest infestations are controlled to zero density over the duration of the RPMP.

Rules

WPOP-1

All persons shall inform Waikato Regional Council of the presence of water poppy in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If water poppy is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The purpose of rule WPOP-1 is in accordance with section 73(5)(a) of the Biosecurity Act and is to assist Waikato Regional Council staff with identifying any potential new sites within the region where this pest plant is present to ensure control work can be undertaken to achieve the objective.

6.2.2 Management regime for the eradication programme – animal pests

The following statutory obligation applies to all animal pests in the eradication programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.

Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

6.2.2.1 Rook (*Corvus frugilegis*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Rooks are large birds with almost entirely black feathers with a purplish gloss. Their powerful beak is long, pointed, and black, with white-ish patches of skin around the base. Their eyes are dark brown. When walking on the ground they have the appearance of baggy-trouser-like feathers on the upper leg. Juvenile rooks have feathered faces. They are a social bird, making a distinctive 'kaah' call as they fly, and 'caw' sound to keep in contact with each other.^{47 48}

Adverse effects

Rooks feed on and damage newly sown crops, particularly peas, maize and squash, but will eat cereal crops at any stage of growth. Greatest damage is done as the crops emerge when rooks pull young plants from the ground to get the seeds. They can also damage pasture, cause soil erosion and exacerbate weed invasion by tearing out grass in search of grubs. In large numbers, they can devastate emerging crops, and damaged paddocks must often be resown.

Management regime – eradication

Objective	Over the duration of this Plan, reduce rooks within the Waikato region to zero density where rookeries are found, to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.2.2 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of rooks to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .</p> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of rooks, as appropriate, in accordance with section 5.3 of the Plan.</p> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of rooks to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>

47 <https://nzbirdsonline.org.nz/species/rook>

48 <https://www.orc.govt.nz/managing-our-environment/pest-hub/animals/rooks>

Rules

ROOK-1

All persons shall inform Waikato Regional Council of the presence of rooks in the Waikato region, within five working days of the presence first being suspected.

ROOK-2

No person in the Waikato region shall possess a live rook.

ROOK-3

Other than under the instruction or supervision of an authorised person, occupiers that have a rookery present on their land shall take all reasonable steps to ensure the rookery is left undisturbed.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of the rules

The purpose of rules ROOK-1, ROOK-2 and ROOK-3 is in accordance with section 73(5)(a), (d) and (e) of the Biosecurity Act 1993 and will ensure that rookeries can be identified, monitored, and appropriately controlled to achieve the above objective and protection of environmental, economic and soil resources values.

6.3 Progressive containment programme – overview

There are a number of pests that are well established in the Waikato region, however it is still feasible to reduce their geographic distribution through progressive containment programmes. These pests are listed in table 9.

Table 9: Quick reference guide to plant and animal pests in the progressive containment programme and their reasons for inclusion

Plant pest	Status/reason for inclusion	GNR	Page
Alligator weed	Production, environmental and social/amenity pest		91
Banana passionfruit (Taupō and Rotorua districts)	Environmental and social/amenity pest		93
Boneseed	Environmental and social/amenity pest		95
Chocolate vine	Environmental and social/amenity pest		97
Climbing spindleberry	Production and environmental pest		99
Darwin's barberry	Production, environmental and social/amenity pest		101
Giant gunnera	Environmental and social/amenity pest		103
Golden dodder	Production and environmental pest		105
Lantana	Production, environmental and social/amenity pest		107
Mexican water lily	Environmental and social/amenity pest		109
Moth plant (Taupō and Rotorua districts)	Environmental and social/amenity pest		111
Old man's beard	Production, environmental and social/amenity pest		113
Velvetleaf	Production pest		115
Wilding conifers	Production, environmental and social/amenity pest		117
Wild kiwifruit	Production, environmental and social/amenity pest		120
Woolly nightshade (Taupō and Rotorua districts)	Production, environmental and social/amenity pest		122
Yellow flag iris	Production, environmental and social/amenity pest		124
Animal pest	Status	GNR	Page
Wallaby: dama wallaby	Production, environmental and social/amenity pest		127

Reason for inclusion

Classed as production, environmental and/or social/amenity pests, Waikato Regional Council believes the pests in the progressive containment programme are capable of causing adverse effects as detailed under each species description.

It is appropriate that the council be involved in managing these pests rather than relying on voluntary action because successful containment of these species requires co-ordination of action at a regional scale, and the benefits of the control of many of these pests accrue to a wider community than those directly affected by the presence of the pests on their property.

Intermediate outcome

The intermediate outcome for the progressive containment programme is to contain or reduce the geographic distribution of a pest over a 10-year period. This intermediate outcome applies to all pests included in the progressive containment programme.

6.3.1 Management regime for the progressive containment programme – pest plants

The following statutory obligation and note regarding subdivision and land development applies to all pest plants in the progressive containment programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism. Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

Note:

Subdivision and land development

When subdivision or land development will involve redistribution of materials that may contain propagules or seeds of progressive containment programme pest plants listed in section 6.3, table 9 of this Plan, or when it may create bare ground prone to weed infestation, the activity must be carried out in accordance with the subdivision and land development rules in section 6.6 of this Plan.

6.3.1.1 Alligator weed (*Alternanthera philoxeroides*)

Management programme

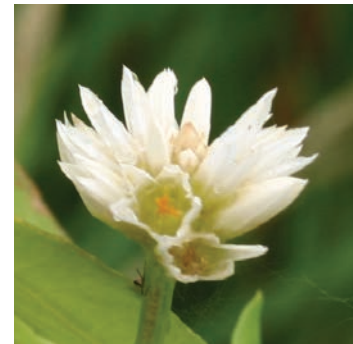
Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Alligator weed is an aquatic, low-growing, non-woody perennial plant. It has long horizontal stems (stolons) up to 10 metres long which can float on the surface of water, forming extensive rafts, or grow on banks or through pasture forming closely matted clumps. Leaves are shiny, spear-shaped, in opposite pairs or whorls, 2-7 centimetres long and about 1-2 centimetres wide. Small white papery flower heads, similar to clover heads, 1-2 centimetres in diameter on 2-7 centimetre stalks, generally appear from November to March. Stems grow to 60 centimetres high and have large, hollow internodes. On land, adventitious roots and thickened taproots form, the stems are shorter and internodes smaller and less hollow.⁴⁹



Photos: Trevor James

Adverse effects

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

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of alligator weed within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of alligator weed to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

⁴⁹ <http://agpest.co.nz/?pesttypes=alligator-weed>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of alligator weed
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of alligator weed to affected occupiers, water users and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

ALW-1

All persons shall inform Waikato Regional Council of the presence of alligator weed in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If alligator weed is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

Rule ALW-1 is to assist in preventing alligator weed from becoming further established in the Waikato region. The containment of alligator weed will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to environmental, economic, and recreational values. Rule ALW-1 is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.2 Banana passionfruit (*Passiflora tripartita*) – Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment (Taupō & Rotorua)	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Banana passionfruit is a large evergreen perennial vine with glossy green leaves. It has large, hanging, pink tubular flowers up to 7 centimetres in diameter (from January-December) that ripen into long, thin yellow fruits (up to 12 centimetres long). Typical habitats are hedges, trees, plantations, roadsides, forest and scrub margins and waste places.



Photos: Trevor James

Adverse effects

Banana passionfruit is a vigorous, scrambling, smothering plant that climbs up to 10 metres high via tendrils on its stems. It can blanket vegetation, effectively out-competing other plants and preventing seedling establishment. The vines grow for 15 to 20 years, maturing after a year. It produces large, sweet fruit containing many seeds that are dispersed by a variety of native and introduced birds, as well as possums, rats and feral pigs. Banana passionfruit is also spread by humans (via eating or discarding fruit and in garden waste). It can establish in hedges, orchards, exotic plantations, waste land, gardens and roadsides.⁵⁰ Habitats at risk of infestation include disturbed and open scrub and forest, light gaps and margins of intact bush, stream sides, coastline, cliffs, consolidated sand dunes and inshore islands.⁵¹

While recent climate modelling suggests banana passionfruit could only occur in certain parts of the Taupō and Rotorua districts within the Waikato region, the impact of this pest may be significant in these areas.⁵²

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of banana passionfruit within the Taupō and Rotorua districts (where these fall within the Waikato region) to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

50 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/banana-passionfruit/>

51 Ibid

52 <https://envirolink.govt.nz/assets/Envirolink/Reports/1306-2ESRC259.pdf>

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of banana passionfruit in the Taupō and Rotorua districts (where they fall within the Waikato Region) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of banana passionfruit (within the Taupō and Rotorua Districts within the Waikato region)
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
 - develop a biosecurity management plan with the affected property's occupier.
-

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of banana passionfruit to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

BPF(TR)-1

All persons shall inform Waikato Regional Council of the presence of banana passionfruit in those parts of the Taupō district and Rotorua district within the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If banana passionfruit is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

Rule BPF(TR)-1 is to assist in preventing banana passionfruit from becoming further established in the Taupō and Rotorua districts in the Waikato region. The containment of banana passionfruit within these areas will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to environmental and recreational values. Rule BPF(TR)1 is in accordance with Section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.3 Boneseed (*Chrysanthemoides monilifera*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Boneseed is a bushy, semi-woody, much branched shrub, or small tree to 2-3 metres, with ribbed and woolly young stems that become smooth as they mature. Smooth, leathery, bright-green leaves (70 x 35 millimetres) have irregularly toothed edges and are arranged alternately on the stems. Bright yellow daisy-like flowers (25-30 millimetres diameter) are produced from September to February and are followed by hard oval green fruit (6-9 millimetres) which ripen to black, with each containing a hard seed.⁵³

Adverse effects

Boneseed can establish in scrub and on sand dunes, coastal cliffs, offshore islands, and even rocky outcrops. Fast growing, it quickly forms very dense cover that can shade out and exclude native plants and limit access to coastal areas. A single boneseed bush can produce 50,000 seeds every year, and each seed can remain dormant for up to 10 years. Very hardy, it is tolerant of most coastal soil types, salt, fire, wind, poor soils, and drought.

Boneseed can rapidly replace virtually all native species under two metres where it invades and prevents the establishment of native plant seedlings. It colonises disturbed sites faster than native species and creates heavy shade where high light levels should occur.

Management regime – progressive containment

Objective Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of boneseed within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of boneseed to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

53 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/boneseed/>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of boneseed
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of boneseed to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

BON-1

All persons shall inform Waikato Regional Council of the presence of boneseed in the Waikato region, within five working days of the presence first being suspected.

BON-2

Occupiers shall, on receipt of a written direction from an authorised person, destroy all boneseed present on land they occupy within the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If boneseed is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rules BON-1 and BON-2 is to ensure boneseed infestation levels are reduced and threats to environmental and amenity values are minimised in the Waikato region. Rules BON-1 and BON-2 are in accordance with section 73(5)(a) and (h) of the Biosecurity Act 1993.

6.3.1.4 Chocolate vine (*Akebia quinata*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Jeremy Rolfe (vine) and Colin Ogle (male flowers)

Description

Chocolate vine is a deciduous, twining climber and vigorous groundcover that can be evergreen in mild climates. Slender, round stems are green when young and brown when mature. Leaves are made up of five or less oval leaflets (3-6 x 2-4 centimetres) creating a hand shape that are on long stalks (up to 12 centimetres). The leaves have a purplish tinge that becomes bluey-green at maturity. Flowers are chocolate-purple coloured with the scent similar to chocolate or vanilla. They hang in clusters (5-10 centimetres long) of 6-8 flowers (2 large female and 10-12 smaller male flowers per cluster) from August to October. Fruits are purple-violet, flattened sausage-like pods (8-9 centimetres long). The inside of the pod has a whitish, pulpy core with many tiny black seeds.⁵⁴

Adverse effects

Chocolate vine grows very rapidly, producing so many stems that it forms a thick, tangled mat that smothers other plants. It forms a thick groundcover if it doesn't have anything to grow up, preventing seed germination, smothering seedlings, and stopping the establishment of native plants. Chocolate vine can outcompete and kill herbs, seedlings, shrubs and young trees. It is mainly spread by stem fragments, but also via seed by birds. Chocolate vine tolerates a wide range of environmental conditions from full sun to shade, drought and frost, sandy to clay soils, and acid or alkaline soils.⁵⁵ Chocolate vine may also impact taonga species.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of chocolate vine within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of chocolate vine to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

⁵⁴ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/chocolate-vine-or-akebia/>

⁵⁵ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/chocolate-vine-or-akebia/>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of chocolate vine
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of chocolate vine to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

CHOC-1

All persons shall inform Waikato Regional Council of the presence of chocolate vine in the Waikato region, within five working days of the presence first being suspected

CHOC-2

Occupiers shall, on receipt of a written direction from an authorised person, destroy all chocolate vine present on land they occupy within the Waikato region.

Note:

1. For the purpose of these rules, destroy means the permanent preclusion of the plant's ability to set viable seed.
2. A breach of these rules will create an offence under section 154N(19) of the Act.
3. Enforcement will be in accordance with section 9 of the Plan.
4. If chocolate vine is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rule CHOC-1 is to ensure chocolate vine infestation levels are reduced and threats it poses to environmental and cultural values are minimised in the Waikato region. Rule CHOC-1 is in accordance with Section 73(5) (a) of the Biosecurity Act 1993.

Rule CHOC-2 is to assist in preventing chocolate vine from becoming further established in the Waikato region. The containment of chocolate vine will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to environmental, social, and cultural values. Rule CHOC-2 is in accordance with section 73(5)(h) of the Biosecurity Act 1993.

6.3.1.5 Climbing spindleberry (*Celastrus orbiculatus*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

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

Adverse effects

Climbing spindleberry grows rapidly, has a scrambling habit, suckering roots and stems that can take root when they touch the ground. Stems strangle host plants and climb to the top of most canopies, causing them to collapse. Layering stems become dense, forming impenetrable thickets. It has the potential to invade a wide range of terrestrial habitats from scrub to forest, adversely affecting native species by smothering or displacing them. It is also a threat to production forestry with a demonstrated potential to strangle pines.

Its bird-dispersed seeds are viable for two to five years. Climbing spindleberry tolerates hot to very cold temperatures, shade (where seeds germinate best) and high to moderately low rainfall.⁵⁶



Photos: Trevor James

Management regime – progressive containment

Objective Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of climbing spindleberry within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato 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 .

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

⁵⁶ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/climbing-spindle-berry/>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of climbing spindleberry
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of climbing spindleberry to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

CLS-1

All persons shall inform Waikato Regional Council of the presence of climbing spindleberry in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If climbing spindleberry is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

Rule CLS-1 is to assist in preventing climbing spindleberry from becoming further established in the Waikato region. The containment of climbing spindleberry will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to economic and environmental values. Rule CLS-1 is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.6 Darwin's barberry (*Berberis darwinii*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James (flowers) and John Barkla (berries)

Description

Darwin's barberry is a woody evergreen shrub that grows to a height of 4-5 metres. It has tough, woody, and densely hairy stems with tough, five-pronged, needle-sharp spines. It hairless, glossy, dark green leaves are usually spiny-serrated along their edges (smaller than holly). Hanging clusters (7 centimetres long) of drooping, deep orange-yellow flowers (5-7 millimetres diameter) appear from July to February followed by oval purplish-black berries (5-7 millimetres diameter) with a bluish-white surface.

Adverse effects

Darwin's barberry is a long-lived, shade tolerant species that is considered a threat to forestry, and native species and ecosystems. It produces copious quantities of fruit, earlier in the summer than many other species (both native and exotic). Birds, and possibly possums, are attracted to the fruit and they disperse large numbers of seeds, up to many hundreds of metres from the parent plants. Seeds germinate in high numbers. Darwin's barberry tolerates moderate to cold temperatures, damp to dry conditions, high wind, salt, shade, damage, grazing (not browsed) and a range of soil types. Scattered plants (occasionally dense stands) replace shrubland and regenerating forest, sometimes permanently in open habitats.⁵⁷ It may impact on taonga species, as well as amenity values.

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

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of Darwin's barberry within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

57 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/darwins-barberry/>

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of Darwin's barberry to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of Darwin's barberry
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
 - develop a biosecurity management plan with the affected property's occupier.
-

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of Darwin's barberry to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

DARB-1

All persons shall inform Waikato Regional Council of the presence of Darwin's barberry in the Waikato region, within five working days of the presence first being suspected.

DARB-2

Occupiers shall, on receipt of a written direction from an authorised person, destroy all Darwin's barberry on land that they occupy in the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If Darwin's barberry is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
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Explanation of purpose of the rules

The reason for rules DARB-1 and DARB-2 is to ensure infestation levels are reduced and threats to environmental, economic, amenity and cultural values from Darwin's barberry are minimised in the Waikato region. Rules DARB-1 and DARB-2 are in accordance with section 73(5)(h) and 73(5)(a) of the Biosecurity Act 1993.

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

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



G. tinctoria.
Photo: Eموke Denes
Licence: Creative Commons

Description

Giant gunnera is a large (up to 2.5 metres tall) clump-forming, summer green herb (it dies back in winter) with short, stout, horizontal rhizomes. Its rhubarb-like, palmate-lobed, deep green leaves are rough to touch and measure up to 1.8 metres across. The leaf stalks are up to 1 metre long and studded with short, often reddish prickles. Giant gunnera establishes on mainly damp coastal bluffs, wet cliffs, riparian margins of waterways and wetlands, and disturbed areas.⁵⁸



G. manicata
Photo: Krzysztof Ziarnek
Licence: Creative Commons

Adverse effects

Giant gunnera grows into large plants with its big leaves forming dense patches that shade out and suppress native vegetation and exclude virtually all other plants. It produces an abundance of viable seed (approximately 250,000 seeds in a year), which are dispersed by birds, and it also spreads by rapid rhizome growth, making it difficult to control. Giant gunnera threatens the integrity of indigenous communities, alters the habitats of birds, insects and lizards, can block drains and streams, obstruct access to natural and recreational areas, and contribute to erosion on slip-prone banks.⁵⁹ It may impact on taonga species, as well as amenity values.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of giant gunnera within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato 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.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of these pest plants being sold.</p>

⁵⁸ <https://www.nzpcn.org.nz/flora/species/gunnera-tinctoria/>

⁵⁹ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/chilean-rhubarb/>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of giant gunnera
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of giant gunnera to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

GUN-1

All persons shall inform Waikato Regional Council of the presence of giant gunnera in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If giant gunnera is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rule GUN-1 is to ensure infestation levels are reduced and threats to environmental, biodiversity, recreational, and cultural values from giant gunnera are minimised. Rule GUN-1 is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.8 Golden dodder (*Cuscuta campestris*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Golden dodder is a parasitic plant which appears in early summer. It has yellow to orange leafless, threadlike stems that resemble spaghetti. The stem produces tendrils that coil around other plants in a dense tangle. When the tendrils contact a suitable host, they develop root-like structures (haustoria) that suck nutrients and water from the host plant.

It can rapidly grow up to 5 metres in two months, smothering surrounding plants – even those it does not parasitise. It has been known to grow 2 millimetres per hour and 8 centimetres in 24 hours.

Golden dodder produces clusters of small white or greenish flowers from September to May. A single golden dodder plant can produce up to 16,000 seeds and form a long-lived, 10-year seed bank. Seeds can survive:

- up to 10 years in soil
- up to 5 years in water
- 10-20 years in dry conditions, and possibly even up to 50 years.⁶⁰

Adverse effects

Golden dodder is toxic to stock and can reduce the growth of animal food such as clover. Cattle feeding in pasture within 2 metres of contaminated areas are at risk of consuming golden dodder. Cattle moving within 2 metres of contaminated areas also risk spreading golden dodder. Golden dodder is also a threat to wetland and lake habitats in the Waikato region, with the potential to smother wetland plants including those eaten by ducks. Risk of spread from infestations is high via weed fragments and seeds, particularly by stock and human activity.



Photo: Kristian Peters
Licence: Creative Commons



Photo: Trevor James

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of golden dodder within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

60 <https://www.doc.govt.nz/nature/pests-and-threats/weeds/common-weeds/golden-dodder/>

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of golden dodder to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of golden dodder
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
 - develop a biosecurity management plan with the affected property's occupier.
-

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of golden dodder to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/ or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

GOLD-1

All persons shall inform Waikato Regional Council of the presence of golden dodder in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If golden dodder is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
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Explanation of purpose of the rules

The reason for rule GOLD-1 is to ensure infestation levels of golden dodder are reduced and threats to environmental, amenity/recreation, animal welfare and economic values are minimised within the Waikato region. This rule is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.9 Lantana (*Lantana camara*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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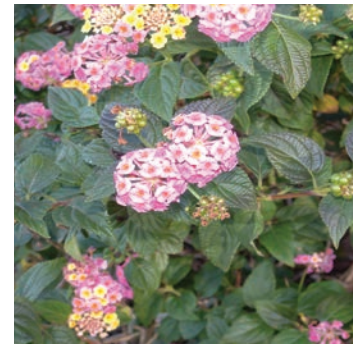


Photo: weedbusters.org.nz

Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Lantana is typically a low, erect or scrambling shrub to 3 metres tall, with backwards pointing prickles and a strong root system. Its leaves are strong smelling when crushed, wrinkly and more or less oval with dense, often prickly hairs on the upper surface. It has conspicuous flat flower heads (2-3 centimetres across) with many tiny tubular flowers, each cream, yellow, orange, pink, red, purple or mixtures of these, changing colour as they mature. Flowers are present all year round. Lantana produces small, clustered, berry-like fruits which are poisonous. These are green ripening to juicy purple-black and contain one small pale seed per fruit. Lantana is often grown in urban areas as an ornamental plant.

Adverse effects

Lantana is a prolific seeder. It spreads via its bird-dispersed seeds, and via vegetative fragments. It is very competitive in disturbed and high light conditions. Lantana can impact severely on agriculture land reducing pasture productivity, as well as on natural ecosystems. It is also toxic to stock. The plants can grow individually in clumps or as dense thickets, totally smothering and replacing all other species on the ground, causing permanent loss of habitat. In disturbed native forests it can become the dominant understorey species, disrupting succession, and decreasing biodiversity.

Lantana releases chemicals that can reduce the vigour of nearby plants and reduce productivity in orchards. It is a serious problem in Northland and Auckland regions, where it forms dense thickets that invade a wide variety of areas, from native and exotic forests to domestic gardens, roadsides, sand dunes, quarries, and wasteland. Lantana has the potential to do the same in the Waikato region and has formed self-sustaining populations in parts of the region. It may impact on taonga species, as well as amenity values.

Management regime – progressive containment

Objective Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of lantana within the Waikato region to pre-2022 levels to reduce further adverse effects on and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of lantana to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of lantana
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of lantana to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

LAN-1

All persons shall inform Waikato Regional Council of the presence of lantana in the Waikato region, within five working days of the presence first being suspected

LAN-2

Occupiers shall, on receipt of a written direction from an authorised person, destroy all lantana present on land that they occupy in the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If lantana is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rules LAN-1 and LAN-2 is to ensure infestation levels of lantana are reduced and threats to biodiversity, economic, recreational, animal welfare, amenity and cultural values are minimised. These rules are in accordance with section 73(5)(a) and (h) of the Biosecurity Act 1993.

6.3.1.10 Mexican water lily (*Nymphaea mexicana*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare

Description

Mexican water lily is an aquatic plant recognisable by its large, flat, leathery floating spotted leaves and yellow flowers. Mature leaves have brown blotches on the upper surface and are mainly purple beneath. Fleshy stems (stolons) bear banana-shaped tubers. Its star-shaped flowers (15 centimetres across), which close at night, are pale yellow with many veined petals. Seeds (2-3 millimetres long) are produced in green berries which grow underwater. Rhizomes, tubers and seeds of Mexican water lily are dispersed by water, and fragments can be spread by boats, fishing gear or machinery, or by planting.



Photos: Trevor James

Adverse effects

Mexican water lily occupies the surfaces of lakes and other shallow water bodies, growing rapidly and covering them. It displaces native species by forming dense mats of floating leaves, restricting light penetration to sub-surface species and out-competing surface species. It clogs waterways, restricting water flow and obstructing recreational water users. It may impact on the mauri of wai māori.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of Mexican water lily to pre-2022 levels (currently located at sites south of Lake Ohakuri (Waikato River) and in Lake Rotokaeo (Forest Lake, Hamilton) to reduce further adverse effects and impacts as identified above.
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Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).
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Inspection and monitoring
 Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of Mexican water lily to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .

 Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of Mexican waterlily
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of Mexican water lily to affected occupiers, water users and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

MWL-1

All persons shall inform Waikato Regional Council of the presence of Mexican water lily in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If Mexican water lily is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rule MWL-1 is to ensure infestation levels of Mexican water lily are reduced and threats to biodiversity, economic, recreational, amenity and cultural values are minimised. Rule MWL-1 is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.11 Moth plant (*Araujia hortorum*) – Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment (Taupō & Rotorua)	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James (flowers) and John Barran (seed pods)

Description

Moth plant is a fast-growing evergreen climber with choko-like fruit, that exudes milky sap when broken. It has dark green, hairless leaves that are dull on top and greyish-downy underneath. Clusters of white flowers, some with pink streaks, are produced from December to May followed by thick, leathery, pear-shaped pods. Each pod, containing kapok-like pulp, splits open to release numerous thistle-down like seeds.

Adverse effects

Moth plant germinates in light wells or semi-shade inside established forest, often a long distance from a seed source. It smothers and kills plants, including those in the canopy, preventing the establishment of native plant species. It also affects insects; the feeding parts of butterflies drinking from moth plant flowers become gummed up, leading to their eventual starvation and death.⁶¹ The milky, white sap causes skin irritation in susceptible people and the seeds are poisonous.

A recent study notes that the intolerance of moth plant to cold restricts the southern expansion of this pest plant in New Zealand, and the shallow root system is a limitation in dry soils.⁶²

While moth plant only occurs in certain parts of the Taupō and Rotorua districts, the impact of this pest may be significant in these areas.

Management regime – progressive containment

Objective Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of moth plant within the Taupō and Rotorua districts (where these fall within the Waikato region) to pre-2022 levels to reduce further adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

⁶¹ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/mothplant/>

⁶² <https://www.landcareresearch.co.nz/uploads/public/Discover-Our-Research/Biosecurity/Biocontrol-ecology-of-weeds/3-applications/Ecology-and-pest-status-of-moth-plant.pdf>

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of moth plant in the Taupō and Rotorua districts (where they fall within the Waikato Region) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of moth plant (within the Taupō and Rotorua districts within the Waikato region)
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
 - develop a biosecurity management plan with the affected property's occupier.
-

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of moth plant to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

MOT(TR)-1

All persons shall inform Waikato Regional Council of the presence of moth plant in those parts of the Taupō district and Rotorua district within the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If moth plant is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
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Explanation of purpose of the rules

Rule MOT(TR)-1 is to assist in preventing moth plant from becoming further established in the Taupō and Rotorua districts within the Waikato region. The containment of moth plant within these areas will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to environmental values and human health. Rule MOT(TR)1 is in accordance with Section 73(5)(a) of the Biosecurity Act 1993.

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

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Description

Old man's beard is a deciduous, woody, perennial climber that may reach 25 metres in height. Old man's beard has five leaflets per leaf and should not be confused with any native species of clematis, which usually have only three leaflets per leaf. It produces small creamy white, fragrant flowers (2-3 centimetres diameter) from December to May, followed by grey, hairy seeds (2-3 millimetres long) with distinctive white plumes (3-4 centimetres long) in dense, fluffy clusters that persist over winter (hence the name, old man's beard).⁶³

Adverse effects

Old man's beard is generally now recognised as the most damaging introduced climber in New Zealand. The plant is particularly troublesome in secondary growth or modified indigenous forests where it will form dense layers, smothering and killing all plants to the highest canopy and preventing the establishment of native plant seedlings. One plant can blanket an area up to 180 square metres. A rapidly growing climber, old man's beard is tolerant of cold, moderate shade, damp, wind, salt, and most soil types. Seeds are long lived and can be spread widely by water or wind. Both seed and stem fragments can also be spread in dumped vegetation. Old man's beard commonly infests forests, roadsides, hedgerows, vacant land, and willow swamps.⁶⁴ Old man's beard may also impact on taonga species, amenity values and forestry.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of old man's beard within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato 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.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

⁶³ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/old-mans-beard/>

⁶⁴ Ibid

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of old man's beard
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of old man's beard to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules**OMB-1**

All persons shall inform Waikato Regional Council of the presence of old man's beard in the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If old man's beard is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rule OMB-1 is to ensure infestation levels of old man's beard are reduced and threats to biodiversity, economic, recreational, amenity and cultural values are minimised. Rule OMB-1 is in accordance with section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.13 Velvetleaf (*Abutilon theophrasti*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Velvetleaf, a member of the mallow family, is an aggressive annual broad-leaved herb. It grows 1-2.5 metres tall – higher than the maize plants among which it is often found. Velvetleaf flowers from spring to autumn, producing a capsule (similar to a pod) that consists of a cup-like ring formed by 12 to 15 woody segments which is roughly 2.5 centimetres in diameter. The segments remain intact at maturity and each segment releases up to three distinctive black seeds through a vertical slit on the outer face of the capsule. Seeds, which can survive in the soil for up to 50 years, are spread by water, farm machinery when harvesting grain (for example, maize), via livestock and as a contaminant of grain. Velvetleaf is primarily a weed of crops.



Photos: Stephan Lefnaer (flower) and agpest.co.nz

Adverse effects

Velvetleaf is a recent weed incursion in the Waikato region. It is one of the most damaging weeds to corn and maize crops, aggressively competing with them for nutrients and water, and thereby lowering crop yield. Even moderate infestations that emerge the same time as the crop can reduce production by 25 per cent or more. It is also difficult to control, as it is resistant to many herbicides and produces such a long-lived seed bank.

Its seedlings are vigorous, and the plant grows rapidly in the first few months after germination. It is regarded as the United States' worst cropping weed. In New Zealand, it has been found in crops, maize silage and in dairy pastures where maize silage was fed.

Management regime – progressive containment

Objective Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of velvetleaf within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of velvetleaf to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of velvetleaf
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of velvetleaf to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

VEL-1

All persons shall inform Waikato Regional Council of the presence of velvetleaf in the Waikato region, within five working days of the presence first being suspected.

VEL-2

Occupiers shall destroy all velvetleaf present on land that they occupy in the Waikato region.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. Velvetleaf should be destroyed in accordance with best practice.
4. If velvetleaf is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rules VEL-1 and VEL-2 is to ensure infestation levels of velvetleaf are reduced and threats to agricultural and horticultural production are minimised. These rules are in accordance with sections 73(5)(a) and 73(5)(h) respectively of the Biosecurity Act 1993.

6.3.114 Wilding conifers

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in table 10 below, that has established by natural means, unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of.

For the purposes of this definition, a forest plantation is an area of 1 hectare or more of predominantly planted trees.



Photos: Trevor James

Table 10: Wilding conifers⁶⁵ subject to the progressive containment management regime below.

Common name	Scientific name
Bishop pine	<i>Pinus muricata</i>
Contorta or lodgepole pine	<i>Pinus contorta</i>
Corsican pine	<i>Pinus nigra</i>
Douglas fir	<i>Pseudotsuga menziesii</i>
Dwarf mountain pine	<i>Pinus mugo</i>
European larch	<i>Larix decidua</i>
Maritime pine	<i>Pinus pinaster</i>
Mountain pine	<i>Pinus uncinata</i>
Ponderosa pine	<i>Pinus ponderosa</i>
Radiata pine	<i>Pinus radiata</i>
Scots pine	<i>Pinus sylvestris</i>

65 As identified in the New Zealand Wilding Conifer Management Strategy 2015-2030.

Wilding conifers mainly establish as a result of natural seed spread. This process has been exacerbated by occupiers failing to act when wilding conifers first occur, and much of the ongoing wilding conifer spread in New Zealand is generated from existing areas of reproducing wilding conifers. Initial wilding conifer spread originated from a range of sources, particularly historic or 'legacy' plantings, such as Crown plantings for erosion control and research; long-established shelterbelts and amenity plantings on private and pastoral lease land; and in some locations, from woodlots and forestry plantations.

Wilding conifers are produced by many different introduced conifer species. Ten conifer species are recognised as currently contributing most to the wilding conifer problem in New Zealand⁶⁶. Some of these species now have little or no commercial value and are no longer planted, or much less frequently planted than in the past. However, several of these species, particularly radiata pine (*Pinus radiata*) and douglas fir (*Pseudotsuga menziesii*), remain highly valuable commercially grown species that contribute significantly to forestry exports.

Adverse effects

Conifers are planted in the Waikato region mainly for production forestry, shelterbelts and erosion control by industry, government agencies and private individuals. The production forestry industry makes a very important contribution to the economy of the Waikato region, but wind-dispersed seed from plantations may result in unplanned and unmanaged wilding trees that grow much faster than native species. Productive farmland and recreational opportunities such as mountain biking, horse riding and tramping can be threatened by heavy infestations of wilding conifers. In particular, wilding conifers obscure scenic views, decrease production of pastoral farms, increase the risk of fire, reduce stream water yield in flow-sensitive catchments, invade and alter native ecosystems and displace native species, and impact on cultural and historic sites.

Management regime – progressive containment

Objective	Over the duration of the Plan, progressively contain wilding conifers to ensure that land free of or being cleared of wilding conifers does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).
	Inspection and monitoring Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of wilding conifers to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.
	Service delivery Authorised person(s) on behalf of Waikato Regional Council may undertake direct control of wilding conifers, as appropriate, in accordance with section 5.3 of the Plan.
	Advocacy and education Waikato Regional Council will provide advice and information on the identification, impacts, and control of wilding conifers to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.
Monitoring and anticipated outcomes	Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

⁶⁶ Froude, V.A. 2011. Wilding conifers in New Zealand: beyond the status report. Report prepared for the Ministry of Agriculture and Forestry. Pacific Eco-Logic, Bay of Islands. 44p

Rules

WCON-1

Occupiers shall destroy all wilding conifers present on land they occupy prior to cone bearing, if:

1. the wilding conifers are located on land where control operations to clear wilding conifers and/or pest agent conifers, have been undertaken
2. the control operations were partly or fully publicly funded.

WCON-2 (Pest agent rule*)⁶⁷

Occupiers shall, on receipt of a written direction from an authorised person, destroy any pest agent conifer present on land they occupy within 200 metres of an adjacent or nearby property prior to cone-bearing, if the occupier of the adjacent or nearby land is:

1. subject to rule WCON-1; or
2. taking reasonable measures to control wilding conifers on the adjacent or nearby land.

Good Neighbour Rule WCON-3

Occupiers shall destroy all wilding conifers present on land they occupy within 200 metres of an adjacent or nearby property prior to cone-bearing, if the occupier of the adjacent or nearby land is:

1. subject to rule WCON-1; or
2. taking reasonable measures to control wilding conifers on the adjacent or nearby land.

Note:

1. A breach of any of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. For the purposes of these rules, destroy means the permanent preclusion of the plant's ability to set viable seed.

Explanation of purpose of the rules

The rules WCON-1, WCON-2 and WCON-3 are put in place to ensure infestation levels of wilding conifers are reduced and threats to economic, environmental, cultural and amenity values are minimised. The above rules are in accordance with section 73(5)(h), 73(5)(i) and 73(5)(m) of the Biosecurity Act 1993.

⁶⁷ * See Glossary for definition of 'Pest Agent'. Rule WCON-3 applies to Douglas Fir, European Larch and Radiata Pine which have been planted outside of plantations e.g. shelterbelts.

6.3.115 Wild kiwifruit (*Actinidia* spp.)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

The term 'wild', in relation to kiwifruit, means any kiwifruit vine that has established by natural means, or any kiwifruit vine that is not managed i.e. fruit is not picked by 1 July yearly and vines are not pruned and tied down by 1 October yearly.

Wild kiwifruit is a vigorous hairy climber. Its leaves are large, broadly oval, usually with white hairs underneath and red hairs on their veins. Small white flower clusters appear between October and December. The fruit are typically small kiwifruits. Wild kiwifruit can form a mound of tangled stems up to 3 metres high or grow up and over native and exotic trees (to over 20 metres in forest canopies).

Adverse effects

Wild kiwifruit can grow in a wide range of habitats including native bush, pine forest, shelter belts and gullies. If left uncontrolled, it can form dense, heavy blankets of vines that strangle trees, causing them to die or fall. As such it is a significant potential threat to native ecosystems and plantation forest in many parts of our region. Wild kiwifruit also has the potential to impact on taonga species. The true distribution of wild kiwifruit in the Waikato region is unknown, although small infestations have been found throughout.

Kiwifruit plants also act as a vector for a bacterium called *Pseudomonas syringae* pv. *actinidiae* (Psa) that infects all varieties of kiwifruit, causing dieback or, in some instances, the death of kiwifruit vines. This disease has serious economic implications for the kiwifruit industry and the economies of areas that are heavily reliant on it for jobs and income.

Wild kiwifruit is a serious pest in the neighbouring Bay of Plenty region due to large-scale commercial kiwifruit production, the dumping of reject fruit and reject fruit being used as stock feed. The fruit are an easily accessible food for birds, rats, and possums. Each fruit has about 1100 tiny seeds, which are easily eaten and spread from droppings wherever birds fly.

Management regime – progressive containment

Objective Over the duration of the Plan, contain and progressively reduce the geographic distribution or extent of wild kiwifruit within the Waikato region to reduce further adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).

Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of wild kiwifruit to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

	<p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake direct control of wild kiwifruit in conjunction with Kiwifruit Vine Health or other wilding kiwifruit management agencies.</p>
	<p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of wild kiwifruit to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>
Monitoring and anticipated outcomes	<p>Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.</p>

Rules

KIWI-1

All persons shall inform Waikato Regional Council of the presence of wild kiwifruit in the Waikato region, within five working days of the presence first being suspected.

KIWI-2

Landowners/occupiers shall destroy all wild, unmanaged or abandoned kiwifruit vines on land they occupy, unless a property specific progressive containment pest management agreement has been signed between the occupier and the council. For the purposes of this rule, destroy means the permanent preclusion of the plant's ability to set viable seed.

KIWI-3

No person shall dispose of kiwifruit in such a manner as to promote the establishment of wild kiwifruit populations.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If wild kiwifruit is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rules KIWI-1 and KIWI-2 is to ensure infestation levels are reduced and threats to economic and biodiversity values from wilding kiwifruit are minimised. Rule KIWI-3 is to ensure that waste kiwifruit is not dumped in a manner that could exacerbate the spread of wild kiwifruit and to ensure that when kiwifruit is used as stock feed it is done so in an appropriate manner. Rules KIWI-1, KIWI-2 and KIWI-3 are in accordance with sections 73(5)(a), 73(5)(h) and 73(5)(m) respectively of the Biosecurity Act 1993.

6.3.1.16 Woolly nightshade (*Solanum mauritianum*) – Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment (Taupō & Rotorua)	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare



Photos: Trevor James

Description

Woolly nightshade is an aggressive, rapidly growing shrub or tree reaching up to 9 metres in height. Its oval leaves are large, grey-green and covered with furry hairs. It has a strong kerosene-like smell, especially when leaves are rubbed or crushed. The five-petaled flowers are purple, with yellow centres and grow in clusters at the ends of branches. Berries ripen to yellow.

Adverse effects

In large numbers, woolly nightshade can rapidly invade poorly managed land and forest margins, where it can totally exclude regeneration of native plants. Dense stands can invade pasture on poor soils, especially in hill country, and impede livestock movement. It can also cause skin irritation and respiratory problems for some people. All parts of the plant are thought to be toxic to livestock. Woolly nightshade is now well established in many areas north of Taupō (it is relatively frost intolerant).

Within the Taupō and Rotorua districts, woolly nightshade has a limited distribution, however, where it occurs it may have significant impacts.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of woolly nightshade within the Taupō and Rotorua districts within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
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Principal measures to achieve objective	Requirement to act All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).
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Inspection and monitoring

Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of woolly nightshade in the Taupō and Rotorua districts (where they fall within the Waikato region) to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of woolly nightshade (within the Taupō and Rotorua districts within the Waikato region)
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of woolly nightshade to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

WNS(TR)-1

All persons shall inform Waikato Regional Council of the presence of woolly nightshade in those parts of the Taupō district and Rotorua district within the Waikato region, within five working days of the presence first being suspected.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If woolly nightshade is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

Rule WNS(TR)-1 is to assist in preventing woolly nightshade from becoming further established in the Taupō and Rotorua districts within the Waikato region. The containment of woolly nightshade within these areas will contribute to a reduction in the level of infestation, thereby minimising the threat it poses to economic, environmental, human health and animal welfare values. Rule WNS(TR)1 is in accordance with Section 73(5)(a) of the Biosecurity Act 1993.

6.3.1.17 Yellow flag iris (*Iris pseudacorus*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Yellow flag iris is a leafy land-based or wetland iris that forms dense clumps and grows up to 2 metres tall. It produces large pale yellow to golden-orange flowers (up to 12 centimetres in diameter) from October to December, followed by seed capsules containing many brown, flattened seeds. It typically inhabits the margins of lakes, rivers, wetlands or drains and is distinguished from other species by its conspicuous yellow flowers.⁶⁸



Photos: Trevor James

Adverse effects

Yellow flag iris forms dense stands that can displace native species, restrict access for recreational activities,⁶⁹ impede water flow, and impact on the mauri of waterbodies. Most infestations are the result of deliberate planting, but it can also spread via seed or by fragmentation of root rhizomes. It can also invade and displace low-lying pasture and is toxic to livestock. Yellow flag iris is tolerant of salinity, frost, flooding and drought, high-low fertility, many soil types, and damage.

Management regime – progressive containment

Objective	Over the duration of the Plan, contain and where practicable progressively reduce the geographic distribution or extent of yellow flag iris within the Waikato region to pre-2022 levels to reduce further adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of yellow flag iris to establish the extent of any infestations and to identify any remedial action that needs to be undertaken .</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

⁶⁸ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/yellow-flag-iris/>

⁶⁹ Ibid

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:

- undertake control of yellow flag iris
 - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first
- develop a biosecurity management plan with the affected property's occupier.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of yellow flag iris to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules

YFI-1

All persons shall inform Waikato Regional Council of the presence of yellow flag iris in the Waikato region, within five working days of the presence first being suspected.

YFI-2

Occupiers shall, on receipt of a written direction from an authorised person, destroy all yellow flag iris on land that they occupy within the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. If yellow flag iris is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.

Explanation of purpose of the rules

The reason for rule YFI-1 and YFI-2 is to ensure infestation levels of yellow flag iris are reduced and threats to environmental, economic, cultural and recreational values are minimised. These rules are in accordance with section 73(5)(h) and 73(5)(a) of the Biosecurity Act 1993.

6.3.2 Management regime for the progressive containment programme – animal pests

The following statutory obligation applies to all animal pests in the progressive containment programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.

Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

6.3.2.1 Wallaby: dama wallaby (*Macropus eugenii*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Photo: Dale Williams
(Bay of Plenty Regional Council)

Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Dama wallaby are semi-nocturnal marsupial mammals. They stand up to half a metre tall and weigh 5-7 kilograms. Their body colour is grey-brown, with red shoulders that are more pronounced in males. Its ears are long and pointed, and its tail tapering and uniformly grey. Dama wallaby currently have a limited distribution within the Waikato region with populations concentrated near the boundary with the Bay of Plenty region.

Adverse effects

Wallabies can compete directly with livestock for pasture and have a substantial dietary overlap with sheep, resulting in large production losses in the sheep and beef industry. They also damage newly planted radiata pine plantations, browse native forest seedlings and modify the forest understorey, favouring plant species like kāmahi, māhoe, hangehange and porokaiwhiri.⁷⁰ When present in high densities, wallaby browsing of native and exotic vegetation can change the pattern of forest succession, or at least alter the local species abundance. In this regard, wallabies can have a similar effect to possums.

Wallabies will eat a range of taonga plant species and can destroy ground cover vegetation at culturally important sites (for example, wāhi tapu or urupa), potentially leading to erosion of archaeological features. The erosion of soil can also lead to increased sedimentation in waterways.

Wallabies also have the potential to become a cause of vehicle collisions, especially at night-time.

Management regime – progressive containment	
Objective	Over the duration of the Plan, reduce the geographic distribution of dama wallaby within the Waikato region to the containment area specified in Appendix 3 to further reduce adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.3.2 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of dama wallabies to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p>

70 <https://www.doc.govt.nz/globalassets/documents/conservation/threats-and-impacts/animal-pests/bay-of-plenty/okataina-wallaby-report.pdf>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of dama wallaby, as appropriate, in accordance with section 5.3 of the Plan.

In accordance with section 5.3 of the Plan, Waikato Regional Council may undertake the direct control of dama wallabies at high value sites where the presence of that animal threatens site values.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of dama wallaby to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Waikato Regional Council also encourages reporting of sightings of dama wallaby.

Monitoring and anticipated outcomes

Monitoring for the presence of progressive containment pests will be undertaken in accordance with section 7 of the Plan to ensure that there is a reduction in the extent and/or density of these pests within the Waikato region, or specified part of it, over the duration of the RPMP.

Rules**DWAL-1**

All persons shall inform Waikato Regional Council of the presence of dama wallabies in the Waikato region, within five working days of the presence first being suspected.

DWAL-2

No person shall possess a live dama wallaby within the Waikato region.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
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Explanation of purpose of the rules

The purpose of rules DWAL-1 and DWAL-2 is in accordance with section 73(5)(a) and (e) of the Biosecurity Act in that the possession of/keeping of dama wallabies is seen as an activity that can affect measures taken to implement the Plan. The aim of them is to prevent anyone introducing new dama wallabies to the Waikato region, reduce the risk of captive animals escaping, and ensure people inform the Waikato Regional Council of the presence of any dama wallabies to allow the council to monitor and control them.

6.4 Sustained control programme – overview

There are a number of pests that are well established in the Waikato region and therefore suppressing their populations is the most appropriate form of management to ensure their impacts on economic/production, environmental and/or social/cultural/amenity values are cost-effectively minimised (that the cost of control is less than the opportunity costs that arise if these pests go unmanaged). These pests are widespread and are found throughout most of the region. Effective coordination is a key aim of the sustained control programmes.

Pests subject to the sustained control programme are listed in table 11.

Table 11: Quick reference guide to plant and animal pests in the sustained control programme and their reasons for inclusion

Plant pest	Status/reason for inclusion	GNR	Page reference
Banana passionfruit (excl. Taupō and Rotorua districts)	Environmental pest	✓	131
Broom	Production and environmental pest	✓	133
Gorse	Production, environmental and social/amenity pest	✓	135
Moth plant (excl. Taupō and Rotorua districts)	Environmental pest	✓	137
Pampas	Production and environmental pest		139
Ragwort	Production pest	✓	141
Thistle: Nodding thistle	Production pest	✓	143
Thistle: Plumeless thistle	Production pest	✓	145
Tutsan	Production and environmental pest	✓	147
Wild ginger	Environmental pest	✓	149
Woolly nightshade (excluding Taupō and Rotorua districts)	Production, environmental and social/amenity pest	✓	151
Animal pest	Status		Page reference
Common brushtail possum (excluding Hūnua Ranges Pest Management Area)	Production, environmental and social/amenity pest	✓	154
Feral rabbit	Production, environmental and social/amenity pest		156
Magpie	Environmental and social/amenity pest		158
Wasps: common wasp German wasp	Production, environmental and social/amenity pest		160

Reason for inclusion

Classed as production, environmental and/or social/amenity pests, Waikato Regional Council considers the pests in the sustained control programme are capable of causing adverse effects as detailed under each species description.

It is appropriate that the council be involved in managing these pests rather than relying on voluntary action because successful management of these species requires co-ordination of action at a regional scale, and the benefits of the control of many of these pests accrue to a wider community than those directly affected by the presence of the pests on their property.

Intermediate outcome

The intermediate outcome for the sustained control programme is to provide for ongoing control of a pest to reduce its impacts on values and spread to other properties. This intermediate outcome applies to all pests included in the sustained control programme.

6.4.1 Management regime for sustained control programme – pest plants

The following statutory obligation applies to all pest plants in the sustained control programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.

Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

Note:

Specific rules relating to quarries, transport corridors (road and rail corridors, and cycle paths)

Some of the pest plants in the sustained control programme have rules pertaining to their management in quarries, on road and rail corridors, and on cycle paths. Areas of disturbed, unrehabilitated or unmanaged ground such as quarries, road reserves, rail corridors and cycle paths can exacerbate the spread of weeds to new places. These often large areas of ground are very suitable for weed establishment, and can be the source of weed spread into farmland, environmental areas and popular tourist routes.

The pest plants in the sustained control programme are pests that are widespread in suitable habitats throughout the Waikato region. These pest plants all cause adverse effects to the environmental, economic, social, or cultural values of the region. Occupiers of quarries, road and rail authorities, as well as those persons acting in the general management or control of a place (regarding cycle paths), all have requirements to act, and this responsibility is stated in section 6.6 of this Plan. Specific information on areas covered by transport corridors (road, rail, and cycle paths) is provided below.

Areas covered by transport corridors (road, rail, and cycle paths)

Road and rail authorities are responsible for controlling pests on road reserves and rail corridors that they occupy. This also includes:

- rest areas
- weigh pits and stockpile areas
- road reserves or rail corridors where works have contributed to the establishment of named pests
- other isolated areas of road reserve or rail corridor, mainly for safety reasons
- road reserves or rail corridors adjacent to land where the occupier is undertaking pest management.

Where the road reserve boundary is unknown, it will be taken as 10 metres from the road centre line.

Adjacent occupiers are responsible for controlling pests on road reserves and rail corridors in the following situations:

- unformed (paper) roads or rail corridor that they occupy, or are contiguous to the land they occupy
- on land beyond 10 metres of the road centre line
- where the road reserve boundary is unknown
- where a territorial authority bylaw requires it, or
- where adjacent occupiers do not support the use of toxins to control pests (for example, organic farming practices), the occupier adjoining the road reserve is responsible for pest control in the road reserve as well.

In respect of cycle paths, the term 'occupier' under the Biosecurity Act includes any agent, employee or other person acting or apparently acting in the general management or control of the place. 'Place' is defined under the Act to include: any building, conveyance, craft, land or structure and the bed and waters of the seas and any canal, lake, pond, river or stream. Pest management is an occupier's responsibility in the first instance because generally occupiers contribute to the pest problem and, in turn, benefit from the control of pests.

6.4.1.1 Banana passionfruit (*Passiflora tripartita*) – excluding Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment	Sustained control (excl. Taupō & Rotorua)	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Banana passionfruit is a large evergreen perennial vine with glossy green leaves. It has large, hanging, pink tubular flowers up to 7 centimetres in diameter (from January-December) that ripen into long, thin yellow fruits (up to 12 centimetres long). Typical habitats are hedges, trees, plantations, roadsides, forest and scrub margins and waste places.

Adverse effects

Banana passionfruit is a vigorous, scrambling, smothering plant that climbs up to 10 metres high via tendrils on its stems. It can blanket vegetation, effectively out-competing other plants and preventing seedling establishing. The vines grow for 15 to 20 years, maturing after a 1 year. It's large, sweet fruit contain many seeds that are dispersed by a variety of native and introduced birds, as well as possums, rats and feral pigs. Banana passionfruit is also spread via humans (via eating or discarded fruit and garden waste). It can establish in hedges, orchards, exotic plantations, waste land, gardens and roadsides.⁷¹ Habitats at risk of infestation include disturbed and open scrub and forest, light gaps and margins of intact bush, stream sides, coastline, cliffs, consolidated sand dunes and inshore islands.⁷²

Management regime – sustained control

Objective	Over the duration of the Plan, in those parts of the Waikato region outside the Taupō and Rotorua districts, sustainably control banana passionfruit to ensure land that is free of or being cleared of banana passionfruit does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of banana passionfruit to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

71 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/banana-passionfruit/>

72 Ibid

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of banana passionfruit to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**Good Neighbour Rule BPF-1**

Occupiers in those parts the Waikato region outside of the Taupō and Rotorua districts shall destroy all banana passionfruit within 50 metres of land managed for environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage banana passionfruit on land they occupy.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

Rule GNR BPF-1 is to assist in reducing the spread of banana passionfruit between adjacent properties, minimising the threat it poses to environmental and amenity values. Rule GNR BPF-1 is in accordance with Section 73(5)(m) of the Biosecurity Act 1993.

6.4.1.2 Broom (*Cytisus scoparius*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Broom is an erect, much branched, almost leafless deciduous shrub with a woody rootstock up to 2 metres tall. Silky-hairy young twigs mature into woody, flexible green stems that are five-ribbed and hairless. Leaves are divided into three leaflets that readily fall off the stems. Single or paired, golden-yellow (occasionally reddish), pea-like flowers are produced from September to April and are followed by oblong green pods that turn black as they mature and eventually disperse seeds explosively, leaving empty coils hanging from the plant.⁷³ It can grow in a range of habitats including shrubland, tussock land, cliffs, bluffs, roadsides, rocky riverbeds, pastoral, and forestry areas.



Photos: Trevor James

Adverse effects

Broom can form pure, dense stands in many habitat types. The plant dominates low canopy habitats, out competing existing plants and preventing seedlings of native species from establishing. By increasing soil nitrogen in gumlands and other impoverished soil types, broom can alter habitats and make it less suitable for the native plant species that live in those specialised ecosystems, for example, orchids, ferns, herbs, or kauri. Soil nutrient changes can also lead to further weed invasion. It is also capable of invading and subsequently modifying semi-open indigenous ecosystems, such as river flats.

Broom is also a problem on pasture where it forms thickets which may exclude stock. It shades grasses, which affects livestock production.⁷⁴ Seeds and leaves are poisonous and are usually avoided by stock.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control broom within the Waikato region to ensure land that is free of or being cleared of broom does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Occupiers of quarries, road and rail authorities, and those persons acting in the general management or control of a cycle path, are required to undertake actions to help reduce the impacts and spread of this sustained control pest.</p>

⁷³ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/broom/>

⁷⁴ Ibid

Inspection and monitoring

Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of broom to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may undertake control of broom, as appropriate, where biodiversity values are threatened at outlier sites (generally only in Taupō and Rotorua districts), in accordance with section 5.3 of this Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of broom to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**BRM-1**

Occupiers of transport corridors and quarries shall destroy all broom on land they occupy within the Waikato region.

Good Neighbour Rule BRM-2

Occupiers within the Waikato region shall destroy all broom within 20 metres of land managed for pastoral, forestry, and/or environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage broom on land they occupy.

Note:

1. For the purpose of these rules, destroy means the permanent preclusion of the plant's ability to set viable seed.
 2. A breach of these rules will create an offence under section 154N(19) of the Act.
 3. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reasons for rules BRM-1 and GNR BRM-2 are:

- to reduce the spread of broom to other areas of the Waikato region which are not currently infested, noting that quarries and transport corridors are ideal environments for broom to establish and spread from, and
- to reduce the spread of broom between adjacent properties.

Rules BRM-1 and GNR BRM-2 are in accordance with section 73(5)(h) and 75(3)(m) of the Biosecurity Act 1993.

6.4.1.3 Gorse (*Ulex europaeus*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Gorse is a sharp, spiny shrub, 2-3 metres tall, with woody erect or spreading stems which are many-branched in younger plants but become bare at the base as the plant gets older. Leaves are reduced to spines, new leaves less so. Spines are deeply furrowed. Pea-like yellow flowers appear from May to November (occasionally all year round), followed by hairy seed pods which turn black when mature and explode to release seeds.⁷⁵ It is hardy, tolerating hot to cold temperatures, low to high rainfall, wind, salt, damage and grazing, and all soil types. Gorse is widespread throughout the Waikato region.



Photos: Trevor James

Adverse effects

Gorse forms pure associations temporarily in many habitats, although it can persist in areas where it isn't overtopped. It can be a serious problem over large areas, including pasture, roadside verges, sand dunes, cliffs, wetlands, scrub, forest margins and coastal habitats. Its ability to increase nitrogen in poor soil types (for example, gumland or sand dunes) may alter the types of species present and nature of those habitats to the detriment of specialised plants (for example, herbs, orchids, or low ferns). Gorse can have positive impacts on reverting pasture areas and bare ex-forest sites as it acts as a nursery crop for native species, adding soil nitrogen and humus, and providing shelter and shade. In some cases, it can also provide valuable habitat for threatened species, like the Mahoenui giant weta.⁷⁶ Gorse opens up as it ages and dies once it is overtopped and completely shaded. Succession to native species may be less likely on dry sites.⁷⁷ Gorse prickles can pierce skin and become infected and dense shrubs with prickly spines can obstruct access. Gorse may also impede or restrict access to cultural sites (for example, wāhi tapu or urupa).⁷⁸

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control gorse within the Waikato region to ensure that land free of or being cleared of gorse does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Occupiers of quarries, road and rail authorities, and those persons acting in the general management or control of a cycle path, are required to undertake actions to help reduce the impacts and spread of this sustained control pest.</p>

75 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/gorse/>
 76 <https://www.doc.govt.nz/nature/native-animals/invertebrates/weta/mahoenui-giant-weta/>
 77 <https://www.weedbusters.org.nz/what-are-weeds/weed-list/gorse/>
 78 Auckland Council Cost Benefit Analysis on Gorse.

Inspection and monitoring

Upon a valid complaint, authorised person(s) on behalf of Waikato 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.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of gorse to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules

GOR-1

Occupiers of transport corridors and quarries shall destroy all gorse on land they occupy in the Waikato region.

Good Neighbour Rule GOR-2

Occupiers within the Waikato region shall destroy all gorse within 20 metres of land managed for pastoral production, forestry or environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage gorse on land they occupy.

Note:

1. For the purpose of these rules, destroy means the permanent preclusion of the plant's ability to set viable seed.
 2. A breach of these rules will create an offence under section 154N(19) of the Act.
 3. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reasons for rules GOR-1 and GNR GOR-2:

- to reduce the spread of gorse to other areas of the Waikato region which are not currently infested, noting that quarries and transport corridors are ideal environments for gorse to establish and spread from, and
- to reduce the spread of gorse between adjacent properties.

Rules GOR-1 and GNR GOR-2 are in accordance with section 73(5)(h) and 73(5)(m) of the Biosecurity Act 1993.

6.4.1.4 Moth plant (*Araujia hortorum*) – excluding Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment	Sustained control (excl. Taupō & Rotorua)	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James (flowers)
John Barran (seed pods)

Description

Moth plant is a fast-growing evergreen climber with choko-like fruit, that exudes milky sap when broken. It has dark green, hairless leaves that are dull on top and greyish-downy underneath. Clusters of white flowers, some with pink streaks, are produced from December to May followed by thick, leathery, pear-shaped pods. Each pod, containing kapok-like pulp, splits open to release numerous thistle-down like seeds.

Adverse effects

Moth plant germinates in light wells or semi-shade inside established forest, often a long distance from a seed source. It smothers and kills plants up into the canopy, preventing the establishment of native plant species. It also affects insects; the feeding parts of butterflies drinking from moth plant flowers become gummed up, leading to their eventual starvation and death.⁷⁹ The milky, white sap causes skin irritation in susceptible people and the seeds are poisonous.

A recent study notes that the intolerance of moth plant to cold restricts the southern expansion of this pest plant in New Zealand, and the shallow root system is a limitation in dry soils.⁸⁰

Management regime – sustained control

Objective	Over the duration of the Plan, in those parts of the Waikato region outside the Taupō and Rotorua districts, sustainably control moth plant to ensure that land free of or being cleared of moth plant does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of moth plant to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

⁷⁹ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/mothplant/>

⁸⁰ <https://www.landcareresearch.co.nz/uploads/public/Discover-Our-Research/Biosecurity/Biocontrol-ecology-of-weeds/3-applications/Ecology-and-pest-status-of-moth-plant.pdf>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of moth plant to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules

Good Neighbour Rule MOT-1

Occupiers in those parts of the Waikato region which are outside of the Taupō district and Rotorua districts shall destroy all moth plant within 50 metres of land managed for environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage moth plant on land they occupy.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
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Explanation of purpose of the rules

Rule GNR MOT-1 is to assist in preventing the spread of moth plant between adjacent properties. Rule GNR MOT-1 is in accordance with Section 73(5)(m) of the Biosecurity Act 1993.

6.4.1.5 Pampas: common pampas (*Cortaderia selloana*), purple pampas (*Cortaderia jubata*) and cultivars

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Common and purple pampas are both erect, tall, tussock-forming perennial grasses with razor-sharp leaf margins (hence the term ‘cutty grass’). Pampas is often confused with native toetoe species (*Astroderia* spp.). However, there are key differences between them. Toetoe flowers droop significantly, are creamy-yellow and emerge from October to January, whereas those of pampas are erect and emerge later, from February to April. The sheaths of toetoe (from which the leaves emerge in bunches at the base of the plant) are covered in a pure white wax, which is absent in pampas. The old leaf bases of pampas are dry and curled like wood shavings and retained around the base of the clump. Unlike in toetoe, the leaves of pampas are easily bent and torn, making it palatable to livestock.



C. selloana



C. jubata

Photos: Trevor James

Adverse effects

Both pampas species (and cultivars) are very invasive, and able to form dense impenetrable stands over 3 metres high. Their seed can be easily spread through wind-dispersal, and human-assisted dispersal, for example when it contaminates quarried materials. The ability of their numerous seeds to blanket areas with very rapid exclusive growth makes these plants a particular problem on any disturbed land, wetlands and coastal dune and cliff areas. Pampas inhibits the regeneration of native plant species and can outcompete young pines in plantation forests. It also poses a significant fire risk.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control pampas within quarries in the Waikato region to ensure that land free of or being cleared of pampas does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Occupiers of quarries are required to undertake actions to help reduce the impacts and spread of the sustained control pests.</p>

Inspection and monitoring

Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor quarries 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.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of these pests plant being sold.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of pampas to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules

PAM-1

Occupiers of quarries shall destroy all pampas on land they occupy within the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reason for rule PAM-1 is to reduce the spread of pampas through human-assisted dispersal to other areas of the region which are not currently infested, noting that quarries are ideal environments for pampas to establish and spread from. Rule PAM-1 is in accordance with Section 73(5)(h) of the Biosecurity Act 1993.

6.4.1.6 Ragwort (*Jacobaea vulgaris*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare

Description

Ragwort is a biennial or perennial (occasionally annual) herb, 30-120 centimetres tall, with a taproot (crown) with numerous fibrous roots. It has wavy, lobed leaves and erect, rigid stems which are multiple in perennial plants. The plant's stems are usually purplish and usually branch above the middle. Yellow, daisy-like flowers with golden yellow centres are produced from November to April and have 11-13 yellow petal-like florets in compact, flat-topped clusters at the ends of stems. Seeds are like thistle-down.⁸¹



Photos: weedbusters.org.nz

Adverse effects

Ragwort is an invasive pasture weed, although it is also commonly found in waste places, riparian margins, open forests, and swamps. Once established, the plant can spread rapidly and invade clean pasture areas as well as open scrubland.⁸² Heavy infestations of ragwort will reduce pasture production, thereby reducing the carrying capacity of farmland. The resulting need to control the plant then imposes added farm management costs on the occupier. Ragwort is more apparent on dairying and drystock properties where it is unpalatable and harmful to cattle. It can also cause skin irritation and allergies to humans when handled extensively.⁸³

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control ragwort within the Waikato region to ensure that land free of or being cleared of ragwort does not become infested/reinfested to prevent adverse effects and impacts as identified above.
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Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Occupiers of quarries, road and rail authorities, and those persons acting in the general management or control of a cycle path, are required to undertake actions to help reduce the impacts and spread of this sustained control pest.</p>
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Inspection and monitoring

Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of ragwort to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

⁸¹ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/ragwort/>

⁸² Auckland Council Cost Benefit Analysis for Ragwort

⁸³ Ibid

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of ragwort to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules

RAG-1

Occupiers of transport corridors and quarries shall destroy all ragwort on land they occupy within the Waikato region.

Good Neighbour Rule RAG-2

Occupiers within the Waikato region shall destroy all ragwort within 50 metres of land managed for production values and animal welfare where the adjacent or nearby occupier is taking reasonable measures to manage ragwort on land they occupy.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act .
 2. Enforcement will be in accordance with section 9 of the Plan .
-

Explanation of purpose of the rules

The reasons for rules RAG-1 and GNR RAG-2 are:

- to reduce the spread of ragwort to other areas of the Waikato region which are not currently infested, noting that transport corridors and quarries are ideal environments for ragwort to establish and spread from, and
- to reduce the spread of ragwort between adjacent properties.

Rules RAG-1 and GNR RAG-2 are in accordance with section 73(5)(h) and 73(5)(m) of the Biosecurity Act 1993.

6.4.1.7 Thistle: nodding thistle (*Carduus nutans*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Nodding thistle’s leaves are dark green, and deeply divided into triangular lobes with spiny tips. Its leaf margins are white at the base of the marginal spines. Flowering stems that arise from the often-large rosettes have spiny wings except just below the flower heads. Flower heads are globose, usually 2-6 centimetres across, the largest being solitary at the top of the flower stalk. Smaller heads are found on lateral branches. Flower petals are red purple, very rarely white. The plant’s seeds have thistle down, soft feathery attachments which help the seeds disperse for short distances. A single mature plant can produce up to 10,000 seeds.



Photos: John Barkla, top, and Trevor James

Adverse effects

Nodding thistle is an extremely invasive pasture plant which, if not controlled, can form dense stands that obstruct livestock movement and inhibit and suppress the growth of desirable pasture species. It also contributes to scabby mouth in stock (a disease caused by a parapox virus that infects the lips and other parts of an animal’s face). Spines can cause minor injuries to humans and may reduce enjoyment of open natural spaces.⁸⁴

Management regime – sustained control

Objective Over the duration of the Plan, sustainably control nodding thistle within the Waikato region to ensure that land free of or being cleared of nodding thistle does not become infested to prevent adverse effects and impacts as identified above.

Principal measures to achieve objective **Requirement to act**
All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).

Occupiers of quarries, road and rail authorities, and those persons acting in the general management or control of a cycle path, are required to undertake actions to help reduce the impacts and spread of this sustained control pest.

Inspection and monitoring

Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of nodding thistle to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.

Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may release biological control agents for nodding thistle as it considers appropriate, in accordance with sections 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of nodding thistle to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**NOD-1**

Occupiers of transport corridors and quarries shall destroy all nodding thistle on land they occupy within the Waikato region.

Good Neighbour Rule NOD-2

Occupiers within the Waikato region shall destroy all nodding thistle within 50 metres of land managed for production values where the adjacent or nearby occupier is taking reasonable measures to manage nodding thistle on land they occupy.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reasons for rules NOD-1 and GNR NOD-2 are:

- to reduce the spread of nodding thistle to other areas of the region which are not currently infested, noting that transport corridors and quarries are ideal environments for nodding thistle to establish and spread from, and
- to reduce the spread of nodding thistle between adjacent properties.

Rules NOD-1 and GNR NOD-2 are in accordance with section 73(5)(h) and 73(5)(m) of the Biosecurity Act 1993.

6.4.1.8 Thistle: plumeless thistle (*Carduus acanthoides*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Plumeless thistle is very similar in appearance to nodding thistle, particularly in the rosette stage. It forms a rosette in its first year and a ribbed branching stem in the second year. Leaves are five to seven lobed, with short spines on the tips. Flower heads are purple, small, and erect (they do not droop or 'nod'), and do not have backwards curving bracts.⁸⁵

Adverse effects

Plumeless thistle is an aggressive pasture species, forming thick stands that reduce carrying capacity of land as well as obstruct and injure stock.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control plumeless thistle within the Waikato region to ensure that land free of or being cleared of plumeless thistle does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Occupiers of quarries, road and rail authorities, and those persons acting in the general management or control of a cycle path, are required to undertake actions to help reduce the impacts and spread of this sustained control pest.</p>
	<p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of plumeless thistle to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>
	<p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may release biological control agents for plumeless thistle as it considers appropriate, in accordance with sections 5.3 of the Plan.</p>

85 <https://agpest.co.nz/?pesttypes=other-thistle-species>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of plumeless thistle to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules

PLU-1

Occupiers of transport corridors and quarries shall destroy all plumeless thistle on land they occupy within the Waikato region.

Good Neighbour Rule PLU-2

Occupiers within the Waikato region shall destroy all plumeless thistle within 50 metres of land managed for production values, where the adjacent or nearby occupier is taking reasonable measures to manage plumeless thistle on land they occupy.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reasons for rules PLU-1 and GNR PLU-2 are:

- to reduce the spread of plumeless thistle to other areas of the Waikato region which are not currently infested, noting that transport corridors and quarries are ideal environments for plumeless thistle to establish and spread from, and
- to reduce the spread of plumeless thistle between adjacent properties in the Waikato region.

Rules PLU-1 and GNR PLU-2 are in accordance with section 73(5)(h) and 73(5)(m) of the Biosecurity Act 1993.

6.4.1.9 Tutsan (*Hypericum androsaemum*)

Management programme

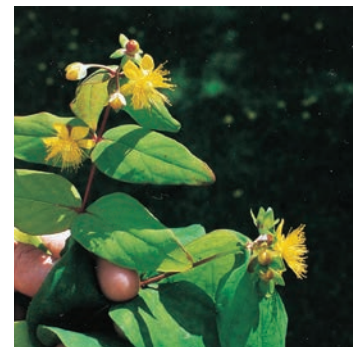
Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Tutsan is a small perennial, semi-evergreen shrub which grows to 1.5 metres high. Leaves are oval, up to 100 millimetres long, without a stalk and usually opposite. Tutsan has pale yellow terminal flower bunches which appear from November to February. Round fruit are up to 10 millimetres and are initially coloured red then become black. It is common in cool, damp sites including roadsides and banks, riparian margins, scrub, forest margins, and disturbed areas.



Photos: weedbusters.org.nz

Adverse effects

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

Tutsan is spread by birds as well as via soil disturbance. It invades regenerating sites, disturbed land, tussock land, riparian areas, farmland, and roadsides.

In the Waikato region, it appears to be spread via roadside mowing. Tutsan is a very serious threat to productive land, favouring marginal land and higher rainfall areas. Tutsan is non-toxic but is unpalatable to stock and can quickly spread over large areas.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control tutsan within the Waikato region to ensure that land free of or being cleared of tutsan does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of tutsan to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may release biological control agents for tutsan as it considers appropriate, in accordance with sections 5.3 of the Plan.

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of tutsan to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**Good Neighbour Rule TUT-1**

Occupiers in the Waikato region shall destroy all tutsan within 50 metres of land managed for production and/or environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage tutsan on land they occupy.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reason for rule GNR TUT-1 is to reduce the spread of tutsan between adjacent properties in the Waikato region. Rule GNR TUT-1 is in accordance with section 73(5)(m) of the Biosecurity Act 1993.

6.4.1.10 Wild ginger: kahili ginger (*Hedychium gardnerianum*) and yellow ginger (*Hedychium flavescens*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



H. gardnerianum



H. flavescens

Description

Kahili ginger (*Hedychium gardnerianum*) is a native of India and Nepal. The flowers are lemon-yellow with red stamens and are produced during the late summer and early autumn. Yellow ginger (*H. flavescens*), a native of India and Madagascar, produces cream-coloured flowers from late autumn to early winter. Both varieties of wild ginger can grow up to 2 metres tall, produce massive branching rhizomes and form dense stands on forest margins and through the understorey, along water ways, roadsides and in fernlands and shrublands.

Adverse effects

Kahili ginger and yellow ginger are extremely difficult to control. Once established, the tough rhizomes can form a solid, thick bed over large areas, smothering and replacing all understorey species and seedlings. The rhizomes though dense are shallow rooted, so can be displaced on steep slopes after heavy rain, causing erosion.⁸⁶

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control wild ginger within the Waikato region to ensure that land free of or being cleared of wild ginger does not become infested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of wild ginger to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of these pest plants being sold.</p> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of wild ginger to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>

⁸⁶ <https://www.weedbusters.org.nz/what-are-weeds/weed-list/wild-ginger/>

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**Good Neighbour Rule GIN-1**

Occupiers within the Waikato region shall destroy all wild ginger within 50 metres of land managed for environmental values, where the adjacent or nearby occupier is taking reasonable measures to manage wild ginger on land they occupy.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

The reason for rule GNR GIN-1 is:

- to reduce the spread of wild ginger between adjacent properties in the Waikato region.

Rule GNR GIN-1 is in accordance with section 73(5)(m) of the Biosecurity Act 1993.

6.4.1.11 Woolly nightshade (*Solanum mauritianum*) – excluding Taupō and Rotorua districts

Management programme

Exclusion	Eradication	Progressive containment	Sustained control (excl. Taupō & Rotorua)	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photos: Trevor James

Description

Woolly nightshade is an aggressive, rapidly growing shrub or tree reaching up to 9 metres in height. Its oval leaves are large, grey-green and covered with furry hairs. It has a strong kerosene-like smell, especially when leaves are rubbed or crushed. Flowers are purple with yellow centres and grow in clusters at the ends of branches. Berries (1 centimetre in diameter) ripen to yellow. They are full of many small seeds, which are spread by birds and can remain dormant in the soil for many years.

Adverse effects

In large numbers woolly nightshade can rapidly invade poorly managed land and forest margins, where it can totally exclude regeneration of native plants. Dense stands can invade pasture on poor soils, especially in hill country, and impede livestock movement. It can also cause skin irritation and respiratory problems for some people. All parts of the plant are thought to be toxic to livestock. Woolly nightshade is now well established in many areas north of Taupō (it is relatively frost intolerant).

Management regime – sustained control	
Objective	Over the duration of the Plan, in those parts of the Waikato region outside the Taupō and Rotorua districts, sustainably control woolly nightshade to ensure that land free of or being cleared of woolly nightshade does not become infested/reinfested to prevent adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.1 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of woolly nightshade to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake inspections, monitoring and surveillance of nurseries, markets, and the online plant trade to reduce the likelihood of this pest plant being sold.</p>

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of woolly nightshade to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region, or specified part of it, are minimised over the duration of the RPMP.

Rules**Good Neighbour Rule WNS-1**

Occupiers in those parts of the Waikato region outside of the Taupō district and Rotorua district shall destroy all woolly nightshade within 50 metres of an adjacent or nearby occupier where that occupier is taking reasonable measures to manage woolly nightshade on land they occupy.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
 2. Enforcement will be in accordance with section 9 of the Plan.
 3. If woolly nightshade is present on a property that is to be subdivided or developed, please also refer to section 6.6 of the Plan.
-

Explanation of purpose of the rules

The reason for rule GNR WNS-1 is to reduce the spread of woolly nightshade between adjacent properties.
Rule GNR WNS-1 is in accordance with section 73(5)(m) of the Biosecurity Act 1993.

6.4.2 Management regime for the sustained control programme – animal pests

The following statutory obligation applies to all animal pests in the sustained control programme.

Statutory obligation

No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.

Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

6.4.2.1 Common brushtail possum (*Trichosurus vulpecula*) (excludes Hūnua Ranges Pest Management Area)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control (excl. HRPMA)	Site-led
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Photo: Ngā Manu Images

Impacts

Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare

Description

The common brushtail possum is a nocturnal marsupial native to Australia. It has large, pointed ears and a pointed snout. Its bushy tail is prehensile at the end with a hairless ventral patch. It has a thick and woolly pelage that varies in colour depending on the subspecies. Colour patterns tend to be silver-gray, brown, black, red, or cream. The ventral areas are typically lighter, and the tail is usually brown or black. Their muzzle is marked with dark patches. Males are generally larger than females. In addition, the coat of the male tends to be reddish at the shoulders. They can potentially live anywhere where there is shelter and a varied food supply.

Adverse effects

Possums have a significant impact on many of the Waikato region's natural ecosystems. They prey on the eggs and chicks of various threatened and culturally valued birds, including kōkako, and compete for nest sites with hole-nesting birds, like saddlebacks and native parakeets. They also compete directly with native birds and reptiles for food, by eating the same buds, flowers, fruit/berries, and nectar. Possums also eat invertebrates including wētā and are a significant predator of our native land snails. Heavy selective browsing by possums can suppress or eliminate preferred plants. This can alter the vegetation composition in invaded ecosystems, ultimately leading to the collapse of palatable canopy species like kamahi, pōhutukawa or northern rata. Possums are also considered serious agricultural pests. They are vectors for bovine TB in cattle and compete directly with stock for pasture. They also have the potential to transmit diseases to humans.⁸⁷

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control common brushtail possums within priority possum control areas and across the Waikato region to minimise adverse effects and impacts as identified above and their spread to neighbouring properties.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.2 for further detail).</p> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties in the priority possum control areas (PPCAs) with suspected or confirmed infestations of common brushtail possums to establish the density of populations and to identify any remedial action that needs to be undertaken.</p>

⁸⁷ Auckland Council Cost Benefit Analysis on Common brushtail possum

	<p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council will undertake direct control of common brushtail possums within PPCAs as appropriate, in accordance with section 5.3 of the Plan.</p>
	<p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information to affected occupiers and other interested parties on the identification, impacts, and means of control of common brushtail possums in accordance with section 5.3 of the Plan.</p>
Monitoring and anticipated outcomes	<p>Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region are minimised over the duration of the RPMP.</p>

General rules

POSS-1

No person shall possess a live common brushtail possum in the Waikato region.

POSS-2

Occupiers within a Waikato Regional Council Priority Possum Control Area (PPCA) shall, on direction from an authorised person:

- a) allow authorised person(s) to control possums on their property
- b) not impede or hinder the progress of such control operations.

POSS-3

Occupiers of land within a PPCA (proposed or active) shall, on direction of an authorised person:

- a) allow authorised person(s) to carry out pre- and/or post-control monitoring on their property
- b) allow authorised person(s) to carry out monitoring for biodiversity, catchment and production outcomes on their property
- c) not impede or hinder the progress of monitoring operations.

Good Neighbour Rule POSS-4

Occupiers within the Waikato region shall control common brushtail possums to a 5% Residual Trap Catch within 500 metres of land managed for production and/or environmental purposes, where the adjacent or nearby occupier is taking reasonable measures to manage possums on the land they occupy.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of the rules

Rules POSS-1 to POSS-3 and GNR POSS-4 are in accordance with sections 73(5)(e) and 73(5)(m) of the Biosecurity Act 1993 and will assist in protecting investments in possum control within the Waikato region by ensuring common brushtail possums remain at or below a level that protects economic wellbeing and environmental values. These rules also allow authorised person(s) to monitor common brushtail possum population densities, to ensure the spread of common brushtail possums to adjacent properties is minimised.

6.4.2.2 Feral rabbit (*Oryctolagus cuniculus*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Photo: Hawke's Bay Regional Council

Description

The feral European rabbit is a small mammalian herbivore, grey-brown (sometimes black) in colour, ranging in length from 34-50 centimetres and weighing approximately 1.1-2.5 kilograms. It has long ears, large powerful hind legs to facilitate hopping movement, and a short fluffy tail. Most feral rabbits are easily distinguished from domesticated breeds.

Adverse effects

Rabbits can cause a range of adverse effects on environmental, social/cultural and economic values, particularly in the more rabbit-prone areas. At high numbers, the control costs can be prohibitively expensive. Their impact reduces available grazing for domestic stock and subsequently decreases the financial returns to occupiers and their ability to fund control.

Rabbits compete directly with stock for grazing and reduce the amount of palatable pasture; 7-10 rabbits can consume as much as one ewe. They can also damage young plantation trees, horticultural crops, and residential gardens. They are especially damaging in regenerating coastal environments. Rabbits eat a wide range of food, including native grasses and seedlings.

In combination with grazing stock, rabbits can increase the risk of soil erosion and contribute to increases in unpalatable weed species. Rabbit grazing also impacts on amenity plantings, commercial gardens, and forestry seedlings. Grazing and burrowing can lead to the loss of vegetation cover and soil erosion in native flora and fauna habitats.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control feral rabbits to level 4 or below on the Modified McLean Rabbit Infestation Scale 2012, ⁸⁸ where they have been identified as having adverse effects on environmental, production, cultural and amenity values in the Waikato region, and to reduce their impacts on neighbouring properties.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.2 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will, upon valid complaint, inspect and monitor properties with suspected or confirmed infestations of feral rabbits to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p>

⁸⁸ Refer Appendix 2 Modified McLean Rabbit Infestation Scale

Service delivery

Authorised person(s) on behalf of Waikato Regional Council may undertake control of feral rabbits (including release of biological control agents) as it considers appropriate, in accordance with sections 5.3 of the Plan .

Advocacy and education

Waikato Regional Council will provide advice and information on the identification, impacts, and control of feral rabbits to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.

Waikato Regional Council may facilitate community initiatives as appropriate, in accordance with section 5.3 of the Plan.

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region are minimised over the duration of the RPMP.

Rules**RAB-1**

Occupiers shall, on written direction from an authorised person, control feral rabbits on land they occupy in the Waikato region to level 4 or below on the Modified McLean Scale 2012.

Note:

1. This rule does not apply to domestic rabbits which are in proper confinement (for example, New Zealand white, angora, Flemish giant, Rex, Californian, Netherland dwarf, Dutch, tan, or silver fox).
 2. A breach of this rule will create an offence under section 154N(19) of the Act.
 3. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

Rule RAB-1 is in accordance with section 73(5)(h) of the Biosecurity Act 1993 and requires occupiers to control feral rabbits on their land in the Waikato region to prevent numbers reaching high to extreme infestations.

6.4.2.3 Magpie (*Gymnorhina tibicen*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description

Two sub-species of magpies are known in New Zealand: the white-backed (*Gymnorhina tibicen hypoleuca*) and black-backed (*Gymnorhina tibicen tibicen*) magpie. Both subspecies are black and white in colour. The magpie's most distinctive characteristic is its flute-like call, best heard soon after daybreak or in the evening.

Adverse effects

Magpies are extremely territorial birds and show aggression to anything that may pose a threat to their territory. They can be a considerable nuisance during the breeding season, swooping on and occasionally attacking humans, especially children and cyclists.

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control magpies within the Waikato region where they present a risk to public health to minimise adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.2 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will, on complaint, inspect and monitor properties with suspected or confirmed infestations of magpies to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake control of magpies in situations where control by occupiers would otherwise be difficult and where there is a known risk to public health (i.e. complaint received by Waikato Regional Council); or where there is a significant threat to public health due to nest location (for example, near bus stops, entry to public walking tracks or places of habitation/congregation).</p> <hr/> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of magpies to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.</p> <p>Waikato Regional Council may facilitate community initiatives as appropriate, in accordance with section 5.3 of the Plan.</p>

Monitoring and anticipated outcomes

Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region are minimised over the duration of the RPMP.

Rules**MAG-1**

Occupiers shall on written direction from an authorised person, destroy magpies where the magpie nest occurs on land they occupy in the Waikato region.

Note:

1. Destroy means destruction of the bird, the nest or both, as directed.
 2. A breach of this rule will create an offence under section 154N(19) of the Act.
 3. Enforcement will be in accordance with section 9 of the Plan.
-

Explanation of purpose of the rules

Rule MAG-1 is in accordance with section 73(5)(h) of the Biosecurity Act 1993 and will ensure that the objective and protection of public health, cultural and amenity values of key places are met.

6.4.2.4 Wasps: common wasp (*Vespula vulgaris*) and German wasp (*Vespula germanica*)

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Common wasp (*Vespula vulgaris*)

Description

The common wasp (*Vespula vulgaris*) is native to Europe and parts of Asia. It is generally 12-17 millimetres long, although queens are larger. Workers can be identified by a black mark behind the eye on the side of the head and an anchor-shaped or dagger-shaped mark on the ‘face’, parallel yellow pronotal bands⁸⁹, and black dots and rings on the abdomen which are usually fused.⁹⁰

The black dots and yellow rings on German wasps (*Vespula germanica*) (native to Europe, northern Africa and temperate Asia) are separate and the pronotal band is just behind the head, but, to the untrained eye, German wasps are almost indistinguishable from common wasps.

Both species are social insects that live as colonies in nests of honeycomb-like cells. The colonies can be large, with nests becoming extensive if they manage to survive over the winter. Both wasp species inhabit agricultural areas, native forests, planted forests, scrub/shrublands and urban areas where they nest underground and in cavities in trees and buildings.

Adverse effects

New Zealand has some of the highest densities of German and common wasps in the world; there are none of their natural enemies here, we have milder winters and there is an abundance of food for them. In large numbers, wasps can become a significant nuisance, e.g. for forestry gangs, in schools, and for those enjoying the outdoors. They scavenge around rubbish bins and picnic sites. Both species cause painful stings to humans, in some cases eliciting an allergic reaction.

The German wasp is a successful invader of disturbed environments and natural ecosystems. It establishes large nests, and the workers efficiently exploit food resources such as nectar and our native insects, competing directly with native fauna that also depend on them. This species is difficult to control as a new colony can be established from a single inseminated female. The common wasp has been nominated as one of the world’s worst invaders. This species impacts on conservation, forestry, beekeeping, horticulture, and human activities. Beekeepers class wasps as a serious threat to their industry and orchardists and viticulturists suffer the destruction of fruit.



German wasp (*Vespula germanica*)
Photos: Manaaki Whenua – Landcare Research

⁸⁹ The pronotum, on which the bands described above in wasps occur, is a prominent plate-like structure that covers all or part of the thorax of some insects. The pronotum covers the dorsal (upper side) surface of the thorax.

⁹⁰ Information from Global Invasive Species Database <http://www.iucngisd.org/gisd/>

Management regime – sustained control

Objective	Over the duration of the Plan, sustainably control common wasps and German wasps within the Waikato region where they present a risk to public health to minimise adverse effects and impacts as identified above.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.4.2 for further detail).</p> <hr/> <p>Inspection and monitoring</p> <p>Authorised person(s) on behalf of Waikato Regional Council will, on complaint, inspect and monitor properties with suspected or confirmed infestations of common or German wasps to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <hr/> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may release biological control agents as it considers appropriate, in accordance with sections 5.3 of the Plan.</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake control of common or German wasps in situations where control by occupiers would otherwise be difficult and where there is a known risk to public health (i.e. complaint received by Waikato Regional Council); or where there is a significant threat to public health due to nest location (for example, near bus stops, entry to public walking tracks or places of habitation/congregation).</p> <hr/> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of wasps to affected occupiers and other interested parties, in accordance with section 5.3 of the Plan.</p> <p>Waikato Regional Council may facilitate community initiatives as appropriate, in accordance with section 5.3 of the Plan.</p> <hr/>
Monitoring and anticipated outcomes	Monitoring for the presence of sustained control pests will be undertaken in accordance with section 7 of the Plan to ensure the risk that these pests pose to specific values in the Waikato region are minimised over the duration of the RPMP.

Rules

WASP-1

Occupiers shall, on written direction from an authorised person, control common wasps and German wasps by destroying any wasp nest where the nest occurs on land they occupy within the Waikato region.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of the rules

Rule WASP-1 is in accordance with section 73(5)(h) of the Biosecurity Act 1993 and requires occupiers in the Waikato region to control common or German wasps on their land to prevent numbers reaching high to extreme infestations, ensuring that any risk to public health and associated amenity, recreational, social and cultural values is minimised.

6.5 Site-led programme – overview

Site-led pest management differs from species-led pest management in that its objective is to protect and preserve the values (for example, biodiversity-related, environmental, aesthetic, economic or cultural) of a place, rather than targeting a specific pest species. This means that the pests targeted under a site-led programme will vary from site to site depending on what pests are affecting the values at each site. The size of sites managed through the site-led programme may range in extent from small areas within a property to larger areas covering multiple properties.

Three site-led programmes have been identified in this Plan:

1. The Hūnua Ranges Pest Management Area (Section 6.5.1)
2. Wetlands (Section 6.5.2)
3. Project Yellow (Section 6.5.3).

However, Waikato Regional Council will consider including additional sites in the site-led programme or amend an existing site-led programme in the RPMP where they meet the requirements of the Biosecurity Act and result in positive benefits to the environment and people. The criteria for a site to qualify for inclusion in the site-led programme are presented in section 6.5.4 of this Plan.

Reason for inclusion

Classed as environmental and/or social/amenity pests, Waikato Regional Council considers the pests in the following site-led programmes are capable of causing adverse effects as detailed under each species description.

It is appropriate that the council be involved in managing these pests rather than relying on voluntary action as successful management of these species requires rules to assist with restoration efforts and to protect occupier and community investment into these sites. The benefits of the control of many of these pests accrue to a wider community than those directly affected by the presence of the pests on their property.

Intermediate outcome

The intermediate outcome for the site-led programmes described below is to protect the values of those sites. This intermediate outcome applies to all pests included in the site-led programmes.

6.5.1 Management regime for site-led programmes

The following statutory obligation applies to all site-led programmes.

Statutory obligation

Once a site has been defined, the following statutory obligations apply within that site-led area:

- No person shall knowingly communicate, cause to be communicated, release or cause to be released, or otherwise spread any pest or unwanted organism.
- Furthermore, pests or unwanted organisms must not be sold or offered for sale, exhibited, propagated, bred, or multiplied.

Sections 52 and 53 of the Biosecurity Act, which prohibit the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993. A breach of section 52 or 53 creates an offence under section 1540 of the Act and is subject to penalties under section 157(1) of the Act.

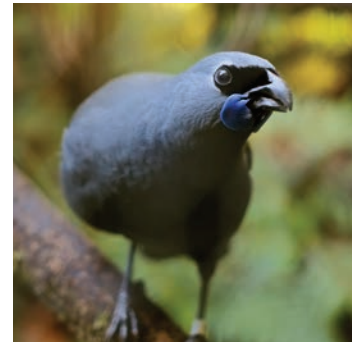
6.5.2 Site led pest programme – Hūnua Ranges Pest Management Area

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

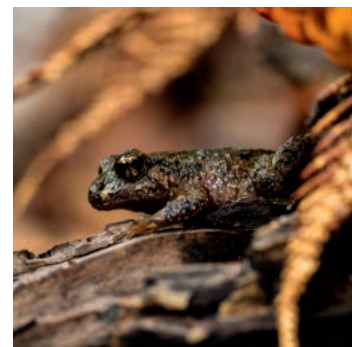
Economic	Biodiversity	Soil resources	Water quantity/ quality
Human health	Social and cultural wellbeing	Amenity/ recreation	Animal welfare



Kōkako

Description of Hūnua Ranges Pest Management Area

The Hūnua Ranges Regional Park consists of 17,528 hectares of contiguous park land that contains the largest tract of regenerating and mature indigenous forest on the mainland in the Auckland region (figure 4). The park is characterised by high, narrow ridges with deeply dissected valley systems, covered in dense native bush. Combined with Waharau and Whakatīwai Regional Parks, it contains an almost intact succession from submontane to coastal forest, from the highest point on the Auckland mainland, Mt Kohukohunui (688 metres), down to the shores of the Firth of Thames. Distinctive high-altitude vegetation has developed in the submontane bioclimatic zone, which is unique in the region. The park also contains special features such as the majestic Hūnua Falls and regionally significant geological features. It is a place of significant cultural and recreational value.



Hotchstetter's frog.
Photo: Sabine Bernert

The forest has undergone major changes in forest structure in the last 130 years due to the impact of animal pests (see table 12 for the pests to be managed within this site-led programme), logging and clearance for farming. Despite this, it is identified as being an outstanding wildlife habitat with high ecological values. It supports 20 per cent (450 species) of New Zealand's indigenous vertebrate species, including 21 nationally and regionally threatened species, among them, Hochstetter's frog, the long-tailed bat and a relict population of North Island kōkako.

Adverse effects

The pests listed in table 12 (over the page) all have a variety of adverse effects on the values of the Hūnua Ranges Regional Park. These include:

- predation and browsing of native flora and fauna which impacts on ecological integrity and biodiversity of the area, as well as contributing to soil erosion and a reduction in water quality
- being vectors for disease
- browsing of surrounding pastoral land impacting on production
- damage to fencing and livestock.

In respect of kauri dieback, this disease can be incurably fatal to kauri trees of all ages and, in the absence of effective treatment, has mid to long-term potential to cause functional extinction of kauri as a canopy species. Kauri are ecosystem engineers, with profound effects on soil chemistry and associated plant and animal communities. Consequently, there is a potential for catastrophic loss of associated unique ecosystems.⁹¹ This disease, at the time of preparing this Plan, was not known to be present in the Hūnua Ranges, with its exclusion the main aim of any management actions.

In addition to impacts on environmental and economic values, the adverse effects described above also contribute to a reduction in the amenity/recreation and social and cultural values of the area.

91 <https://www.kauridieback.co.nz/what-is-kauri-dieback/>

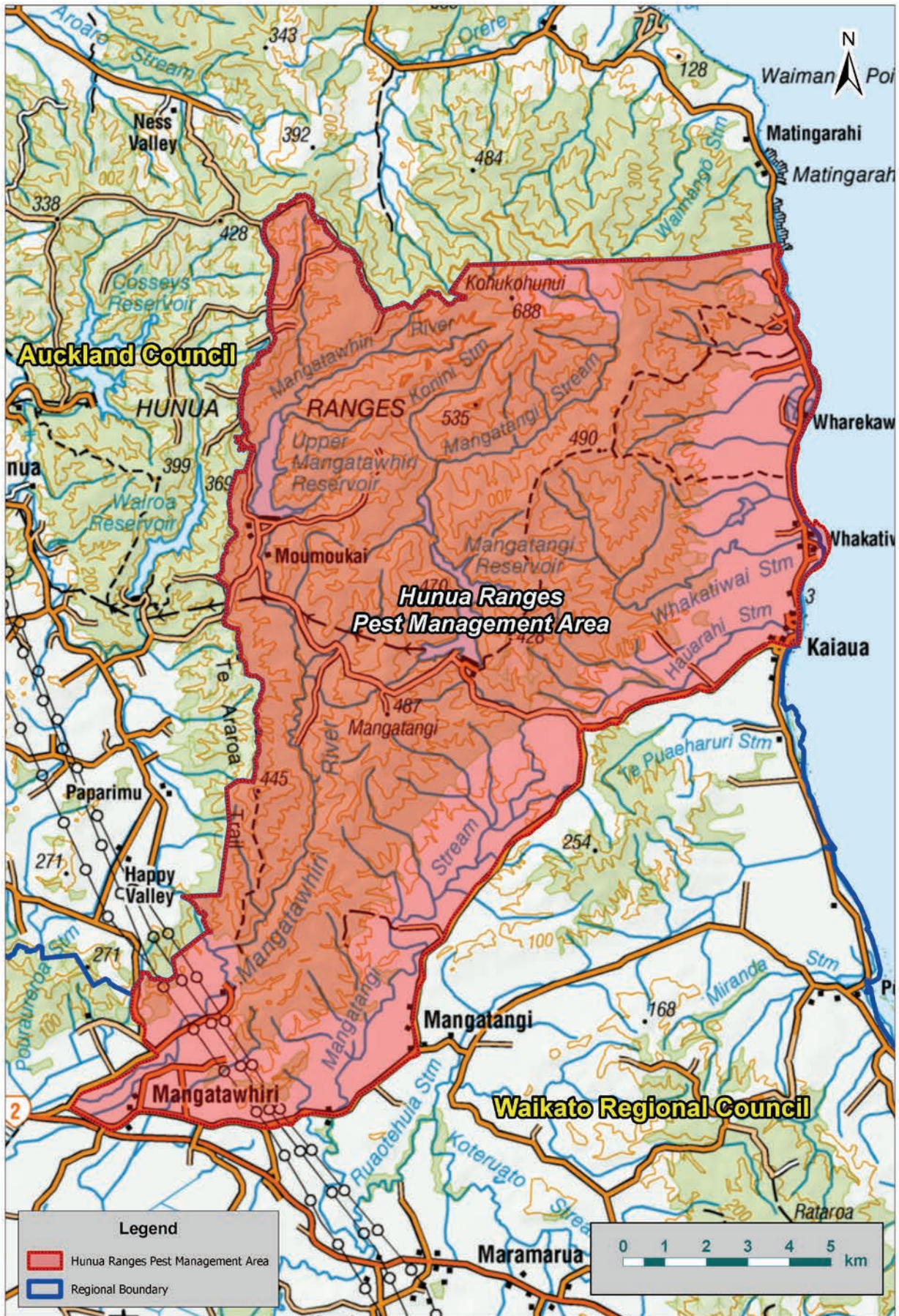






Figure 4: Map of the Hūnua Ranges Pest Management Area

Table 12: Pests to be managed within the site-led pest programme for the Hūnua Ranges Pest Management Area

Pest	Description
 <p data-bbox="201 633 571 712">Kauri dieback (<i>Phytophthora agathidicida</i>)⁸⁹ Photo: Biosecurity New Zealand</p>	<p data-bbox="579 282 1401 409">Kauri dieback can kill kauri of all ages. It is a disease caused by a microscopic fungus-like organism called <i>Phytophthora agathidicida</i> (Pa). It lives in the soil and infects kauri roots, damaging tissues that carry nutrients and water within the tree, effectively starving it to death.</p> <p data-bbox="579 439 1401 589">Symptomatic kauri trees infected with kauri dieback disease exhibit root and collar rot, gum-exuding lesions, yellowing of leaf tissue, canopy thinning and mortality. Human-mediated movement of contaminated soil is the main cause of jump dispersal between kauri forests, but it can also be spread locally by feral pigs.⁹⁰</p>
 <p data-bbox="201 1104 571 1160">Common brushtail possum (<i>Trichosurus vulpecula</i>)⁹¹</p>	<p data-bbox="579 752 1401 947">The common brushtail possum has large and pointed ears. It has a bushy tail that is prehensile at the end with a hairless ventral patch. It has a thick and woolly pelage that varies in colour depending on the subspecies. Colour patterns tend to be silver-grey, brown, black, red or cream. The ventral areas are typically lighter, and the tail is usually brown or black. The muzzle is marked with dark patches.</p> <p data-bbox="579 976 1401 1032">Males are generally larger than females. In addition, the coat of the male tends to be reddish at the shoulders.⁹²</p>
 <p data-bbox="201 1541 571 1574">Feral cat (<i>Felis catus</i>)⁹³</p>	<p data-bbox="579 1193 1401 1294">Feral cats have the same appearance as some common, short-haired house cats such as tabby, tortoiseshell and black. They can grow to a much larger size than house cats if conditions are favourable, though they do not live as long.⁹⁴</p>
 <p data-bbox="201 1933 571 1957">Feral goat (<i>Capra hircus</i>)⁹⁵</p>	<p data-bbox="579 1585 1401 1709">Feral goats vary in size and colour. The adult male stands almost 70 centimetres high at the shoulder and can grow to 150 centimetres, weighing between 50-70 kilograms. Adult females are considerably smaller. This Plan concerns only feral (wild) goats. That is, goats without identification or branding, and uncontained.⁹⁶</p>



Feral pig (*Sus scrofa*)

Feral pigs, for the purposes of this Plan, are pigs that are free ranging and are not in a farmed situation. They are smaller and more muscular than domestic pigs and have massive forequarters and smaller, shorter hindquarters. They also have longer and coarser hair; longer, larger snouts and tusks; and much narrower backs.

Mustelids



Ferret (*Mustela furo*)

Mustelids (ferrets, stoats, weasels) are small to medium sized carnivores with large home ranges.

Ferret

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

Stoat

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



Stoat (*Mustela erminea*)

Weasel

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



Weasel (*Mustela nivalis vulgaris*)



Feral deer (*Cervus*, *Axis*, *Dama*, *Odocoileus* or *Elaphurus* spp. including any hybrids)

Photo: Charles J Sharp
Licence: Creative Commons

Feral deer, for the purposes of this Plan, includes all the species listed and any hybrid deer living in the wild. Feral deer range in size and colour, depending on the species. Generally, feral deer are various shades of brown. The antlers of deer, borne by males only, are shed each year.

Management regime – Hūnua Ranges Pest Management Area site-led programme

Objective	<p>Over the duration of the Plan, control (and exclusion in relation to kauri dieback) of pests listed in table 12 above will be undertaken so that the environmental, social, cultural, amenity and recreational values of the Hūnua Ranges Pest Management Area (refer figure 4) are protected from the adverse effects and impacts of those pests identified above.</p> <p>Pest specific objectives are mentioned below where applicable.</p>
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Principal measures to achieve objective

Requirement to act

All persons within the Hūnua Ranges Pest Management Area must comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.5.1 for further detail).

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

Waikato Regional Council rates collected within this area are provided to Auckland Council under a funding agreement between the two councils to enable the delivery of principal measures to achieve this objective. These measures include:

- service delivery (control) (species specific service delivery measures are outlined below)
- council inspection
- advocacy and education
- research
- community initiatives
- biological control.

Service delivery

Feral deer

Provide support to the Department of Conservation as the lead agency in managing feral deer in the region. Enter any property within the Hūnua Ranges Pest Management Area and carry out surveillance or control work to keep feral deer at or near zero density in the management area.

Feral goat

Enter any property within the Hūnua Ranges Pest Management Area and carry out surveillance or control work to keep feral goats at or near zero density in the management area.

Mustelids

Provide information, advice and support to individuals and community groups in relation to pest animal identification, impacts and control. Undertake direct control as part of integrated pest management where required to protect prioritised biodiversity values at the site.

Feral pig

Undertake direct control to below ecological damage threshold as part of integrated pest management where required to protect prioritised biodiversity values at the site.

Feral cat

Provide information, advice and support to individuals and community groups in relation to pest animal identification, impacts and control. Undertake direct control as part of integrated pest management to protect prioritised biodiversity values (threatened species) at sites within the Hūnua Ranges Pest Management Area.

Possum

Provide information, advice and support to individuals and community groups in relation to pest animal identification, impacts and control. Undertake direct control to, at or below 2-5% Residual Trap Catch as part of integrated pest management where required to protect prioritised biodiversity values at the site within the Hūnua Ranges Pest Management Area.

Kauri dieback

Install and maintain phytosanitary (hygiene) stations at key exit and entry points on Hūnua Ranges parkland to minimise human-mediated spread of kauri dieback disease. Upgrade and maintain walking tracks on parkland to minimise human-mediated spread of disease. Manage known vectors, including feral pigs. Undertake surveillance for the pathogen. Collaborate with other agencies in the design of data collection and storage to ensure effective, integrated monitoring and surveillance across kauri lands.

Monitoring and anticipated outcomes

Monitoring will be undertaken by Auckland Council in accordance with their operational plan to ensure that the site-led programme is effective in protecting the values of the Hūnua Ranges Pest Management Area.

Kauri dieback objective and rules

Objective

Over the duration of this Plan, action will be taken to exclude the organism which causes kauri dieback disease (*Phytophthora agathidicida*) from the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Rules

HŪNUA-1

No person shall distribute, move, release, or otherwise spread *Phytophthora agathidicida* or material contaminated with *Phytophthora agathidicida* within the Hūnua Ranges Pest Management Area.

HŪNUA-2

No person shall move any untreated kauri plant material, soil, plants or goods contaminated with soil into or out of an area within three times the drip line of any New Zealand kauri tree in the Hūnua Ranges Pest Management Area, unless the purpose of the movement is to dispose of the material at an Auckland Council approved containment landfill.⁹²

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.

Common brushtail possum objective and rules

Objective

Over the duration of this Plan, common brushtail possums (*Trichosurus vulpecula*) shall be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity.

Rules

HŪNUA-3

In the Hūnua Ranges Pest Management Area, no person shall:

- cause or permit common brushtail possums to be in a place where they are offered for sale or exhibited (without a permit),
- sell or offer common brushtail possums for sale, or
- breed, or multiply common brushtail possums or otherwise act in such a manner as is likely to encourage or cause the breeding or multiplication of common brushtail possums.

Note:

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

Approved at time of writing:

1. Ridge Road Quarries, Ridge Road, Bombay (accepts soil only)

2. EnviroWaste Hampton Downs Landfill, 136 Hampton Downs Road, RD2, Te Kauwhata (accepts soil and organic material).

3. Waste Management's Redvale Landfill, Landfill Access Road, Dairy Flat (the use of a bin liner is required at this landfill) – accepts soil and organic matter.

Other facilities may be approved over the lifetime of the Plan. Updates, if any, to the list of approved landfills may be obtained on enquiry to Auckland Council.

Feral cat objective and rules

Objective

Over the duration of this Plan, feral cats shall be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Rules

HŪNUA-4

No person shall abandon or release, or cause to abandon or release to the wild, any cat in the Hūnua Ranges Pest Management Area.

HŪNUA-5

No person shall actively assist in the maintenance of any feral cat or feral cat population in the Hūnua Ranges Pest Management Area.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Feral goat objective and rules

Objective

Over the duration of the Plan, feral goats (*Capra hircus*) shall be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Note: A goat is declared feral wherever it is not ear tagged and held behind effective fencing or otherwise constrained in a manner that prevents the escape of that goat.

Rules

HŪNUA-6

No person shall release from containment any goat in any part of the Hūnua Ranges Pest Management Area

Note:

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

Feral pig rules

Objective

Over the duration of this Plan, feral pigs (*Sus scrofa*) shall be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Rules

HŪNUA-7

No person shall release, or cause to be released, any pig into the wild in any part of the Hūnua Ranges Pest Management Area.

Note:

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

Mustelid objective and rules

Objective

Over the duration of the Plan, mustelids (*Mustela furo*, *Mustela erminea*, *Mustela nivalis vulgaris*) shall be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Rules

HŪNUA-8

No person shall knowingly distribute to other persons, release, sell, offer for sale, hold in premises where animals are offered for sale or breed any ferret, stoat or weasel in the Hūnua Ranges Pest Management Area unless permitted by the Chief Technical Officer of MPI.

Note:

1. A breach of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.
3. Where more than three ferrets, stoats or weasels are kept for any purpose, permission must be obtained from the Director General of Conservation under the Wildlife (Farming of Unprotected Wildlife) Regulations 1985.

Feral deer objective and rules

Objective

Feral deer (*Cervus*, *Axis*, *Dama*, *Odocoileus* or *Elaphurus* spp. including any hybrids) within the Hūnua Ranges Pest Management Area will be managed within the Hūnua Ranges Pest Management Area to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

Deer are declared feral wherever they are not:

- d) held behind fencing that meets the requirements of the Deer Farming Regulations; and
- e) identified as required by those regulations.

Rules

HŪNUA-9

No person shall release from containment any deer, or move or distribute any feral deer, in the Hūnua Ranges Pest Management Area.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
-

Explanation of purpose of the HŪNUA-1 to HŪNUA-9 rules

The purpose of rules HŪNUA 1 to HŪNUA-9 in the Hūnua Ranges Pest Management Area site-led programme is to:

- protect the values of the Hūnua Ranges Pest Management Area
- specify circumstances in which pests may and may not be communicated, released or otherwise spread
- regulate the movement of goods that may contain or harbour pests or otherwise pose a risk of spreading the pests
- regulate activities that may affect measures taken to implement the Plan.

The rules HŪNUA-1 to HŪNUA-9 are in accordance with sections 73(5)(e) and (g) of the Biosecurity Act 1993.

6.5.3 Site-led pest programme – Wetlands

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare



Arum lily



Royal fern

Description of wetlands

Over the last 160 years, the extent of wetlands in the Waikato region has declined by around 75 per cent. Despite the losses, the region is still a wetland stronghold, containing around 11 per cent of the nation’s remaining wetlands. Current estimates of the area of remaining freshwater wetlands in the Waikato region are around 27,000 hectares. Protection of the remaining wetland areas is critical, and all are sensitive to changes in water flow, water quality, neighbouring land use and the impacts of pests (refer table 14 and 15).

The site-led wetland programme is designed to support occupiers and community groups trying to protect and restore these remaining wetlands. For wetlands to be considered sites under the site-led programme, they must meet the criteria in table 13.

Adverse effects

Pest plants (like those listed in table 14) pose a serious threat to wetlands as they have the potential to modify their structure or function (including nutrient and hydrology regimes), out-compete native plants, change the vegetation composition and cover, and alter the habitat and resources available to native fauna.⁹³

The pest turtle species listed in table 15 can live in still and slow-moving waterbodies like wetlands, impacting biodiversity and ecosystem processes where they establish.^{94,95} They can have direct impacts on native species, like aquatic plants, native fish, insect and mollusc species that form part of their diets. The basking behaviour of some species can also displace nesting wetland birds and reduce their reproductive success. Their activity in waterways may reduce water quality.

In addition to the impacts of these pests on environmental values, the adverse effects described above also contribute to a reduction in the amenity/recreation and social and cultural values of wetlands.

Table 13: Criteria for identifying wetlands subject to site-led programme rules

Criteria	
Wetlands	For a wetland to be classed as a place that is subject to the rules under this site-led pest programme it must meet the definition of a ‘natural inland wetland’ as stated in the National Policy Statement for Freshwater Management 2020 or any subsequent revision.

Table 14: Pest plants to be managed within the site-led pest programme for wetlands, by growth form⁹⁶

Pest (common name)	Scientific name
Trees	
Alder	<i>Alnus glutinosa</i>
Crack willow	<i>Salix fragilis</i>

93 [https://www.landcareresearch.co.nz/publications/wetland-restoration/\(from+Wetland+restoration:+A+handbook+for+NZ+Freshwater+Systems\)](https://www.landcareresearch.co.nz/publications/wetland-restoration/(from+Wetland+restoration:+A+handbook+for+NZ+Freshwater+Systems))

94 https://www.daf.qld.gov.au/_data/assets/pdf_file/0003/76836/IPA-Red-Eared-Slider-Turtle-Risk-Assessment.pdf

95 <https://docs.niwa.co.nz/library/public/FrelnSpec.pdf>

96 From Table 1 Bodmin, K. 2012. Chapter 9 - Weeds. In: Peters, M.; Clarkson, B. (Editors), Wetland restoration: a handbook for New Zealand freshwater systems. Manaaki Whenua Press, Lincoln, NZ. Note additional pests have been added to this table to address community concerns.

Pest (common name)	Scientific name
Grey willow	<i>Salix cinerea</i>
Japanese walnut	<i>Juglans ailantifolia</i>
Subcanopy/shrubs	
Chinese privet	<i>Ligustrum sinense</i>
Blackberry	<i>Rubus fruticosus</i> agg.
Giant gunnera	<i>Gunnera tinctoria</i> <i>Gunnera manicata</i>
Gorse	<i>Ulex europeaus</i>
Vines and ferns	
Japanese honeysuckle	<i>Lonicera japonica</i>
Old man's beard	<i>Clematis vitalba</i>
Royal fern	<i>Osmunda regalis</i>
Herbaceous	
Arum lily	<i>Zantedescia aethiopica</i> , <i>Zantedescia aethiopica</i> 'green goddess'
Purple loosestrife	<i>Lythrum salicaria</i>
Yellow flag iris	<i>Iris pseudoacorus</i>
Rushes	
Sharp rush	<i>Juncus acutus</i>
Heath rush	<i>Juncus squarrosus</i>
Californian club rush	<i>Schoenoplectus californicus</i>
Bulbous rush	<i>Juncus bulbosus</i>
Sedges	
Oval sedge	<i>Carex ovalis</i>
Broom sedge	<i>Carex scoparia</i>
Grasses	
Reed canary grass	<i>Phalaris arundinacea</i>
Pampas	<i>Cortaderia jubata</i> <i>Cortaderia selloana</i>
Manchurian wild rice	<i>Zizania latifolia</i>
Reed sweet grass	<i>Glyceria maxima</i> <i>Glyceria fluitans</i>

Table 15: Pest animals to be managed within the site-led pest programme for wetlands

Pest (common name)	Scientific name
Box turtle	<i>Terrapene carolina</i>
Murray River turtle	<i>Emydura macquarii</i>
Red-eared slider turtle (and related sub-species)	<i>Trachemys scripta elegans</i> , <i>T. s. scripta</i> , <i>T. s. troostii</i>
Snake-necked turtle	<i>Chelodina longicollis</i>

Management regime – Wetlands site-led programme

Objective	Over the duration of the plan, the impacts of the pests listed in table 14 and 15 in wetland sites of high ecological value, or high value to the community or occupiers, are minimised.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.5.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of the site-led pest species in table 14 and 15 to establish the extent of any infestations and to identify any remedial action that needs to be undertaken to protect the values of wetlands identified by the criteria outlined in table 13.</p> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake control of the pests listed in table 14 and 15 as it considers appropriate, in accordance with sections 5.3 of the Plan.</p> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of pest plants in table 14 and 15 to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>
Monitoring and anticipated outcomes	Monitoring for the presence of site-led pests will be undertaken in accordance with section 7 of the Plan to provide support to occupiers, communities and stakeholders in minimising adverse effects of these pests on the values of identified wetland sites.

Rules

WET-1

No person shall propagate, release, or spread any of the species listed in table 14 and table 15 within wetlands in the Waikato region.

WET-2

All persons shall inform Waikato Regional Council of the presence of any of the species listed in table 15 within a wetland, within 5 working days of the presence first being suspected.

Good Neighbour Rule WET-3

Occupiers shall destroy the pests listed in table 14 within 20 metres of the boundary of a wetland within the Waikato region where the wetland is clear of those pest plants, or the occupier of the wetland is taking reasonable measures to manage those pests to protect the environmental values of the wetland.

Note:

1. A breach of any of these rules will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of the WET rules

The purpose of the rules WET-1, WET-2 and GNR WET-3 is to:

- protect the values of wetlands within the Waikato region
- specify circumstances in which pests may be communicated, released or otherwise spread
- regulate activities that may affect measures taken to implement the Plan and to protect investment into wetland restoration.

Rules WET-1, WET-2 and GNR WET-3 are in accordance with sections 73(5)(e) and (g) of the Biosecurity Act 1993 and will ensure that the above objective and protection of environmental, cultural, social and amenity/recreation values of key places are met.

6.5.4 Site-led pest programme – Project Yellow

Management programme

Exclusion	Eradication	Progressive containment	Sustained control	Site-led
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Impacts

Economic	Biodiversity	Soil resources	Water quantity/quality
Human health	Social and cultural wellbeing	Amenity/recreation	Animal welfare

Description of Project Yellow

The Central North Island Desert Road tussock-lands, between Rangipo in the north and Waiouru in the south, contain unique landscapes and ecosystems that are highly valued. The integrity of this fragile ecosystem is being threatened by the increase and spread of invasive exotic plants, in particular broom, gorse and tree lupin (refer table 16). If these pest plants are allowed to spread through the Desert Road tussock-lands, they will permanently modify this landscape.

To combat the spread of these pest plants, the Desert Road Invasive Legume Control Project (Project Yellow) was set up in 2014. The eight organisations involved in the project are: Department of Conservation, New Zealand Defence Force, Lake Rotoaira Forest Trust, Genesis Energy, Waikato Regional Council, Waka Kotahi NZ Transport Agency, Transpower and Horizons Regional Council. They have agreed to work collaboratively to manage pest plants over the 23,000 hectares shown in figure 5 (next page).

Adverse effects

The nitrogen fixing plants listed in table 16 (over the page) can change the fertility of the naturally nutrient poor soils in the tussock-lands of the Central North Island, encouraging other introduced plants and grasses that compound the problem. Broom also produces chemicals that prevent native seedlings establishing and forms dense thickets able to shade out all other regenerating plants. The soil seed banks of broom, gorse and tree lupin are long lived (10+ years), creating ongoing pest plant issues once they become established.^{97 98 99}



Gorse
Photo: Trevor James



Broom
Photo: Jeremy Rolfe



Tree lupin
Photo: John Ragla
Licence: Creative Commons

97 <https://dcon01mstr0c21wprod.azurewebsites.net/globalassets/documents/science-and-technical/sfc097.pdf>

98 Survival of *Ulex europaeus* seeds in the soil at three sites in New Zealand: *New Zealand Journal of Botany*: Vol 39, No 2 (tandfonline.com)

99 *Lupinus arboreus* (tree lupin) regeneration from the seed bank following herbicide control, Kaitorete Spit, New Zealand | Request PDF (researchgate.net)

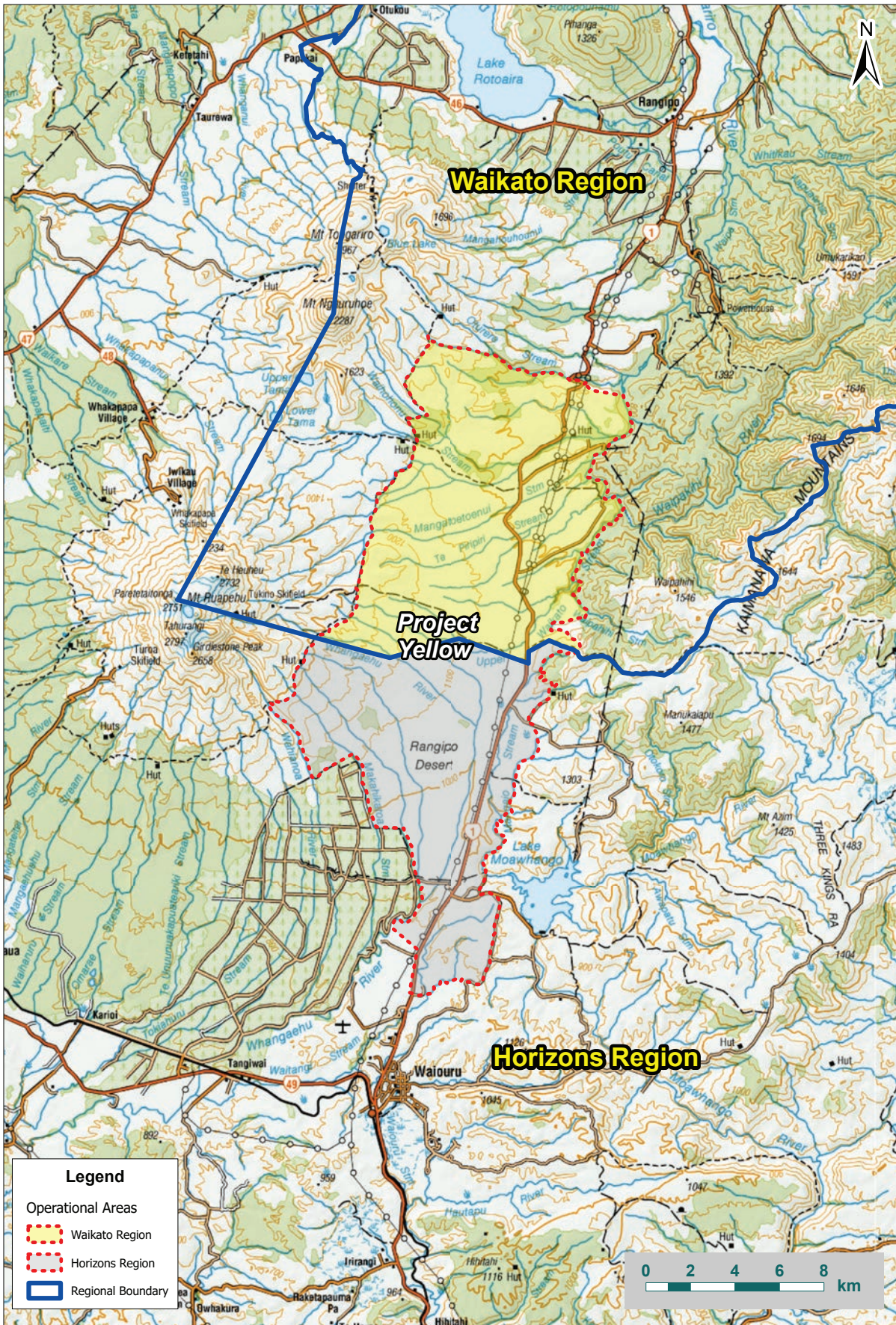


Figure 5: Map of Project Yellow site-led area

Table 16: Pests to be managed within the Project Yellow site-led pest programme

Pest (common name)	Scientific name	
		GNR
Broom	<i>Cytisus scoparius</i>	✓
Gorse	<i>Ulex europaeus</i>	✓
Tree lupin/yellow bush lupin	<i>Lupinus arboreus</i>	✓

Management regime – Project Yellow site-led programme

Objective	Over the duration of the Plan, control of the pest plants listed in table 16 will be undertaken so that the environmental, social, cultural, amenity and recreational values of the Central North Island Desert Road tussock-lands are protected from the impacts of these pests.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3 and 6.5.1 for further detail).</p> <p>Inspection and monitoring</p> <p>Upon a valid complaint, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of the pest plants in table 16 to establish the extent of any infestations and to identify any remedial action that needs to be undertaken to protect the values within that part of the Project Yellow site-led area within the Waikato region.</p> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may, in accordance with section 5.3 of the Plan, as appropriate:</p> <ul style="list-style-type: none"> • undertake control of broom, gorse and/or tree lupin within or bounding the Project Yellow site-led area <ul style="list-style-type: none"> - note: where fiscal or other external constraints to achieving success prevent this, Waikato Regional Council will work on highest priority sites first. <p>Advocacy and education</p> <p>Waikato Regional Council will provide support for the Desert Road Invasive Legume Control Project through regular attendance at group meetings, sharing data, planning for Desert Road pest plant control, and providing input to annual reviews of the project.</p>
Monitoring and anticipated outcomes	Monitoring for the presence of site-led pests will be undertaken in accordance with section 7 of the Plan to provide support to occupiers, communities, and stakeholders in minimising adverse effects of the pests listed in table 16 on the values of the Project Yellow area within the Waikato region.

Rules

Good Neighbour Rule YELLOW-1

Occupiers within the Project Yellow site-led area (refer figure 5) shall destroy broom, gorse and tree/yellow lupin within 20 metres of an adjoining property boundary where the occupier of the adjoining land is taking reasonable measures to manage those species within 20 metres of their boundary.

Note:

1. A breach of this rule will create an offence under section 154N(19) of the Act.
2. Enforcement will be in accordance with section 9 of the Plan.

Explanation of purpose of this rule

The purpose of rule GNR YELLOW-1 is to:

- protect the values of that part of the Central North Island Desert Road tussock-lands within the Project Yellow site-led area in the Waikato region.

Rule GNR YELLOW-1 is in accordance with sections 73(5)(e) and (g) of the Biosecurity Act 1993 and will ensure that the above objective and protection of environmental, social, cultural, recreational and amenity values of key places are met.

6.5.5 Adding future sites to the RPMP

Additional sites may be included in the site-led pest programme over the duration of the Plan. These additional sites could be the result of a request being made by the community to the council biosecurity team, or through Waikato Regional Council prioritisation processes. For a site to be considered for inclusion it must meet the following.

1. Have significant value at a community, district, regional or national scale.
2. Have strong volunteer and/or community support for the programme, including from occupiers who are willing to provide access to private property.
3. Show that the proposed pest management at the site will result in environmental, social and/or cultural benefits, or will protect economic values.
4. Meet the requirements of the Biosecurity Act and the National Policy Direction for Pest Management 2015.
5. Have agreement with Waikato Regional Council about:
 - which pests will be managed at the site
 - how the programme will be delivered
 - the nature and level of support needed from Waikato Regional Council.
6. Be resourced for a minimum of 5 years.

Where an additional site is proposed by an individual or community group, Waikato Regional Council may assist in identifying which pests should be targeted, defining appropriate outcomes and management regimes, delineating owner and/or occupier responsibilities and formulating funding arrangements.

Once an additional site is identified and confirmed, the process for adding it to the RPMP will depend on the effect any management activities (i.e. RPMP rules for the site) have on affected parties. If the effects are not significant, the RPMP may be amended by council resolution to include the site, for example, where minimal regulation is required or there is substantial support among the parties affected for its inclusion. In other cases, the addition will need to follow a more comprehensive process, including appropriate consultation, notification and appeal provisions as required under the Biosecurity Act.

6.6 Rules relating to management of pest plants when undertaking subdivision and land development

When undertaking subdivision and land development, the following rules apply to those pest plants listed in the **exclusion, eradication and progressive containment plant pest programmes**. These rules **are in addition** to any rules listed in those programmes and have been grouped here for easy reference.

6.6.1 Pest plant threats associated with subdivision and land development

There are a number of pest plants that can easily establish or spread when vegetation is cleared, or soil is disturbed during subdivision and land development. Their spread can also occur via the movement of vehicles and equipment during these activities. This is particularly problematic when land is subdivided and pest plants are then spread to multiple properties, as the control and management of these plants then becomes more difficult and costly.

To control pest plants in these situations, Waikato Regional Council has previously:

- invoked section 130 (restricted places) of the Biosecurity Act
- sprayed infested sites
- enforced weed hygiene procedures (such as vehicle washing) at infested sites, and/or
- required contaminated material to be either buried onsite or disposed of at a registered landfill.

Although these measures have resulted in good control at all known sites, serious pest plants are still being spread to new sites during land subdivision and development activities.

Alligator weed is one such pest plant. It is the most expensive and difficult to control pest plant within the Waikato region due to its ability to invade a range of terrestrial and wetland sites. When growing on land, it displaces other more favourable plants such as crops or native vegetation and can be harmful to animals. When growing in fresh water, alligator weed can cover the entire water surface, reducing or preventing flow, blocking drainage channels and potentially increasing flood damage. When it forms dense mats, it can also reduce oxygen exchange, affecting in-stream plant and animal life and reducing water quality.

Although there are large infestations of alligator weed at Te Rore, Lake Whangape and along the Waikato River to the delta, these are being successfully managed with herbicides. However, due to rapid land development and urbanisation, it is becoming increasingly difficult to manage the terrestrial infestations that have been discovered in Hamilton, Cambridge, Te Kopu and Kihikihi.

Given that there is continued spread of high-risk pests, such as alligator weed, despite the council's control and management efforts, more comprehensive weed hygiene measures are required in the industry. Mainstreaming weed hygiene measures across the entire building and construction industry is problematic and needs to be done in conjunction with the industry. Therefore, a targeted approach to the development and implementation of appropriate weed hygiene measures is considered to be more appropriate.

Given the significant economic and environmental risks associated with the spread of pest plants like alligator weed within the Waikato region, and the limited success that education and advocacy is having, it is clear that more needs to be done to manage exclusion, eradication and containment pest plants during the subdivision and land development processes. The following rules outline the measures required.

Management regime – subdivision and land development

Objective	The objectives for each pest plant listed in the exclusion, eradication and progressive containment programmes apply.
Principal measures to achieve objective	<p>Requirement to act</p> <p>All persons will comply with all statutory obligations and the rules specified in this section of the Plan (see sections 3.3.1, 5.3, 6.1.1, 6.2.1 and 6.3.1 for further detail).</p> <p>Inspection and monitoring</p> <p>When undertaking land development or subdivision, authorised person(s) on behalf of Waikato Regional Council will inspect and monitor properties with suspected or confirmed infestations of pest plants in the exclusion, eradication and progressive containment programmes to establish the extent of any infestations and to identify any remedial action that needs to be undertaken.</p> <p>Waikato Regional Council will undertake site inspections as necessary to determine compliance with these rules.</p> <p>Service delivery</p> <p>Authorised person(s) on behalf of Waikato Regional Council may undertake control of those pest plants subject to land development and subdivision rules in accordance with their respective management regimes as outlined in the exclusion, eradication, and progressive containment programmes.</p> <p>Advocacy and education</p> <p>Waikato Regional Council will provide advice and information on the identification, impacts, and control of pest plants in the exclusion, eradication and progressive containment programmes, with regards to land development and subdivision, to affected occupiers and other interested parties in accordance with section 5.3 of the Plan.</p>

Rules

The following rules apply to the development and subdivision of any land within the Waikato region that has infestations of plants declared as pests under the exclusion, eradication, and progressive containment programmes.

SUBD-1

If a pest plant listed in either the exclusion, eradication or progressive containment programmes is present on a property within the Waikato region that is to be subdivided or developed, the person undertaking the subdivision or development activity must, at least 30 working days prior to the commencement of the activity, prepare and submit a Biosecurity Management Plan to Waikato Regional Council for approval. The Biosecurity Management Plan shall include and address (but may not necessarily be limited to) the following matters:

- I) A description of the soil disturbance, vegetation removal and land development activities proposed on the site, including a timetable for these activities and any rehabilitation/revegetation works proposed on the site.
- II) A site plan of a suitable scale to identify the locations of:
 - exclusion, eradication and containment pest plants on the site
 - waterways
 - all key pest management facilities/sites (such as wash down areas and green waste disposal sites)
 - any other relevant site information.
- III) Details of procedures that will be implemented to manage pest plants on the site and prevent their spread (such as pest plant control programmes, restrictions on material exported, vehicle decontamination procedures, and short and long-term treatment of bare ground). This should also include maintenance, monitoring and reporting.
- IV) Response and contingency measures, including procedures to minimise adverse effects in the event that eradication and/or containment pest plants are spread on or off site as a result of the works.
- V) Procedures and timing for review and/or amendment to the Biosecurity Management Plan.
- VI) Identification of specific person(s) responsible for the implementation, operation and maintenance of the weed mitigation and management practices outlined in the Biosecurity Management Plan.

SUBD-2

All Biosecurity Management Plans prepared under Rule SUBD-1 shall be certified in writing by Waikato Regional Council acting in a technical certification capacity, prior to any subdivision or development works commencing.

SUBD-3

Any changes proposed to a Biosecurity Management Plan prepared under Rule SUBD-1 shall be confirmed in writing by Waikato Regional Council acting in technical certification capacity, prior to the implementation of any of those proposed changes.

SUBD-4

The person undertaking the subdivision or development activity shall ensure that a copy of the approved Biosecurity Management Plan, including any approved amendments, is kept onsite and the onsite copy of the Biosecurity Management Plan is updated within five working days of any amendments being approved.

SUBD-5

At least five working days before commencement of any subdivision or development works, the person undertaking the works shall inform Waikato Regional Council of the name and contact details of an appointed representative(s) who shall be Waikato Regional Council's principal contact person for matters relating to the works.

SUBD-6

In the event the appointed person identified in Rule SUBD-5 changes during the period of the works, the person undertaking the subdivision or development works shall immediately inform Waikato Regional Council of the change and give written notice of the new representative's name and contact details.

SUBD-7

The person undertaking the subdivision or development works shall inform Waikato Regional Council of the commencement of the works covered by the Biosecurity Management Plan in writing at least five working days in advance to allow a pre-work site inspection to be carried out by Waikato Regional Council.

SUBD-8

There shall be no transfer of earthen material or green waste from an infested site to an uninfested site, other than to an approved landfill facility.

Note:

2. Contact can be made with the Waikato Regional Council biosecurity team for assistance or advice on pest plant identification prior to undertaking any land development or subdivision.
3. A breach of any of these rules will create an offence under section 154N(19) of the Act.
4. Enforcement will be in accordance with section 9 of the Plan.
5. Should land with any one of the identified pest plants subject to this programme be subdivided or developed, the council has the ability to recover costs for the inspection, monitoring and service delivery in accordance with section 135 of the Biosecurity Act 1993.
6. The occupier shall be responsible for all contracted operations related to the works carried out on the site and must ensure contractors are made aware of the content of the Biosecurity Management Plan and ensure compliance with the commitments given in the Biosecurity Management Plan.

Explanation of purpose of the rules

The reasons for rules SUBD-1 to SUBD-8 are to ensure pest plants are not spread between and from properties during land development and subdivision, and that infestations of pest plants on properties subject to these activities can be appropriately managed. This is to ensure threats to environmental, economic, and cultural values are minimised. Rules SBD-1 to SUBD-8 are in accordance with sections 73(5)(a), (b), (f), (h), (i), (m) and (q) of the Biosecurity Act.

7. Monitoring Te aroturuki

7.1 Measuring what the objectives are achieving

Each programme contains one or more objective. Progress against these objectives will provide the key measures of success of RPMP implementation. Each year, progress against each of the programme objective(s) will be outlined and reported as part of the annual operational plan report. The way each programme is monitored depends on the biological nature of the organism, the nature of infestations and the site(s) at which they occur, and the cost effectiveness of the method of monitoring relative to the programme cost. A summary of the programme monitoring methods is outlined in table 17.

Table 17: Summary of monitoring methods

Anticipated result	Indicator	Method of monitoring	Frequency of monitoring	Reporting to council
Exclusion programmes				
No exclusion programme pests established within the region. Adverse effects to production, environmental, social/amenity values are avoided.	Presence/absence of any exclusion programme pests in the Waikato region	Reporting by occupiers or other persons	As reported	Annually and as required
		Surveillance programmes	Annual surveillance programme	Annually and as required
Eradication programmes				
All known sites and any new sites identified are controlled to zero density by 2032. Adverse effects to production, environmental, social/amenity values are eliminated.	Presence/absence, distribution, and extent of the subject pests in the Waikato region	Reporting by occupiers or other persons	As reported	Annually and as required
		Surveillance programmes	Annual surveillance programme	Annually and as required
		Population assessment based on inspections	Annual/as appropriate inspection programme	Annually and as required
Progressive containment programmes				
Over the duration of the plan: <ul style="list-style-type: none"> reduction in extent and/or density of these pests in the region pests do not establish in new areas in the region, or specific parts of the region. 	Presence/absence, distribution and extent of the subject pests across the region, or within the specified progressive containment areas	Reporting by occupiers or other persons	As reported	Annually and as required
		Surveillance programmes	Annual surveillance programme	Annually and as required
		Assessment of population density through the presence/absence of a pest as a result of inspection activities	Annual/as appropriate inspection	Annually and as required

Anticipated result

Indicator

Method of monitoring

Frequency of monitoring

Reporting to council

Sustained control programmes

<p><i>Pest plants</i> Adverse effects caused by pest plants in the sustained control programme on economic, environmental, and social/cultural values are avoided or minimised within the Waikato region. Transport corridors and quarries are actively managed to reduce the risk of spread of pest plants.</p>	<p>Output and outcome based, and pest trend monitoring of plants in the sustained control programmes Number of properties requiring Good Neighbour Rule enforcement Complaints/enquiries received</p>	Surveillance programmes	Annual surveillance programme	Annually and as required
		Assessment of population density through the presence/absence of a pest via inspection activities	Annual/as appropriate via inspection	Annually and as required
		Compliance reporting by occupiers or adjoining occupiers	As reported	Annually and as required
<p><i>Common brushtail possum</i> Adverse effects caused by possums on economic and environmental values are avoided or minimised within priority possum control areas (PPCA).</p>	<p>Output and outcome based, and pest trend monitoring of possums Number of properties requiring Good Neighbour Rule enforcement Complaints/enquiries received</p>	<p>Residual Trap Catch index (RTCI) is measured within PPCA pre and post control operations Compliance reporting by occupiers or adjoining occupiers</p>	As appropriate	Annually and as required
<p><i>Feral rabbit</i> Feral rabbits on affected properties are maintained at level 4 or below on the Modified McLean Rabbit Infestation Scale. Adverse effects caused by feral rabbits on environmental, production, cultural and amenity values are avoided or minimised on affected properties.</p>	<p>Regional rabbit monitoring trend data Complaints/enquiries received</p>	Population assessment via inspections using the Modified McLean Rabbit Scale	As appropriate	Annually and as required
		Complaints/enquiries received	As reported	Annually and as required
<p><i>Common and German wasp, magpie</i> Adverse effects caused by common and German wasps and magpies on amenity, recreation, human health, and social and cultural values are avoided or minimised on affected properties.</p>	Complaints/enquiries received	Number of enforcement actions undertaken	As reported/appropriate	Annually and as required

Anticipated result	Indicator	Method of monitoring	Frequency of monitoring	Reporting to council
Site-led programmes				
Support community and stakeholders in minimising adverse effects of these pests on identified sites.	Number of sites under a site-led programme Output and outcome based, and pest trend monitoring of sites Number of persons or groups receiving advice and/or education in relation to site-led pest management Complaints/enquiries received	Site-led programme areas are digitally mapped Community group and stakeholder reporting	Annually	Annually and as required
Subdivision and land development rules (applying across exclusion, eradication and progressive containment programmes) ¹⁰⁰				
Pest plant infestations are not exacerbated by subdivision and land development activities. That subdivision and land development activities do not compromise the objectives set for pest plants included in the exclusion, eradication, and progressive containment programmes.	Biosecurity Management Plans are being prepared and adhered to for properties subject to subdivision/land development with specified pest plants present	Reporting by occupiers or other persons	As reported	Annually and as required
		Surveillance programmes	Annual surveillance programme	Annually and as required
		Population assessment based on inspections	Annual/as appropriate inspection programme	Annually and as required
	Complaints/enquiries received	Number of enforcement actions undertaken	As reported/appropriate	Annually and as required

¹⁰⁰ Auckland Council will be responsible for monitoring the site-led pest programme for the Hūnua Ranges Pest Management Area in accordance with their operational plan.

7.2 Monitoring the management agency's performance

Waikato Regional Council is the management agency for implementing the Plan (except for in relation to the Hūnua Ranges Pest Management Area). As such, Waikato Regional Council will:

- prepare an operational plan within three months of the Plan being approved
- review the operational plan each year, and amend it if needed
- report on the operational plan each year, within five months after the end of each financial year
- maintain up-to-date databases of complaints, pest levels and densities, and responses from the regional council and occupiers.

7.3 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 a review. A review may be needed if:

- the Biosecurity Act is changed, and a review is needed to ensure that the Plan is not inconsistent with the Act
- other harmful organisms create, or have the potential to create, problems that can be resolved by including those organisms in the Plan
- monitoring shows the problems from pests or other organisms to be controlled (as covered by the Plan) have changed significantly, or
- circumstances change so significantly that Waikato 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 section 100D of the Biosecurity 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 Waikato Regional Council:

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

7.4 Plan review

Waikato Regional Council may review the Plan or any part of it if the council believes that the plan is failing to achieve its objectives or that circumstances have changed sufficiently since the plan or part of the plan commenced. If the Plan has been in force for 10 years or more, without a review, then Waikato Regional Council must review the Plan. A review may also become necessary if Waikato Regional Council or the Environment Court considers the plan is inconsistent with any requirements of an operative national policy direction.

A council can make minor amendments to the Plan without needing a review. Any minor amendment:

- i. must not significantly affect any person's rights and obligations, and
- ii. must not be inconsistent with a national policy direction.

A review may result in no change to the Plan or may extend its duration.

