Pests of the Bay of Plenty

A user guide to the Bay of Plenty Regional Pest Management Plan 2011 – 2016

BAY OF PLENTY REGIONAL COUNCIL
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Contents

Introduction

Pests… like it or not, they're a fact of life, and often they can affect our everyday living environment.

The Bay of Plenty Regional Council is responsible for managing the control of pest plants and pest animals in our region. Landowners and occupiers, the community and other agencies also have responsibilities.

The Bay of Plenty Regional Pest Management Plan 2011 – 2016 sets out a practical and efficient approach to managing pests over that time period. This Plan was developed after extensive community consultation.

This Guide gives you an overview of the Plan. It also provides photographs of many of the pests so that you can identify them. Once you have identified them, you can take control by following the advice on special pest plant or pest animal fact sheets we have prepared.

We encourage you to use this Guide and our fact sheets – they are available free online at www.boprc.govt.nz or from any Bay of Plenty Regional Council office.

If you wish to study the full Plan, you can view it online at www.boprc.govt.nz or contact us to get your copy.

If there's anything in this Guide which you'd like to know more about, please phone 0800 884 880 and ask to speak to a Biosecurity or Land Management Officer.

What the Regional Pest Management Plan is all about

Pests are organisms such as plants and animals that are not native to New Zealand but which have become established here and create problems. Pest species can threaten our health, indigenous plants and animals, our heritage and our economy.

The Regional Pest Management Plan:

- Sets out what Regional Council is trying to achieve in managing pest plants and pest animals;
- Identifies a set of key outcomes to be achieved, and some high-level objectives and rules needed to get there;
- Identifies the primary pest management roles and responsibilities for Regional Council as well as for landowners and occupiers across the region;
- Sets out the legal context for regional pest management (principally the Biosecurity Act 1993) and the relationships between Bay of Plenty Regional Council and other agencies;
- Provides pest management categories (hierarchies) for pest plants and pest animals; and
- Ensures pest risks are responded to consistently.

Why have a Plan?

The Plan sets out how pests in the Bay of Plenty region will be efficiently and effectively assessed, managed and/or eradicated, by:

- Minimising the risk of the introduction or dispersal of new pest species;
- Controlling the dispersal of any established pests;
- Controlling pest densities and/or range (including eradication);
- Minimising the adverse effects of pests and pest management on the environment;
- Undertaking pest operations in an integrated manner; and
- Facilitating the integration of regional pest management with adjoining regional strategies/plans and national controls.

What the Plan aims to achieve

The Plan outlines what Bay of Plenty Regional Council expects to achieve:

- Our people, economy and ecosystems are protected from harmful pests;
- No new pests are established in the region (this is an aspirational outcome; ensuring no new pests become established is inherently hard to achieve);
- Identified pest impacts are excluded, reduced or contained; and
- Our regional communities are experienced and effective pest managers.

What is being done to implement the plan

Bay of Plenty Regional Council is the management agency for the Plan. The Plan assigns roles and responsibilities to the Council, landowners, occupiers (including other agencies) and the community. The roles in any given situation depend on how a particular pest is classified, regional priorities and resourcing.

In summary, the primary responsibility for managing pests rests with landowners and occupiers. The Crown has a lead role in managing pests of national interest. Successful delivery of the Plan also relies on the actions of the general community.

Bay of Plenty Regional Council exercises a variety of roles in pest management, including a leadership role in promoting, influencing, motivating, enforcing, educating and informing those involved in pest management across the region.

Regional Council obligations and responsibilities

Bay of Plenty Regional Council's key roles are to:

- Provide advice and support to landowners and occupiers on the effective control and management of pests;
- Lead the control and eradication of exclusion/eradication pests;
- Enforce compliance with the Plan or the Biosecurity Act 1993;
- Identify pests and promote aligned activities between regions; and
- Develop and administer systems for implementing the rules, funding mechanisms and monitoring of the Plan.

Pest categories

Different pests in the region warrant different levels of action. To help manage pests, they are grouped into four categories. These are:

- Agency pests
- Exclusion and eradication pests
- Containment pests
- Restricted pests

Detailed explanations of these categories are included in Appendix 1 at the back of this booklet.

The following is a brief overview of obligations and responsibilities by category.

Agency pests

These are pests of national significance that are managed by or subject to programmes co-ordinated by the Crown. They pose significant threats to the New Zealand environment, economy and way of life.

Land owners and occupiers, and other agencies, must adhere to regional rules and the requirements of the Biosecurity Act 1993.

If you see one of these pests, contact Ministry for Primary Industries or Bay of Plenty Regional Council immediately.

Bay of Plenty Regional Council supports Government with co-funding, joint decision-making, or in-kind support. The Regional Council may provide expert advice, monitoring and surveillance, or assist with publicity and education, as well as enforcing rules and statutory obligations.

Exclusion and Eradication pests

These are pests we want to prevent from entering the region, or eradicate from the region.

Land owners and occupiers, and other agencies, are bound by regional rules and requirements of the Biosecurity Act 1993.

Bay of Plenty Regional Council leads the control of these pests if found, with an aim to eradicate them. Council also monitors and surveys for pests and enforces rules and laws.

Containment pests

These are pests that we want to minimise the effects of and prevent their further spread.

Land owners and occupiers and agencies are responsible for controlling these pests, and are bound by rules and statutory obligations and laws.

Regional Council's main role is to enforce rules and statutory obligations, in the first instance by encouraging voluntary compliance and community initiatives. Council will assist by providing advice on how to control and dispose of containment pests. Council also assists by coordinating and supporting approved programmes (such as a Biodiversity Programme, Care Group or Community Control Programme).

Restricted pests

These are pests we want to reduce the further spread of and will support community and occupier efforts to control in places where they are a problem.

Land owners and occupiers and agencies are responsible for managing and controlling these pests.

Where they are a problem the Regional Council will support community and land owner and occupier efforts to control. Otherwise Council's primary role is to prevent their spread by enforcing rules and laws.

National Pest Plant Accord

The Ministry for Primary Industries is responsible for coordinating, developing and managing the National Pest Plant Accord. The Accord is a list of approximately 150 plants that have been declared unwanted organisms, which regional councils have agreed to monitor to prevent their sale, propagation or distribution. This work is undertaken to prevent breaches of section 52 and 53 of the Biosecurity Act 1993.

Some species included in this Plan are also listed on the Accord. These species have been identified in the rules of this Plan, as well as in the Appendix 2 list of Plan species.

The full list of species on the Accord is available on the Ministry for Primary Industries website www.mpi.govt.nz. Bay of Plenty Regional Council undertakes regular surveillance for these plant species.

Species managed in the Regional Pest Management Plan

	PEST PLANTS	PEST ANIMALS
AGENCY PESTS	Cape tulip Didymo Hydrilla Johnson grass Manchurian wild rice Phragmites Pyp grass Phytophthora taxon agathis (PTA) Salvinia Water hyacinth White bryony	Rainbow lorikeet Feral sika deer
ERADICATION/ EXCLUSION PESTS	Alligator weed Horse nettle Kudzu vine Marshwort Nassella tussock Noogoora bur Purple loosestrife Senegal tea Spartina Water poppy White edged nightshade	Brown bullhead catfish Koi carp Perch Rooks
CONTAINMENT PESTS	African feather grass Apple of Sodom Asiatic knotweed Blackberry Boneseed Chilean rhubarb Climbing spindleberry Coast tea tree Darwin's barberry Egeria densa Gorse Green goddess lily Hornwort Italian buckthorn Lagarosiphon Lantana Lodgepole pine Old man's beard Ragwort (defined areas) Royal fern Variegated thistle Wild ginger – yellow and kahili Wild kiwifruit Woolly nightshade Yellow flag iris	Feral goats Rudd Tench Wallabies

RESTRICTED PESTS

PEST PLANTS

Agapanthus
Aluminium plant
Arum lily
Banana passionfruit
Blue morning glory
Bushy asparagus
Californian bulrush
Cathedral bells
Cestrum species (four)
Chilean flame creeper
Chinese fan palm
Climbing asparagus
Climbing dock
Coastal banksia
Crack willow
Elaeagnus
Elephant's ear
Elodea canadensis
English ivy
Firethorn
German ivy
Grey willow
Heather
Himalayan balsam
Houttuynia
Japanese honeysuckle
Japanese spindle tree
Japanese walnut
Jasmine
Lilium formosanum
Mexican feather grass
Mexican waterlily
Mignonette vine
Mile-a-minute
Mistflower
Monkey apple
Moth plant
Pampas
Parrot's feather
Periwinkle
Plectranthus
Prickly pear cactus
Privet
Purple nutsedge
Rum Cherry
Saltwater paspalum
Selaginella
Shield pennywort
Smilax
Snow poppy
Strawberry dogwood
Sydney golden wattle
Taiwan cherry
Thistle species (other than variegated thistle)
Tradescantia
Tree of heaven
Tuber ladder fern
Velvet groundsel
Wilding conifers
Wonder Tree

PEST ANIMALS

Argentine and Darwin ants
Eastern rosella
Feral cats
Ferrets
Gambusia
Hedgehog
Magpies
Possums
Rainbow skinks
Rats (Ship and Norway)
Stoats
Wasps
(common wasp, German wasp, Asian paper wasp, Australian paper wasp)
Weasels
Wild mice
Wild rabbits

Pests identified in the Plan by category

Agency Pest Plants

Cape tulip *Moraea flaccida*

A perennial herb with strap-like leaves often 60 cm long. Salmon-pink, funnel-shaped flowers 4 cm long by 5 cm diameter, in clusters of two to four. Corms are 1-2.5 cm in diameter. A very poisonous plant.

Risk areas: Pasture, forestry, open areas, roadsides.

Didymo *Didymosphenia geminata*

A microscopic pest that can attach itself to stream, river and lake beds by stalks, and can form a thick brown layer that smothers rocks, submerged plants and other materials. It forms flowing 'rat's tails' that can turn white at their ends and look similar to tissue paper. As the 'tails' of the alga get longer they become white in colour.

Risk areas: Rivers, streams and rocky lake margins.

Hydrilla *Hydrilla verticillata*

A submerged, rooted annual or perennial aquatic plant which grows to water depths of up to 9 m. Hydrilla stems vary in length from a few centimetres to several metres and are either creeping or erect. The leaves occur in opposite pairs, or typically in whorls of four. Leaves are generally green, but often have small reddish-brown spots and stripes. The midrib is distinct and the margins are strongly serrate, with fine translucent teeth that are visible to the naked eye.

Risk areas: Lakes, rivers, and streams.

Johnson grass *Sorghum halepense*

A vigorous perennial (resembling forage sorghum) to 2.5 m tall. Leaf blade to 90 cm long and up to 5 cm wide with prominent cream mid-rib. Rhizomes are stout and fleshy, 5-10 mm in diameter, rooted at the nodes. Seed heads are large, open panicles with red-purple seeds.

Risk areas: Cropping land, open areas, roadsides.

Manchurian wild rice *Zizania latifolia*

A tall rhizome-producing perennial grass that grows up to 3m tall with erect, dull-grey-green leaves (2-3 cm wide) up to 2.5 m long. The leaves have a stout midrib and taper to a point. From November to December a purplish or red-brown flower head (40-60 cm long) is produced.

Risk areas: Riparian margins.

Phragmites *Phragmites australis*

A perennial grass that grows up to 3 m tall on water margins. It has bamboo-like stems which carry long, wide, flat leaves that taper to a point. It has large, fluffy, purplish-brown flower heads, and seed grain which is covered in silky hairs. It is similar to giant reed (Arundo donax), but phragmites is smaller and the stems are narrower in proportion to the leaves.

Risk areas: Riparian margins.

Phytophthora taxon agathis (PTA)

A micro organism that is soil-borne and disease-causing, spread by soil and soil-water movement, through underground root-to-root contact, or human and animal vectors, causing kauri die-back.

Kauri dieback is also known as collar rot, which refers to the bleeding lesions at the bottom of the tree trunk.

Risk areas: Kauri.

Pyp grass *Ehrharta villosa*

A perennial grass growing from long, creeping rhizomes. The jointed stems are robust and usually around 90 cm tall, although they can be up to 150-200 cm tall. Leaves are bluish-green and short in proportion to the stems, about 1.5-13 cm long. The leaves may be absent. The inflorescence is a panicle up to 25 cm long, narrow and rather lax.

Risk areas: Sand dunes and agricultural areas.

Salvinia *Salvinia molesta*

An aquatic fern forming dense floating mats. Leaves 2-5 cm long by 2 cm wide, light or brownish green with a velvety appearance.

Risk areas: Drains, ponds, wetlands and slow-moving streams.

Water hyacinth *Eichhornia crassipes*

A free-floating aquatic plant with long, purple, feathery roots. Leaves are bright green, smooth and thick to 8 cm wide with a bladder-like base. Spikes of purple flowers to 7 cm in diameter.

Risk areas: Drains, ponds, wetlands and slow-moving streams.

White bryony *Bryonia cretica subsp. dioica*

A soft green cucumber like vine that climbs up to 6m by means of its curled tendrils. It produces clusters of small cream white flowers in spring/summer, with male and female flowers on separate plants. On female plants these are followed by 8 mm berries, in bunches of three to eight that ripen to light red from January to April. The shoots die back in autumn to a persistent perennial tuber.

Risk areas: Hedges, native forest, scrub, paddocks and exotic plantations.

Agency Pest Animals

Feral sika deer *Cervus nippon*

In the wild, Sika deer are largely located within a single near-contiguous population in the central North Island high country. They are sometimes held on game estates/ safari parks outside their gazetted range with formal permission from Department of Conservation. Sika deer pose very high threat to conservation values and are difficult to control. Under the Wild Animal Control Act, 1977, anyone who illegally releases wild deer may be fined up to $50,000.

Rainbow lorikeet *Trichoglossus haematodus*

A distinctive multi-coloured parrot, about 30 cm in length, with a blue head and belly, green back, red beak and an orange / red breast. It has a distinctive screeching call. Note: Do not confuse with the eastern rosella which has a red head and yellow belly. Rainbow lorikeets compete with native birds (especially tui and bellbirds) for food sources and nesting sites. They also damage fruit crops, and can carry avian diseases which may threaten the health of native bird species.

Eradication/Exclusion Pest Plants

Alligator weed *Alternanthera philoxeroides*

An aquatic perennial which can also grow in pastures and crops. It has long, creeping, hollow, green or red tinged stems and waxy green leaves. The flowers are white and clover-like.

Risk areas: Moist banks, swampy places, damp pasture, cropping land, drains, ponds, lakes, rivers, streams.

Horse nettle *Solanum carolinense*

A perennial with conspicuous spines on leaves and stems. Stems become woody with age. Flowers occur in clusters and are star-shaped with five white to violet petals and a yellow center. The fruit is a green berry when immature turning yellow and wrinkled with maturity.

Risk areas: Pasture, roadsides, forest margins, amenity areas.

Kudzu vine *Pueraria montana var. lobata*

A high-climbing vine with large tuberous roots. Compound leaves 15-20 cm long with three individual leaflets up to 7-10 cm long. Hanging clusters of pea-like, purple to red flowers.

Risk areas: Roadsides, forest margins, native bush.

Marshwort *Nymphoides geminata*

A bottom-rooted, aquatic perennial with long, branched stems and heart-shaped leaves up to 8 cm across. Flowers are bright yellow with a fringe around the petals.

Risk areas: Still waters of swamps, ponds and lakes to fast-flowing, freshwater streams.

Nassella tussock *Nassella trichotoma*

A densely-tussocky perennial grass with fine, tightly-rolled leaves which are rough to the touch. The flower head is an open-branched loose panicle of purple spikelets.

Risk area: Grazing land.

Noogoora bur *Xanthium strumarium*

An annual herb, single stemmed or bushy up to 2 m high, with maple-like leaves. It forms clusters of burs at leaf nodes that can stick to animal fur and clothing.

Risk areas: Maize paddocks, pasture.

Purple loosestrife *Lythrum salicaria*

An erect, perennial herb that grows to 2 m tall, occasionally to 3 m. It forms dense bushy stands. The stems, pink towards the base and covered in downy hairs, die back in winter. The leaves are usually opposite, lance-shaped with a heart-shaped base. Purple flowers in summer with five to seven petals.

Risk areas: Wetlands, pasture, stream and river banks.

Senegal tea *Gymnocoronis spilanthoides*

A semi-aquatic herb up to 1.5 m tall. Leaves are shiny, dark green with serrated edges. Mature stems are six-sided and hollow between the nodes. Flowers are white, 15-22 mm in diameter.

Risk areas: Wet marshy soils, water margins, drains.

Spartina *Spartina spp.*

A robust, erect, rhizomatous grass up to 1 m tall with an extensive root system. Leaf blade up to 60 cm long and 15 mm wide.

Risk areas: Saline wetlands, coastal drains, estuaries.

Water poppy *Hydrocleys nymphoides*

An aquatic perennial with long, creeping stems. The leaves are thick and shiny, 7 cm long and 6 cm wide, with an inflated, buoyant mid-rib. Flowers are pale yellow and poppy-shaped.

Risk areas: Ponds, streams, farm dams and lake margins.

White edged nightshade *Solanum marginatum*

A spiny shrub up to 5 m tall, distinguished by its white felted branches. Leaves have white undersides and upper sides with a frosted margin. Flowers are white or purplish. Fruit is a large yellow berry.

Risk areas: Pasture, roadsides, coastal areas.

Eradication/Exclusion Pest Animals

Brown bullhead catfish *Ameiurus nebulosus*

Brown bullhead catfish, or catfish as they are commonly known, were introduced into New Zealand (Auckland area) in 1877. They can grow up to 50 cm long, although they are more commonly observed around 10-35 cm. Catfish feed on invertebrates until they reach a greater size when they will feed on koura and fish.

Koi carp *Cyprinus carpio*

Koi carp are an ornamental strain of the European carp. Their colour is highly varied, with irregular blotching of orange, red, black, gold or pearly white. They commonly grow to over 5 kg and over 600 mm long, and are distinguishable from other fish by two pairs of barbells (feelers) at the base of the mouth.

Perch *Perca fluviatilis*

Perch are deep-bodied fish with two large, erect dorsal fins - the first having up to 17 sharp spines. They have an olive-green back with tiger stripes running down to a silver/white belly. Their rear fins and the lower half of their tails are orange-red. They are carnivorous, eating insect larvae and other fish. Perch are usually found in slow or still water environments and weighing between 1-2 kg.

Rooks *Corvus frugilegus*

Rooks were introduced between 1862 and 1873. Some releases failed but others, such as in Hawkes Bay, flourished. Their plumage is glossy black with a slightly purple tint. On their forehead and throat area is a greyish/white piece of scaly skin, which extends from the base of the bill to the nostrils. Adult birds grow to 50 cm long and weigh between 400-500 g. They have a distinct, harsh 'kaah' or 'caw' call.

Containment Pest Plants

African feather grass *Pennisetum macrourum*

A robust, strongly rhizomatous, clump-forming, perennial grass. The flower heads are a bristly spike 10-30 cm long, 1-2 cm in diameter, and are coloured straw yellow to purplish.

Risk areas: Swamps, stream banks, sand dunes, roadsides, waste places, pasture.

Apple of Sodom *Solanum linnaeanum*

A strongly-spined shrub up to 2 m tall. Leaves are lobed, dark green and downy on the underside. Flowers are mauve or violet. Fruit is a mottled green and white berry that turns yellow when mature, and can be up to 3 cm in diameter.

Risk areas: Grazing land, coastal areas.

Asiatic knotweed *Fallopia japonica*

A thicket-forming, multi-stemmed, rhizomatous herb growing to 2 m or more. Stems are woody at the base, hollow, reddish in colour and zig-zag shaped. Leaves are oval and up to 23 cm long. Flowers are white in densely hairy panicles, up to 6 cm long.

Risk areas: Roadsides, river banks and forest margins.

Blackberry *Rubus fruticosus agg.*

A tall, scrambling shrub with arching stems and hooked prickles 3-12 mm long. Leaves are palmately compound and have three to seven leaflets. Flowers are white or pink, 2-3 cm in diameter. The fruit is a berry, red at first and purple-black when ripe.

Risk areas: Pasture, exotic forests, open areas, roadsides, sand dunes, stream banks.

Boneseed *Chrysanthemoides monilifera*

A bushy, much-branched shrub, up to 2 m or more tall. The leaves are smooth on the upper surface, and young leaves are covered in white, cotton-like down. They are leathery, oval to elliptic, and up to 7 cm long. Flowers are bright yellow. Fruit are round green drupes, very hard, with a thin, fleshy covering, turning black when ripe.

Risk areas: Coastal areas, cliffs, forest margins, wasteland.

Chilean rhubarb *Gunnera tinctoria*

A large perennial herb with simple, large leaves emerging from a rhizome. Leaf blades are 1-2 m long, thick, round, lobed, irregularly toothed and covered with stiff prickles. The inflorescence is a spike of 50-75 cm, up to 10 cm in diameter, bearing very small flowers.

Risk areas: Coastal areas, wetlands, stream and river banks.

Climbing spindleberry *Celastrus orbiculatus*

A vigorous, deciduous, twining climber. Leaves are elliptic and 5-10 cm long. Flowers are pale green, 4-10 mm in diameter. The fruit is a yellow-orange capsule, 6-8 mm in diameter.

Risk areas: Forest margins, disturbed native bush and roadsides.

Coast tea tree *Leptospermum laevigatum*

Strongly pleasant-smelling shrub or small tree, up to 4 m tall, similar to the native manuka, but with larger leaves (17-30 mm long) and a seven to ten-celled seed capsule.

Risk areas: Coastal areas.

Darwin's barberry *Berberis darwinii*

A spiny shrub, 1-3 m tall. Branchlets are reddish-brown with slender spines 3-7 mm long. The leaves are small, thick and rigid with five-pronged, needle-sharp spines. The flowers are bright orange and the fruit a dark purple berry 6-8 mm in diameter.

Risk areas: Forest and bush margins, pasture, wasteland.

Egeria *Egeria densa*

A bottom-rooted,vigorous aquatic perennial. One of the oxygen weeds, denser and broader than Elodea and Lagarosiphon, with distinctive white flowers produced at the water surface in summer.

Risk areas: Still waters of swamps, ponds and lakes.

Gorse *Ulex europaeus*

A very spiny and densely-branched shrub that grows up to 3m tall. True leaves are on seedlings only, changing to narrow, deeply-furrowed, rigid spines 15-30 mm long. Flowers are bright yellow and pea-like. The fruit is a densely-hairy, black pod 10-25 mm long.

Risk areas: Pasture, exotic forests, roadsides, coastal areas, urban amenity areas.

Green Goddess lily

Zantedeschia aethiopica cv. Green-Goddess

A robust, evergreen, clump-forming perennial up to 1.5 m tall. Large, dull green, arrow-shaped leaves with fleshy stems grow to 50 cm long and 25 cm wide. Flowers are large, white-green, funnel-shaped, with yellow centres that form yellow berries.

Risk areas: Wetlands, pasture, damp areas, reserves.

Hornwort *Ceratophyllum demersum*

A submerged freshwater weed. The narrow, bright green leaves are finely divided. Modified leaves anchor the plant in bottom sediments up to 16 m deep.

Risk area: Ponds, marshes and quiet streams.

Italian Buckthorn *Rhamnus alaternus*

Evergreen shrub up to 5 m. Young shoots are purplish, angled and hairy. Leaves (up to 6 cm long and 3 cm wide) are egg-shaped, leathery, glossy on top and may be toothed along the edges. Flowers (May to November) are green, 3-4 mm in diameter, fragrant and have no petals. Fruit is dark red and glossy, turning black.

Risk areas: Coastal areas, cliffs, forest margins, open areas, all types of forest, gardens.

Lagarosiphon *Lagarosiphon major*

Wholly submerged, vigorous freshwater perennial up to 4 m tall, growing to depths of 6 m. One of the oxygen weeds.

Risk areas: Clear, still or slow-moving, low fertility freshwater ponds, lakes, streams and rivers.

Lantana *Lantana camara*

A much-branched, scrambling shrub 2-3 m tall, with scattered recurved prickles on the stems. Leaves are ovate, 5-8 cm long, serrated and usually covered in rough hairs. Flower colours range from pink, yellow to orange and red.

Risk areas: Low and disturbed forest, open areas, coastal areas, forest margins, pasture, exotic forests.

Lodgepole pine *Pinus contorta*

A small-to medium-sized tree with straight or contorted branches. Twigs are green in the first year, becoming orange and brown with age. Leaves are in pairs, 2.5-7 cm long, rigid and dark green. Cones are yellowish brown, 2-6 cm long and 2-3 cm wide, narrowly oval and shining.

Risk areas: Indigenous and introduced scrub, tussock grassland, pasture, open forest.

Old man's beard *Clematis vitalba*

A large, climbing vine up to 30 m high, with stems becoming woody and reaching 6 cm in diameter. Leaves are pinnately compound with five oval leaflets. Flowers are greenish-white and fragrant and the seed heads are grey fluffy balls. Flowers December to May.

Risk areas: Rock areas, all types of forest, forest margins, open areas, home gardens, orchards.

Ragwort *Senecio jacobaea*

A robust biennial or perennial herb with characteristic unpleasant smell when bruised. Flower stems are up to 1.2 m tall. Flowers are bright yellow, 2 cm across, occurring in flat-topped clusters. Leaves are dark green and pinnately lobed. Plant stems are purplish, erect, ridged and densely woolly towards the top.

Risk areas: Pasture, riverbeds, open forest, swamps, wasteland, amenity areas.

Royal fern *Osmunda regalis*

A deciduous fern with rhizomes, and a short woody trunk. Fronds are up to 3 m long and 75 cm wide. Yellow-green, tough and leathery, they are feather-like and sub-divided twice.

Risk areas: Wetlands, swamps, stream sides and damp, bare land, especially peaty soils.

Variegated thistle *Silybum marianum*

An erect biennial thistle up to 2.5 m tall. The glossy, rosette leaves are variegated with distinctive white blotches and veins and can grow up to 60 cm long. The large, purple flowers are surrounded by many sharp spines.

Risk areas: Pastures, roadsides, amenity wasteland.

Wild ginger (kahili) *Hedychium gardnerianum*

A large herb with tuberous rhizomes and erect, leafy stems 1-3m in height. Leaves are elliptic-oblong, 20-40 cm long and about 15 cm wide. The very fragrant, yellow flowers are borne in a spike 20-35 cm long.

Risk areas: Forest, forest margins, open areas, swampy areas, home gardens, amenity areas.

Wild ginger (yellow) *Hedychium flavescens*

A large herb with tuberous rhizomes and erect, leafy stems 1-3 m in height. Similar to Kahili ginger, with off-white to yellow flowers in a shorter cone-like inflorescence with the bracts strongly overlapping.

Risk areas: Forest, forest margins, open areas, swampy areas, home gardens, amenity areas.

Wild kiwifruit *Actinidia spp.*

A deciduous, vigorous, woody vine. Creamy white flowers. Each fruit usually contains about 300 seeds.

Risk areas: Native bush, exotic forests.

Woolly nightshade *Solanum mauritianum*

A spreading shrub or small tree to 10 m tall with a trunk up to 30 cm in diameter. Leaves, up to 40 cm long and 20 cm wide, are light to dark green, and white to yellowish-green underneath. Leaves and new growth are covered in hairs. Flowers are mauve to purple. Fruit is dull yellow when ripe.

Risk areas: Roadsides, pasture, gardens, forest margins, amenity areas.

Yellow flag iris *Iris pseudacorus*

A branched, perennial herb with a strong, rhizome root system and slightly compressed stems 60-150 cm tall. The leaves are 50-90 cm long, 10-30 mm wide and have a conspicuous mid-rib. The large, yellow flowers are 7-10 cm in diameter.

Risk areas: Along streams, rivers, drains, swampy ground, ponds.

Containment Pest Animals

Feral goats *Capra hircus*

Goats were introduced in the 19th century as a food source for castaways. The goat's coat is generally short-haired with variable amounts of under-fur. The main colours are white, black, brown or a combination of these. Goats vary between the sexes in weight, between 35-45 kg, with the males being the larger. Male ("billy") goats stand approximately 700 mm at the shoulder, compared to about 600 mm for the female ("nanny").

Rudd *Scardinius erythrophthalmus*

Rudd are a type of carp native to Europe, Asia and Russia. They were illegally imported to New Zealand in 1967. They appear similar to goldfish, with no barbels around their mouths. However, unlike goldfish, their dorsal fins are missing stout spines on the front edge. They are also similar to perch but have darker backs than bellies and their fins are usually a bright red-orange. They grow to about 250 mm long.

Tench *Tinca tinca*

Native to Europe, Tench were first introduced to New Zealand in 1867. They are dark to light olive green-coloured fish whose bright orange eyes are their most distinctive feature. They have a single small barbel at each corner of the mouth and can grow to weigh 2 kg or more. They are covered in small scales and have thick fins. Generally found in still or slow-flowing waters, tench feed on insect larvae, crustaceans and molluscs.

Wallaby (Dama) *Macropus eugenii*

Wallabies were introduced to New Zealand, to Kawau Island, around 1870. Dama wallabies, one of the smallest species, were liberated in the Rotorua district about 1912. They are grey/brown with a paler grey under-belly. Mature animals have a patch of reddish/brown colouring at the shoulder. Body size ranges from 640-1000 mm including the tail. Fully grown they weigh between 5.5-7 kg.

Restricted Pest Plants

Agapanthus *Agapanthus praecox*

An attractive blue or white flowered lily with long, strap-shaped perennial leaves.

Risk areas: Roadsides, drains, sand dunes and cliff faces.

Aluminium plant *Lamium galeobdolon 'Variegatum'*

An erect, stoloniferous, mat-forming, invasive perennial herb, up to 50 cm tall. Mint like leaves with silvery-grey patches on the upper surface. Flowers yellow, in dense axillary whorls from December to May.

Risk areas: Shady places in shrub, plantations and modified forests.

Arum lily *Zantedeschia aethiopica*

Robust, evergreen, clump-forming perennial up to 1 m tall, with large green, arrow-shaped leaves and distinctive large white funnel-shaped flowers.

Risk area: Swampy pasture and damp wasteland.

Banana passionfruit

Passiflora tarmiana and P. tripartita

Vigorous, scrambling, smothering vines, climbing up to 10 m, assisted by numerous tendrils. Leaves are three-lobed, up to 14 cm long. Flowers are pink, up to 7 cm in diameter. The fruit is green, turning yellow when ripe.

Risk areas: Forest, forest margins, horticultural areas, shelter belts.

Blue morning glory *Ipomoea indica*

A twining or prostrate herb with stems to 6 m long. Leaves are deeply three-lobed, up to 18 cm long, 16 cm wide and silky-hairy underneath. Flowers are bright blue or purplish with a paler centre, trumpet-shaped and 10 cm in diameter.

Risk areas: Forest areas, gardens, roadsides, reserves and amenity areas.

Bushy asparagus *Asparagus densiflorus*

A dense scrambler with small, pink flowers, red berries and sharp, spiny scales. Tuberous roots.

Risk areas: Coastal areas, sand dunes.

Californian bulrush *Schoenoplectus californicus*

A tall riparian sedge, growing up to 4 m in height with nut-like seeds hanging in clusters at the stem tip. Stem is triangular.

Risk area: Riparian margins.

Cathedral bells *Cobaea scandens*

A fast-growing, evergreen climber with strong tendrils. Leaflets are in three pairs, each leaflet oval, 2-4 cm long. Flowers are bell-shaped and deep purple. The fruit is a capsule 5.5-8.5 cm long.

Risk areas: All types of forest, forest margins, open areas.

Cestrum species (four) *Cestrum spp.*

An upright, thicket-forming shrub that grows to 3 m tall. Leaves are simple, entire and strong smelling when crushed. Flowers are tubular, orange, crimson or greenish-white. The fruit is a glossy berry, white, crimson or purplish-black.

Risk areas: Pasture, gullies, forest margins, open areas, roadsides, wasteland.

Chilean flame creeper *Tropaeolum speciosum*

A climbing perennial vine with an extensive root system and slender stems, climbing by its coiling leaf stalks. Leaves are five-fingered and die off in winter. Masses of attractive bright scarlet flowers hanging in clusters are produced from October to June.

Risk area: Waste places, forest margins and coastal cliffs.

Chinese fan palm *Trachycarpus fortunei*

A dioecious, evergreen palm, up to 15 m tall, with large distinctive, fan-shaped leaves. Yellow male flowers and green female flowers are produced on separate plants on large, branched and drooping spikes, followed by kidney-shaped green (immature) to blue-black (mature) fruit.

Risk area: Urban areas, wasteland.

Climbing asparagus *Asparagus scandens*

A slender, scrambling or climbing perennial with green stems which twine readily, much branched and up to 2 m long. Leaves are narrow, lance-shaped, 5-15 mm long. Flowers are white or pale pink, 3-4 mm long. The fruit is a red berry.

Risk areas: All types of forest, forest margins, open areas, coastal areas.

Climbing dock *Rumex sagittatus*

A climbing or scrambling perennial with shoots up to 3 m long. Small green, pink or reddish flowers are produced in late spring or summer, followed by yellow or reddish fruits.

Risk area: Cultivated land, waste places, grassland and roadsides.

Coastal banksia *Banksia integrifolia*

Large shrub or small tree up to 15 m high, with upright, cone-shaped greenish-yellow inflorescences (flower clusters) that give rise to hard wooden cones.

Risk area: Coastal areas.

Crack willow *Salix fragilis*

A tree up to 25 m high. Lance-shaped leaves are shining on the upper surface and hairless underneath. Branches spreading; shoots snap with an audible crack when broken. Only male catkins are present.

Risk area: Wetlands, swampy pasture and damp wasteland.

Elaeagnus *Elaeagnus x reflexa*

Dense, spiny, vigorous, scrambling shrub up to 16 m in supporting trees. Small whitish flowers are produced in clusters on brown scaly stalks from March to May, followed by pale reddish-orange oblong fruit.

Risk area: Forest and riparian margins, wasteland.

Elephant's ear *Alocasia brisbanensis*

Large, robust perennial herb under 3 m tall. Large, shiny green, leathery, arrow-shaped leaves to 75 cm long on stalks to 1.5 m high. Leaves contain a milky sap. Fragrant, creamy-yellow to orange flowers (January - April) on a green spike (bract), with glossy scarlet or orange berries. Stems are trunk-like on mature plants, have leaf scars and often have lower part of trunk lying along ground.

Risk area: Grassy, frost-free waste areas.

Elodea canadensis

Wholly submerged, dark green, aquatic perennial. One of the oxygen weeds, often forming tall dense masses in freshwater to 10 m deep.

Risk area: Ponds, lakes, drains and slow mowing streams.

English Ivy *Hedera helix*

Perennial climber with woody stout stems that become erect at flowering, attaching to whatever is supporting it with aerial rootlets. The hairless dark green or variegated ivory-white leaves are variably shaped. Tiny, insignificant yellowish-green flowers are produced from March to May, followed by purple to black berries containing seeds with low viability.

Risk area: Swampy pasture and damp wasteland.

Firethorn *Pyracantha angustifolia*

Evergreen, spiny, spreading shrub up to 3 m, with dense, rigid, spreading stems that are grey and hairy when young, and shiny reddish brown when older, and usually tipped with a spine. Dark green, oval to egg-shaped leaves. Many small white flowers in dense clusters appear from December to January followed by glossy orange berries from April to August.

Risk area: Disturbed forest and shrubland, short tussockland, bare land, and occasionally coastal sites.

Formosan lily *Lilium formosanum*

Attractive, perennial lily that grows to 1 m tall and dies back each autumn. It has several large white trumpet shaped flowers at the top of a single stem growing from a bulb. The leaves are long and thin.

Risk area: Roadsides, walking treks and sand dunes.

German Ivy *Delairea odorata*

Scrambling perennial up to 3 m or more tall, with ivy-like leaves. Small, yellow, composite, rayless flowers are produced in winter.

Risk area: Waste places, scrubland, coastal areas and forest margins.

Grey willow *Salix cinerea*

A shrub or small tree up to 7 m high. Catkins appear in spring, before the leaves. Leaves are shiny on the upper surface, covered with soft grey hairs underneath.

Risk area: Wetlands, swampy areas, drains, riverbanks and wet areas behind coastal dunes.

Heather *Calluna vulgaris*

A perennial woody shrub to 50 cm tall. Leaves, 1.5-3.5 mm long, grow in four vertical rows on the branches. The mauve-pink flowers are bell-shaped, 2-4 mm long, and arranged along a narrow raceme.

Risk areas: Tussock grassland, roadsides, open areas, wasteland, forestry areas.

Himalayan balsam *Impatiens glandulifera*

An annual herb with erect, fleshy, hollow, purple to reddish tinged thick main stem up to 2.5 m tall. The stem is swollen at the junctions of leaves and branches. Pink, white or purple flowers with a backwards pointing hood are produced from November to March. Seed capsules open when disturbed to explosively release shiny black seeds.

Risk area: River edges, riparian areas, gullies, wetlands, forest margins, roadsides and ditches.

Houttuynia *Houttuynia cordata*

A deciduous, creeping, perennial groundcover, which can grow to 70 cm tall. Leaves are heart-shaped and are multi-coloured yellow, green, bronze and scarlet. The flowers in summer are small, white and have four petals surrounding a central spike.

Risk areas: Moist loamy soils, wetlands, native bush, gardens.

Japanese honeysuckle *Lonicera japonica*

An evergreen, woody, clockwise twining, vigorous climber that can smother all vegetation beneath. The oval leaves are in opposite pairs. Pairs of two-lipped, sweetly scented tubular white flowers occur from September to May, and are followed by egg-shaped, glossy black berries.

Risk area: Roadsides, wasteland, plantation forest, hedges, shelterbelts.

Japanese spindle tree
Euonymus japonicus

Much branched shrub or small tree up to 7 m tall with round or slightly four-ribbed twigs. The leaves are glossy, ovalish, and finely toothed, in opposite pairs along stems. Sold as variegated cultivar but reverts to green. Inconspicuous flowers are produced from December to March, followed by small pink berry and orange seed.

Risk area: Disturbed bush and shrubland, coastal areas, forest margins, and cliffs.

Japanese walnut *Juglans ailantifolia*

A wide-spreading, strongly-suckering, deciduous tree up to 15 m with pinnately compound leaves growing to 60 cm long. These have 9-17 leaflets that grow to 18 cm long and 8 cm wide. Produces male catkins to 15 cm long, and red female catkins on erect spikes. The nut is sharply beaked, 2.5-4 mm long.

Risk areas: Stream banks, low and disturbed forests, amenity areas, wetlands.

Jasmine *Jasminum polyanthum*

An evergreen, rampant, climbing, perennial vine. Leaves are opposite, pinnate and usually have seven, long-stalked spear or egg-shaped leaflets. Flowers (January to December) are very fragrant, white and pink when in bud. Stems are very tough and rooting occurs at the nodes.

Risk areas: Low and disturbed forest, forest margins, open areas, amenity areas, gardens.

Mexican feather grass *Nassella tenuissima*

Also known as Finestem needlegrass. This clump-forming grass grows to 1 m tall, and has hair-like leaves and slender, wiry stems, resembling a dense, green fountain. Leaf blades are up to 60 cm long and 0.3 mm wide. It has a many-branched, silvery inflorescence in summer, which becomes light straw-coloured by autumn. These grow 15-25 cm long.

Risk areas: Pasture, open areas.

Mexican waterlilly *Nymphaea mexicana*

An aquatic plant with vertical underwater rhizomes and round heart-shaped leaves (up to 25 cm diameter) that float on long stalks. As the leaves mature they develop brown blotches on the upper surface and become mainly purple beneath. Fleshy stolons bear banana-shaped tubers. Flowers are star-shaped and pale-yellow with many veined petals.

Risk area: Ponds, lakes and waterways.

Mignonette vine *Anredera cordifolia*

Also known as Madeira vine. An evergreen climber growing from a fleshy rhizome. Leaves are bright green, fleshy, heart-shaped and shiny. White, fragrant flowers from March to May. It grows 2-4 cm long tubers on aerial stems that detach easily.

Risk areas: Low and disturbed forest, forest margins, open areas, amenity areas, gardens, orchards.

Mile-a-minute *Dipogon lignosus*

A vigorous scrambler/climber. Leaves are three roughly heart-shaped leaflets, each 2.5-5.5 cm long. Flowers are pea-like, coloured white to pink, lavender and white or reddish purple. The pods contain three to five seeds.

Risk areas: Coastal areas, forest margins, open areas, gardens, roadsides, scrublands.

Mistflower *Ageratina riparia*

A perennial herb up to 60 cm tall. Leaves have long petioles, are opposite and simple, lanceolate to elliptic. They are toothed at the margins of the upper half. Small white and cream flower heads grow in clusters at the end of branches.

Risk areas: Stream banks, sand dunes, forest margins, wasteland, wetlands.

Monkey apple *Syzygium smithii*

An evergreen tree, 6-15 m high, when grown in parks and gardens, with fragrant white flowers in late spring, followed by clusters of white to purple fruits. The leaves release an aromatic fragrance when crushed.

Risk area: Forest areas, waste land.

Moth plant *Araujia hortorum*

A rapid-growing, vigorous, perennial climber to 5 m tall. Broken parts ooze a sticky, milky latex. White, fragrant, bell-shaped flowers develop into large, smooth, pear-shaped pods which contain many fluffy-headed, wind-borne, black seeds.

Risk areas: Hedges, trees, roadsides, stony banks, cliffs, waste places.

Pampas *Cortaderia selloana, C. jubata*

A large, clump-forming tussock grass with sharp, drooping leaf blades up to 2 m long. Feathery flowers, creamy white to violet, on erect stalks, from February to May. Dead leaves curl into spirals at the base of the clump. Not to be confused with native toetoe.

Risk areas: Roadsides, river banks, waste areas, pine forest, disturbed ground.

Parrot's feather *Myriophyllum aquaticum*

This perennial, freshwater plant forms dense sprawling mats in still or slow-flowing water. It has light green or reddish stems that grow up to 4 m long. Fibrous roots are produced at each node. Foliage is blue-green, with leaves arranged in whorls of five or six. These are divided into many feathery leaflets. Flowers are small and inconspicuous.

Risk areas: Ponds, dams, ditches, drains, streams.

Periwinkle *Vinca major*

Prostrate scrambling, hairless, evergreen perennial up to 50 cm tall, often forming extensive dense ground-cover. The flowers, on short uprising stems, are large and with five deep blue petals. The pointed oval leaves are arranged in pairs.

Risk area: Banks, shaded places, gardens and waste places.

Plectranthus *Plectranthus ciliatus*

A long trailing groundcover. The upper side of the leaves are green with purple veins. The underside is purple. Stems are covered in purple hairs. Masses of white and purple flowers appear from December to August.

Risk area: Forest margins, plantations and hedges.

Prickly pear cactus *Opuntia monacantha*

A cactus growing up to 5 m tall with a definite trunk and many narrowly egg-shaped, flattened, succulent branches, 10-35 cm long. Leaves are minute and deciduous. Flowers are yellow with an orange to red median stripe, followed by reddish purple oblong fruit. The plant spreads by stem fragments.

Risk area: Coastal areas and cliffs.

Privet - Chinese privet *Ligustrum sinense*

Evergreen shrub up to 5 m tall. Leaves are dull green on the upper surface and are 3-7 cm long and 1-3 cm wide. Flowers from July to March. Black berries follow flowering.

Risk areas: All types of forest, forest margins, gardens, parks, wasteland, pasture, orchards.

Privet - Tree privet *Ligustrum lucidum*

Fast-growing, evergreen tree up to 10 m tall. Leaves are oval-shaped, glossy on the upper surface, and are 5-13 cm long and 3-6 cm wide. New wood has spotty appearance. Flowers from November to March. White flowers form bluish-purplish-black, berry-like drupes.

Risk areas: All types of forest, forest margins, gardens, parks, wasteland, pasture, orchards.

Purple nutsedge *Cyperus rotundus*

Also known as Nutgrass. A perennial sedge with an unjointed solid stem that is triangular in cross-section. Bright green leaves, 20-50 cm tall, taper to a point. Plant has brown-purple seed heads and rhizomatous roots with numerous 2-3 cm long tubers (nuts) along its length.

Risk areas: Cropping land, fertile moist soils, lawns, gardens.

Rum Cherry *Prunus serotina*

A deciduous tree growing to 15-30 m tall. Leaves are 6-14 cm long, with a serrated margin. The flowers are small (10-15 mm diameter), with five white petals and about 20 stamens, and are fragrant. Flowers occur in racemes (arranged singularly along an axis); there are around 40 flowers on each raceme. The fruit is green to red at first, ripening black.

Risk area: Roadsides, shelterbelts and waste areas.

Saltwater paspalum *Paspalum vaginatum*

A semi-aquatic, saline-tolerant perennial grass with long-creeping stolons. The leaf blade (3-8 cm long and 1-2 mm wide) has a leathery texture and grey-green colouring. The ligule is scarcely tapered and shortly bluntly pointed, with a collar with small tufts of hairs. Panicles of two erect spreading spikes.

Risk area: Estuarine margins.

Selaginella *Selaginella kraussiana*

A fern ally, forming extensive dense carpets in damp shaded sites, with small cones producing spores. Leaves are small and occur in four rows on the stem.

Risk area: Forest floor, stream banks, gardens, nurseries.

Shield pennywort *Hydrocotyle verticillata*

A small bottom rooting aquatic herb with umbrella-like floating leaves up to 5 cm in diameter.

Risk area: Riparian areas and slow moving streams.

Smilax *Asparagus asparagoides*

A scrambling or twining perennial that grows up to 3 m tall in supporting shrubs or hedges. The 'leaves' are actually green, flattened leaf-like branches that resemble leaves. Flowers are small, greenish-white, followed by red berries.

Risk area: Coastal slopes, roadside banks, hedges and forest margins.

Snow poppy *Eomecon chionantha*

A rhizomatous perennial that grows to about 50 cm tall. Leaves have scalloped edges, and produce a yellow sap when cut. In spring it produces white, simple flowers with yellow anthers and stigmas. Very vigorous and has a dense, matted root system.

Risk areas: Gardens, native bush areas, forest floors.

Strawberry dogwood

Cornus capitata (synonym - Dendrobenthamia capitata)

A small evergreen tree up to 6 m high with plentiful, pale-yellow flowerheads and a large spherical fruit.

Risk area: Waste places, scrubland, gardens and forests.

Sydney golden wattle *Acacia longifolia*

A shrub or small tree up to 4 m tall, without thorns, and with a vivid display of bright yellow flowers in winter. The long, narrow, tough 'leaves' are actually modified leafstalks functioning as leaf blades.

Risk area: Roadsides, waste land and coastal areas.

Taiwan cherry *Prunus campanulata*

Deciduous, small, spreading tree, 3-8 m tall, with deep pink to magenta bell-shaped flowers from late winter to early spring. Seed is distributed by birds.

Risk area: Parks, reserves, gardens, plantations, roadsides, waste areas and shelterbelts.

Thistle species other than variegated thistle

A group of flowering plants characterised by leaves with sharp prickles on the margins. Prickles often occur all over the plant, on surfaces of the stem and flat parts of leaves. Flowers are generally pinkish purple.

Risk area: Agricultural land, clearings and waste areas.

Tradescantia *Tradescanthia fluminensis*

Commonly known as wandering Jew or wandering Willie. An aggressive groundcover with dark, shiny, smooth leaves. Produces white triangular flowers with three petals in spring. The succulent trailing stems root easily at every node.

Risk area: Forest floor, stream banks, gardens, parks and reserves.

Tree of heaven *Ailanthus altissima*

An erect, deciduous tree, usually 3-4 m tall but can grow to 20 m. Roots sucker freely, forming clumps of stems. Leaves grow only on new wood, with up to 20 pairs of opposite leaflets on a stem. Flowers are white or greenish in terminal clusters. Seed is wind-borne.

Risk areas: Reserve areas, roadsides, wasteland.

Tuber ladder fern *Nephrolepis cordifolia*

A perennial fern with upright ladder-like fronds, and small potato-like tubers and stolons.

Risk area: Forest margins, gardens and waste land.

Velvet groundsel *Roldana petasitis*

An erect, bushy, perennial shrub, up to 2.5 m tall, with large round, velvety leaves up to 20 cm across, and showy bunches of yellow daisy-like flowers.

Risk area: Reserves, roadsides, gardens, clearings and forest margins.

Pinus radiata

Wilding conifers (excluding Lodgepole pine)

Pinus spp.

Wilding pines of several introduced species have become widespread in many areas and often threaten native vegetation. They seed prolifically and grow faster than most native species and can eventually dominate regenerating native forest.

Risk area: Native forests, clearings and high country.

Wonder Tree *Idesia polycarpa*

A deciduous tree up to 12 m tall with ornamental heart-shaped leaves and yellow-green flowers, followed by hanging clusters of fleshy orange-red berries. Flowers are dioecious; individual flowers are either male or female on separate trees, therefore both male and female plants must be present to produce berries.

Risk area: Roadsides, waste land and coastal areas.

Restricted Pest Animals

Argentine ants *Linepithema humile*

Argentine ants were first found in Auckland at the Mount Smart site of the Commonwealth Games in 1990. They are very small, approximately 2-3 mm long, and it is easier to tell them from other ants by their colour and their trails. Light to dark honey-brown, they move in trails up to five or more ants wide and travel up trees and buildings. Argentine ants have now moved to various parts of New Zealand.

Darwin's ants *Doleromyrma darwiniana*

Native to Australia, Darwin's ants are thought to have arrived in New Zealand during the 1970s. Darwin's ants are now established at many sea port locations including Mount Maunganui. They are 2 mm long, with dark brown heads and light brown bodies and legs. They are similar to Argentine ants, but Darwin's ants produce a foul odour when crushed. They can be found in cities and urban areas where they enter homes in search of sweet foods.

Eastern rosella *Platycerus eximius*

These Australian parrots first established in Dunedin around 1910 and later around Auckland in the 1970s. Vividly coloured, with a loud, carrying call and swift, undulating flight, eastern rosellas are larger and much more colourful than native parakeets. They have white cheek patches, a scalloped yellow-green back, pale green rump and yellow and green belly. Average size is around 330 mm.

Feral cats *Felis catus*

Cats were brought to New Zealand by the early European explorers from 1769 onwards, as ships were heavily infested with rats and they were used to help control them. Later, farmers took them from the cities to release them on rabbit-infested farmland which assisted their dispersal into the wild. Adult feral cats range between 2-5 kg and have a head and body length between 440-514 mm.

Ferrets, stoats and weasels

Mustela furo, M. ermine, M. nivalis vulgaris

Ferrets, stoats and weasels are known as “mustelids”. They were introduced between 1879 and 1885 to help combat the huge rabbit problem in New Zealand at that time. Ferrets are the largest of the three species and have a creamy white under-fur, black legs and usually black-tip guard hairs over the body. Body length is between 350-420 mm and they can weigh from 600-1200 g. Stoats and weasels are very similar in colour - brown on top of the body with a white under-belly and brown legs. A stoat has a bushy black tip on its tail - the weasel does not. Stoats vary between 250-290 mm long and weigh between 207-325 g. Weasels have a body length between 180-220 mm and weigh from 57-126 g.

Gambusia *Gambusia affinis*

Gambusia are native to fresh water in the Gulf of Mexico area and are believed to have arrived in New Zealand in the 1930s. They are renowned for their ability to eat vast quantities of mosquito larvae, which has earned them the nickname “mosquito fish”. They are grey fish with rounded tails and a mouth that points upwards. They are quite small, with the males growing up to just 35 mm in length, outsized by the females which grow up to 60 mm. Although small, they are very aggressive and are known to attack native fish species.

Hedgehog *Erinaceus europaeus*

The European hedgehog is a small, brown nocturnal mammal with sharp spines - easily recognisable to most New Zealanders and weighing from 600-1500 g.

Preying on a wide range of insects, snails, lizards, birds’ eggs and chicks, hedgehogs can have a significant impact on wildlife. Hedgehogs may also carry and spread some human and animal diseases. They compete with other animals, such as our native kiwi, for food sources.

Magpies *Gymnorhina tibicen*

Introduced in 1864, the magpie now occupies most parts of the country. There are two species - the black-backed and white-backed magpie. In the Bay of Plenty, the white-backed magpie is the most common. Approximately 420 mm long, they have a black and white plumage, black below and mainly white above, except for a black head and black outer third of tail. Magpies are noted for their aggressive nature towards other birds and people.

Possums *Trichosurus vulpecula*

Possums are widespread throughout most parts of New Zealand. They were first liberated in the forest behind Riverton in 1858 to establish a fur trade similar to that which had existed in Australia since the early 1800s. They have a body length of about 650-930 mm and weigh anywhere between 1.4-6.4 kg. Their colour is mainly a variation of black and grey.

Rainbow skinks *Lampropholis delicata*

Rainbow skinks are small lizards originating from Australia. They were found in New Zealand in the 1960s. They are similar to native skinks but are distinguishable because they have one large scale on the top of their head, as opposed to native skinks which have two.

They are small - about 4 cm long, not including their tails, and are usually brown or grey-brown with an iridescent rainbow or metallic sheen. They are a threat to native biodiversity and compete with native lizards for food and shelter.

Rats (Ship and Norway) *Rattus rattus, R. norvegicus*

The Norway rat and ship rat arrived in New Zealand in the mid to late 18th century. Norway rats seldom weigh over 400 g and have a head and body length of 140-250 mm, depending on locality. They are very good swimmers and can climb, but prefer the ground or basements (as opposed to ship rats which are excellent climbers). Ship rats average between 123-166 g, with a few being over 200 g. Average body length, including the head, is between 148-188 mm, depending on locality.

Wasps (common wasp, German wasp, Asian paper wasp, Australian paper wasp)

Vespula spp., Polistes spp.

The German wasp and Australian paper wasp arrived in New Zealand in the late 1880s, while the common and Asian paper wasps are more recent arrivals. The German wasp is slightly bigger than a honeybee, with a black head and thorax. Its abdomen has yellow and black stripes with black spots. The common wasp is similar, but does not have separate black dots on the abdomen. Australian paper wasps are black and reddish-brown in colour. Asian paper wasps are black and yellow-striped, but smaller than the German and common wasps. Paper wasps fly with their long legs dangling beneath their bodies.

Wild mice *Mus musculus*

Commonly known as the house mouse or “kiore-iti”. Most mice are light brown but they may also be white, grey or black. They are rampant in the New Zealand bush and, because they live close to food sources, are also commonly found in households. They are most active in the evening or at night. Mice may also carry diseases and are a threat to the food sources of native animals; they have also been known to predate on native lizards.

Wild rabbits *Oryctolagus cuniculus*

Rabbits were introduced in the mid to late 1800s. In Otago they rapidly became the number one pest, forcing many farmers off their land. A small to medium-sized herbivore, wild rabbits are usually grey-brown with a white underbelly and white under their tail. The average weight is about 1.5 kg, with the males being slightly larger. They are prolific breeders and can produce 45 to 50 young each year; however the mortality rate in young rabbits is very high (upwards of 80 percent die soon after birth.)

Appendix 1: Pest classification system

This section provides the detailed description for each pest category. The scientific names of pest species are given in Appendix 2.

A: Agency pests

Description	Agency pests are those of national significance that are managed by or subject to programmes co-ordinated by the Crown. These are pests that pose significant threats to the New Zealand environment, economy and way of life.			
Species	Cape tulip[1] Didymo Hydrilla Johnson grass Manchurian wild rice[1] Phragmites[1] Pyp grass[1] Phytophthora taxon agathis (PTA) Salvinia[1] Water hyacinth[1] White bryony Rainbow lorikeet[2] Feral sika deer		*Most of those listed are not currently known to be in the Bay of Plenty. Some are present in limited distribution, including cape tulip, Johnson grass, salvinia, water hyacinth and feral sika deer.*	
Objectives for management	Support national pest management initiatives led by the Crown.			
Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	May undertake co-funding, joint decision making and in-kind support of Crown or other agency coordinated pest management programmes. May provide expert advice, monitoring and surveillance. May assist with publicity and education, as well as enforcing rules and statutory obligations.	Bound by rules and statutory obligations.	The Crown has a lead role in targeting these top priority pests, through preventing them crossing our national border, eradicating populations that are here and preventing their further spread.	Bound by rules and statutory obligations.
Funding	Some surveillance and monitoring.		Most activities are fully funded by the Crown.	

Plan rules	**Section A (1)**: No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating an Agency pest plant or pest animal.
Statutory obligations	**Section A (2):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Agency pest plant or pest animal (see section 52 of the Biosecurity Act 1993). **Section A (3):** No person shall sell, offer for sale, display or propagate any Agency pest plant or pest animal in contravention of section 53 of the Biosecurity Act 1993.
Offences	A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.
Advice	[1] These species are listed in the National Pest Plant Accord. All are unwanted organisms under the Biosecurity Act 1993. [2]The rainbow lorikeet is an unwanted organism under the Biosecurity Act 1993. Birds may still be kept as pets in secure aviaries and cages but it is illegal to release a rainbow lorikeet into the wild.

B1: Exclusion and Eradication pest plant rules

Description	Pests we want to prevent from entering the region, or eradicate from the region. ▪ For those pests not here in the region, we all keep a watch for them and act quickly on any new incursions. ▪ For pests already in the region, this classification applies to those where eradication is considered possible, or the seriousness of their impact means eradication is a priority.
Species	Alligator weed[1] Horse nettle Kudzu vine Marshwort[1] Nassella tussock[1] Noogoora bur Purple loosestrife[1] Senegal tea[1] Spartina Water poppy[1] White edged nightshade[1]

Objectives for management	▪ Immediate control leading to the eradication of new occurrences in the region ▪ Control of pest plants to zero density			
Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Leads control of these pests if they are present, with the purpose of eradicating them. Undertakes monitoring and surveillance activities, as well as enforcing rules and statutory obligations.	Bound by rules and statutory obligations.		Bound by rules and statutory obligations.
Funding	Council funds surveillance, monitoring and control.		The Crown manages the control of spartina on Crown land.	
Plan rules	**Section B (1):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating an Exclusion and Eradication pest plant. **Section B (2):** No person shall move, or allow to be moved, any machinery, vessel, organism, risk goods or other goods that is contaminated with any Exclusion and Eradication pest plant.			
Statutory obligations	**Section B (3):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Exclusion and Eradication pest plant (see section 52 of the Biosecurity Act 1993). **Section B (4):** No person shall sell, offer for sale, display or propagate any Exclusion and Eradication pest plant in contravention of section 53 of the Biosecurity Act 1993.			
Offences	▪ A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. ▪ A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.			
Advice	[1] These species are listed in the National Pest Plant Accord. All are unwanted organisms under the Biosecurity Act 1993. **Section B (2):** The intent of this rule is to ensure that all goods contaminated with any pest listed here, or part of any pest listed here, are thoroughly inspected and cleaned prior to departing a contaminated site to prevent its spread.			

B2: Exclusion and Eradication pest animal rules

Description	Pests we want to prevent from entering the region, or eradicate from the region. ▪ For those pests not here in the region, we all keep a watch for them and act quickly on any new incursions. ▪ For pests already in the region, this classification applies to those where eradication is considered possible, or the seriousness of their impact means eradication is a priority.			
Species	Brown bullhead catfish Koi carp Perch Rooks			
Objectives for management	▪ Immediate control leading to the eradication of new occurrences in the region ▪ Eradicate currently known populations of pest animals.			
Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Leads control of these pests if they are present, with the purpose of eradicating them. Undertakes monitoring and surveillance activities, as well as enforcing rules and statutory obligations.	Bound by rules and statutory obligations.		Bound by rules and statutory obligations.
Funding	Council funds surveillance, monitoring and control.		The Crown takes a lead role in the management of koi carp and brown bullhead catfish.	
Plan rules	**Section C (1):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating an Exclusion and Eradication pest animal. **Section C (2):** Unless directed by an Authorised Person, no person shall: i) Discharge a firearm at any rook or rookery ii) Lay any poison bait that is acceptable to rooks where rooks are known to be present iii) Damage, disturb or interfere in any way with a rookery. **Section C (3):** No person shall move or allow to be moved, any machinery, vessel, organism, risk goods or other goods that is contaminated with any Exclusion and Eradication pest animal.			

Statutory obligations	**Section C (4):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Exclusion and Eradication pest animal (see section 52 of the Biosecurity Act 1993). **Section C (5):** No person shall sell, offer for sale, display or propagate any koi carp, perch or rooks in contravention of section 53 of the Biosecurity Act 1993.
Offences	A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.
Advice	**Section C (2):** This rule is in place because disturbing rooks and rookeries can actually cause them to spread further, and can make professional control more difficult. **Section C (3):** The intent of this rule is to ensure that all goods contaminated with any pest listed here, or part of any pest listed here, are thoroughly inspected and cleaned prior to departing a contaminated site to prevent its spread. **Section C (5):** Brown bullhead catfish are not included in this rule because the possession and sale of brown bullhead catfish is regulated by the Ministry for Primary Industries. For information on fishery controls for brown bullhead catfish see www.mpi.govt.nz/fisheries. Koi carp is listed as a noxious fish under the Freshwater Fisheries Regulations 1983 and perch is listed as a coarse fish under the Conservation Act 1987. Serious penalties and offences are associated with distributing these species in waterways.

C1: Containment pest plants

Description	Pest plants that we want to minimise the effects of and prevent their further spread. ▪ These are pests that have serious impacts and are established in some areas, or throughout the region. ▪ Eradication is considered unlikely or technically impossible at present, but they can be practically and cost-effectively controlled either regionally or within defined sub-regional areas.
Species	African feather grass Apple of Sodom Asiatic knotweed[1] Blackberry[3] Boneseed[1] Chilean rhubarb[1] Climbing spindleberry[1] Coast tea tree Darwin's barberry[1] Egeria densa[1, 4] Gorse[3] Green goddess lily[1] Hornwort[1, 4] Italian buckthorn Lagarosiphon[4] Lantana[1] Lodgepole pine[1] Old man's beard[1] Ragwort[3] Royal fern[1] Variegated thistle Wild ginger – yellow and kahili[1] Wild kiwifruit Woolly nightshade[1, 2] Yellow flag iris[1]
Objectives for management	Reduce distribution and density of known populations.

Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Enforce rules and statutory obligations. Encourage voluntary compliance and community initiatives. Coordinate and support approved programmes as well as provide advice on control and disposal methods.	Lead role in controlling pests. Bound by rules and statutory obligations.		Lead role in controlling pests. Bound by rules and statutory obligations.
Funding	May support funding if control is part of an approved Council programme (an Environmental Programme, Care Group, Community Control Programme).	Individual landowner and occupier funded.		
Plan rules	**Section D (1):** Landowners and occupiers shall destroy woolly nightshade on all land occupied except in the areas defined in Figure 2. **Section D (2):** Landowners and occupiers shall destroy blackberry or gorse within 10 metres of any property boundary, or ragwort within 50m of any property boundary. **Section D (3):** Landowners and occupiers must destroy Egeria densa, lagarosiphon and hornwort in all areas defined in Figure 3. **Section D (4):** Landowners and occupiers shall destroy all Containment pest plants on all land occupied, except those pest species specified in rules (1), (2) or (3) above. **Section D (5):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating any Containment pest plant. **Section D (6):** No person shall move, or allow to be moved, any machinery, vessel, organism, risk goods or other goods that is contaminated with any Containment pest plant.			
Statutory obligations	**Section D (7):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Containment pest plant (see section 52 of the Biosecurity Act 1993). **Section D (8):** No person shall sell, offer for sale, display or propagate any Containment pest plant in contravention of section 53 of the Biosecurity Act 1993.			
Offences	▪ A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. ▪ A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.			

Advice	[1] These species are listed in the National Pest Plant Accord. All are unwanted organisms under the Biosecurity Act 1993. [2] Control of woolly nightshade is required, except in a defined area (Figure 2). Section D (1) rule applies. This exemption area defined for woolly nightshade has been specified and approved by Council in a Woolly Nightshade Management Plan. [3] Control of gorse, blackberry and ragwort is required in defined areas. Section D (2) rule applies. [4] Control of *Egeria densa*, lagarosiphon and hornwort is required in defined areas (Figure 3). Section D (3) rule applies. The Crown (or Crown Agent) is responsible for managing aquatic pests in the Rotorua Lakes, through the Te Arawa Lakes Deed of Settlement (except in Lake Rotokakahi and Lake Ōkaro). In the event of a new incursion, an incursion response plan will be developed by Council in consultation with Te Arawa Lakes Trust and Land Information New Zealand, or the lake owners (Lakes Rotokakahi and Ōkaro). **Section D (4):** Control of Containment pest plants may be undertaken by an approved Bay of Plenty Regional Council programme. **Section D (6):** The intent of this rule is to ensure that all goods contaminated with any pest listed here, or part of any pest listed here, are thoroughly inspected and cleaned prior to departing a contaminated site to prevent its spread. This is particularly important in order to stop the spread of aquatic weeds through contaminated boats and boat trailers.

C2: Containment pest animals

Description	Pest animals that we want to minimise the effects of and prevent their further spread. These are pests that have serious impacts and are established in some areas, or throughout the region. Eradication is considered unlikely or technically impossible at present, but they can be practically and cost-effectively controlled either regionally or within defined sub-regional areas.			
Species	Feral goats Tench	Rudd Wallabies		
Objectives for management	Reduce distribution and density of known populations.			
Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Enforce rules and statutory obligations. Encourage voluntary compliance and community initiatives. Coordinate and support approved programmes as well as provide advice on control and disposal methods.	Lead role in controlling pests. Bound by rules and statutory obligations.		Lead role in controlling pests. Bound by rules and statutory obligations.

Funding	Funding for feral goat control is identified in the Strategic Management Plan for Feral Goats East of the Rangitaiki River. Funding for wallaby control is provided by Council, Department of Conservation and Waikato Regional Council. May support funding if control is part of an approved Council programme (an Environmental Programme, Care Group, Community Control Programme).	Individual landowner and occupier funded	Funding for wallaby control is provided by Council, Department of Conservation and Waikato Regional Council.	Funding for wallaby control is provided by Council, Department of Conservation and Waikato Regional Council.
Plan rules	**Section E (1):** Landowners and occupiers are required to destroy all rudd and tench in any pond or waterway, excluding Lake McLaren. **Section E (2):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating a Containment pest animal. **Section E (3):** No person shall move or allow to be moved, any machinery, vessel, organism, risk goods or other goods that is contaminated with any Containment pest animal.			
Statutory obligations	**Section E (4):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Containment pest animal (see section 52 of the Biosecurity Act 1993). **Section E (5):** No person shall sell, offer for sale, display or propagate any Containment pest animal in contravention of section 53 of the Biosecurity Act 1993.			
Offences	▪ A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. ▪ A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.			
Advice	**Section E (1):** An Authorised Person must determine the appropriate methods to be used to destroy the pests (draining, poisoning). **Section E (3):** The intent of this rule is to ensure that all goods contaminated with any pest listed here, or part of any pest listed here, are thoroughly inspected and cleaned prior to departing a contaminated site to prevent its spread. Rudd is listed as a noxious fish under the Freshwater Fisheries Regulations 1983 and tench is listed as a coarse fish under the Conservation Act 1987. Serious penalties and offences are associated with distributing these species in waterways. Control of goats is undertaken by Council, Department of Conservation and Ngā Whenua Rahui. Control of wallabies is undertaken by Council, Department of Conservation and Waikato Regional Council.			

D1: Restricted pest plants

Description	Pest plants we want to reduce the further spread of and will support community and occupier efforts to control, in places where they are a problem. These are pest plants that are widespread and/or have minor adverse effects, and are not practical or cost effective to control across the region or within a defined sub-regional area.
Species	Agapanthus[2] Aluminium plant[1] Arum lily[2] Banana passionfruit Blue morning glory[1] Bushy asparagus[1] Californian bulrush[1] Cathedral bells[1] Cestrum species (four) Chilean flame creeper[1] Chinese fan palm[2] Climbing asparagus[1] Climbing dock Coastal banksia[2] Crack willow[1] Elaeagnus Elephant's ear Elodea canadensis[2] English ivy[2] Firethorn[1] German ivy Grey willow[1] Heather[1] Himalayan balsam Houttuynia Japanese honeysuckle[1] Japanese spindle tree[1] Japanese walnut Jasmine *Lilium formosan* Mexican feather grass Mexican waterlily[1] Mignonette vine Mile-a-minute[1] Mistflower Monkey apple[1] Moth plant[1] Pampas[1] Parrot's feather[1] Periwinkle[2] Plectranthus Prickly pear cactus[2] Privet[1] Purple nutsedge Rum Cherry[1] Saltwater paspalum[2] Selaginella[1] Shield pennywort[2] Smilax[1] Snow poppy[1] Strawberry dogwood[2] Sydney golden wattle Tree of heaven[1] Taiwan cherry[2] Thistle species other than variegated thistle Tradescantia Tuber ladder fern[1] Velvet groundsel Wilding conifers[3] Wonder Tree[2]
Objectives for management	▪ Bay of Plenty residents understand the impacts of restricted pest plants and prevent their spread. ▪ Bay of Plenty residents and community groups voluntarily participate in a wide range of activities that contribute towards managing the impacts of restricted pest plants.

Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Enforce statutory obligations on preventing the spread of these pests. Encourage voluntary compliance and community initiatives as well as coordinate and support approved programmes. Provide advice on control.	Occupiers and communities take the lead role in managing these pests, through voluntary control.		
Funding	May support funding if control is part of an approved Council programme (an Environmental Programme, Care Group, Community Control Programme).	Individual landowner and occupier funded.		
Plan rules	**Section F (1):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating a Restricted pest plant			
Statutory obligations	**Section F (2):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Restricted pest plant (see section 52 of the Biosecurity Act 1993). **Section F (3):** No person shall sell, offer for sale, display or propagate any Restricted pest plant in contravention of section 53 of the Biosecurity Act 1993			
Offences	▪ A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. ▪ A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.			
Advice	[1]These species are listed in the National Pest Plant Accord. All are unwanted organisms under the Biosecurity Act 1993. [2]The sale of these species is permitted in the Bay of Plenty region. [3]Self-propagated Scots pine, Douglas fir, Corsican pine, mountain pine, muricata pine, maritime pine, European larch, radiata pine, ponderosa pine, white pine. Excludes lodgepole pine.			

D2: Restricted pest animals

Description	Pest animals we want to reduce the further spread of and will support community and occupier efforts to control, in places where they are a problem. These are pests that are widespread and/or have minor adverse effects, and are not practical or cost effective to control across the region or within a defined sub-regional area.			
Species	Argentine and Darwin ants Eastern rosella Hedgehog Ferrets Feral cats Gambusia[1] Magpies Wild mice Possums Wild rabbits Rainbow skinks Rats (Ship and Norway) Stoats Wasps (common wasp, German wasp, Asian paper wasp, Australian paper wasp) Weasels			
Objectives for management	Bay of Plenty residents understand the impacts of restricted pest animals and prevent their spread. Bay of Plenty residents and community groups voluntarily participate in a wide range of activities that contribute towards managing the impacts of restricted pest animals.			
Management	Bay of Plenty Regional Council	Land occupiers	Crown	Other agencies
Responsibilities	Enforce statutory obligations on preventing the spread of these pests. Encourage voluntary compliance and community initiatives as well as coordinate and support approved programmes. Provide advice on control.	Occupiers and communities take the lead role in managing these pests, through voluntary control.		
Funding	May support funding if control is part of an approved Council programme (an Environmental Programme, Care Group, Community Control Programme).	Individual landowner and occupier funded.		

Plan rules	**Section G (1):** No person shall move or interfere with any article or substance left in place by an Authorised Person for the purpose of monitoring, controlling or eradicating a Restricted pest animal.
Statutory obligations	**Section G (2):** No person shall knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any Restricted pest animal (see section 52 of the Biosecurity Act 1993). **Section G (3):** No person shall sell, offer for sale, display or propagate any Restricted pest animal in contravention of section 53 of the Biosecurity Act 1993.
Offences	▪ A breach of a statutory obligation creates an offence under sections 52 and 53 of the Biosecurity Act 1993. ▪ A breach of any rule creates an offence under section 154 of the Biosecurity Act 1993.
Advice	[1]Gambusia is an unwanted organism under the Biosecurity Act 1993.

Appendix 2: Glossary of botanical terms

Anther	pollen-bearing part of the stamen
Axil	the upper angle between one plant part and another, like leaf and stem
Axillary	arising in the axil of a leaf or bract
Blade	flattened part of a leaf or petal
Bract	modified leaf or scale in the inflorescence
Catkin	a spike of flowers without petals, usually drooping
Compound	leaf divided into separate leaflets, or inflorescences composed of several units like umbels or spikes
Corm	a swollen underground stem structure superficially similar to a bulb, but solid, and not composed of swollen leaf bases
Dioecious	where male and female flowers are on different plants
Drupe	fruit with an outer skin, a fleshy layer and a hard layer enclosing the seed
Entire	not toothed or cut (usually of the margin of a leaf)
Filament	stalk of a stamen carrying the anthers
Frond	a leaf, the complete leaf of a fern including the stipe and lamina
Inflorescence	group of flowers
Lamina	the expanded flattened portion or blade of a leaf, fern frond or petal
Lanceolate	lance-shaped; of a leaf several times longer than wide with greatest width about one third from the base, tapering gradually to apex and more rapidly to base
Leaf	thin, usually flat organ, usually green, arising from the node of a stem and often with a leaf stalk
Leaflet	individual parts of a compound leaf, each leaf-like with its own stalk
Ligulate	strap–like, tongue–shaped
Lobe	a recognisable, but not separated, rounded division or segment of a leaf, petal etc.
Midrib	the main central vein of a leaf or similar organ
Node	the part of a stem the leaves grow from
Palmate	leaf with more than three leaflets arising from the same point, and looking more or less like a hand
Panicle	a branched inflorescence composed of racemes
Perennial	living for more than two years and usually flowering each year
Petiole	leaf stalk

Pinnate	leaf with more than three leaflets arranged in two rows on either side of a common stalk or axis
Prostrate	lying closely along the ground surface
Raceme	unbranched inflorescence with individual flowers on stalks, the youngest flowers at the apex, oldest towards the base
Rhizome	underground stem, usually spreading horizontally
Rosette	a group of organs radiating from a centre, especially a circle of more or less overlapping leaves, often pressed to the ground, arising from a very short stem
Scale	a dry flap of tissue, often a modified leaf
Serrated	sharply toothed, with the teeth pointing forward
Simple	not divided into several separate parts
Spike	a simple racemose inflorescence with stalkless flowers on a simple elongated axis
Spore	a single-celled reproductive unit similar in function to that of the seed in a flowering plant
Stamen	male organ of a flower, composed of a filament bearing an anther
Stigma	the part of the female organ of a flower that receives the pollen
Stipe	the stalk of a frond
Stolon	stem that creeps along the ground, rooting at its tip
Tendril	slender, clasping, twining or climbing organ formed from the whole or part of a stem, leaf or petiole
Tuber	swollen part of stem or root
Umbel	umbrella like; the flower stalks arise from one point at the stem
Variegated	striped or blotched with various colours; usually of leaves.
Whorl	more than two organs (flowers or leaves) of the same kind arising at the same level on a stem

Appendix 3: More information

The Bay of Plenty Regional Council is updating its fact sheets relating to land management and biosecurity. For Exclusion/Eradication and Containment pests, refer to the website *www.boprc.govt.nz/environment/pests*

Your local Land Management or Biosecurity officer can be contacted via our Bay of Plenty Regional Council offices on 0800 884 880. Other contact details are listed at *www.boprc.govt.nz/council/contact-us*

Other useful websites include:

Department of Conservation - *www.doc.govt.nz/conservation*

Landcare Research - *www.landcareresearch.co.nz*

Ministry for Primary Industries (MPI)
www.mpi.govt.nz/biosecurity-animal-welfare
www.biosecurity.govt.nz/biosec

Ministry for the Environment
www.mfe.govt.nz/issues/biodiversity/initiatives/index.html

National Pest Plant Accord (NPPA) - *www.biosecurity.govt.nz/nppa*

New Zealand National Poisons Centre (Information pack on poisonous plants and fungi) - *www.poisons.co.nz/files.php?c=*

New Zealand Plant Conservation Network (National plant database)
www.nzpcn.org.nz

Weedbusters - *www.weedbusters.co.nz*

Appendix 4: References

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Appendix 5: Photograph acknowledgements

Our thanks to the Regional Councils of New Zealand and the following individuals and organisations who have kindly contributed photographs for this booklet.

Department of Conservation:

Feral sika deer *(Cervus nippon)*
Hedgehog *(Erinaceus europaeus)*
Wild mice *(Mus musculus)*

Individual contributors:

Chilean rhubarb *(Gunnera tinctoria)* Kurt Stueber's online library www.biofind.org

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Phragmites *(Phragmites australis)* Charles Webber, California Academy of Sciences

Purple loosestrife *(Lythrum salicaria)* E. Carri Benefield, California Department of Food and Agriculture, Integrated Pest Control Branch

Rainbow Skink *(Lampropholis delicata)* Moniqua Nelson-Tunley.

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Gambusia *(Gambusia affinis)* © R M McDowall
Perch *(Perca fluviatilis)* © R M McDowall
Rudd *(Scardinius erythrophthalmus)* © D K Rowe
Tench *(Tinca tinca)* © R M McDowall
Egeria *(Egeria densa)* © Rohan Wells
Hornwort *(Ceratophyllum demersum)* © Rohan Wells
Lagarosiphon *(Lagarosiphon major)* © Rohan Wells

Trevor James:

Agapanthus *(Agapanthus praecox)*
Aluminium plant *(Lamium galeobdolon cv. Variegatum)*
Californian bulrush *(Schoenoplectus californicus)*
Chilean flame creeper *(Tropaeolum speciosum)*
Chinese fan palm *(Trachycarpus fortunei)*
Coastal banksia *(Banksia integrifolia)*
Crack willow *(Salix fragilis)*
Elephant's ear *(Alocasia brisbanensis)*
Elodea canadensis *(Elodea canadensis)*
English ivy *(Hedera helix)*
Firethorn *(Pyracantha angustifolia)*
German ivy *(Delairea odorata)*
Green Goddess lily *(Zantedeschia aethiopica cv.)*
Grey willow *(Salix cinerea)*
Himalayan balsam *(Impatiens glandulifera)*
Japanese honeysuckle *(Lonicera japonica)*
Japanese spindle tree *(Euonymus japonicus)*
Formosan lily *(Lilium formosanum)*
Mexican waterlily *(Nymphaea mexicana)*
Monkey apple *(Syzygium smithii)*
Periwinkle *(Vinca major)*
Plectranthus *(Plectranthus ciliatus)*
Prickly pear cactus *(Opuntia monacantha)*
Royal fern *(Osmunda regalis)*
Rum Cherry *(Prunus serotina)*
Snow poppy *(Eomecon chionantha)*
Strawberry dogwood *(Cornus capitata)*
Sydney golden wattle *(Acacia longifolia)*
Taiwan cherry *(Prunus campanulata)*
Thistle species other than variegated thistle
Tradescantia (wandering Jew, wandering Willie) *(Tradescanthia fluminensis*
Tuber ladder fern *(Nephrolepis cordifolia)*
Velvet groundsel *(Roldana petasitis)*
Wilding conifers *(Pinus spp.)*
Wonder Tree *(Idesia polycarpa)*

Walter Stahel:

Apple of Sodom *(Solanum linnaeanum)*
Houttuynia *(Houttuynia cordata)*
Mignonette vine *(Anredera cordifolia)*
Tree of heaven *(Ailanthus altissima)*

Appendix 6: Index of pest names

Common and scientific names of the pests included in the Regional Pest Management Plan 2011 – 2016 .

- Agency pests
- Exclusion and eradication pest plants
- Containment pests
- Restricted pests

Pest Animals

Please click on plant or animal below to link to relevant information

COMMON NAME	SCIENTIFIC NAMES	PAGE
Ants (Argentine)	*Linepithema humile*	**40**
Ants (Darwin's)	*Doleromyrma darwiniana*	**40**
Brown bullhead catfish	*Ameiurus nebulosus*	**19**
Eastern rosella	*Platycerus eximius*	**40**
Feral cats	*Felis catus*	**41**
Feral goats	*Capra hircus*	**27**
Feral sika deer	*Cervus nippon*	**15**
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Gambusia	*Gambusia affini*	**41**
Hedgehog	*Erinaceus europaeus*	**41**
Koi carp	*Cyprinus carpio*	**19**
Magpies	*Gymnorhina tibicen*	**42**
Perch	*Perca fluviatili*	**19**
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Rainbow lorikeet	*Trichoglossus haematodus*	**15**
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Rats (Norway)	*Rattus norvegicus*	**42**
Rats (ship)	*Rattus rattus*	**42**
Rooks	*Corvus frugilegus*	**19**
Rudd	*Scardinius erythrophthalmus*	**27**
Stoats	*Mustela erminea*	**41**
Tench	*Tinca tinca*	**27**
Wallaby (Dama)	*Macropus eugenii*	**27**
Wasps (common wasp, German wasp)	*Vespula* **spp.**	**43**
Wasps (Asian paper wasp, Australian paper wasp)	*Polistes* **spp.**	**43**
Weasels	*Mustela nivalis vulgaris*	**41**
Wild mice	*Mus musculus*	**43**
Wild rabbits	*Oryctolagus cuniculus*	**43**

Pest Plants

COMMON NAME	SCIENTIFIC NAMES	PAGE
African feather grass	*Pennisetum macrourum*	**20**
Agapanthus	*Agapanthus praecox*	**28**
Alligator weed	*Alternanthera philoxeroides*	**16**
Aluminium plant	*Lamium galeobdolon cv. Variegatum*	**28**
Apple of Sodom	*Solanum linnaeanum*	**20**
Arum lily	*Zantedeschia aethiopica*	**28**
Asiatic knotweed	*Fallopia japonica*	**20**
Banana passionfruit	*Passiflora tarmiana and . tripartita*	**28**
Blackberry	*Rubus fruticosus* **agg.**	**20**
Blue morning glory	*Ipomoea indica*	**28**
Boneseed	*Chrysanthemoides monilifera*	**21**
Bushy asparagus	*Asparagus densifloru*	**29**
Californian bulrush	*Schoenoplectus californicus*	**29**
Cape tulip	*Moraea flaccid*	**12**
Cathedral bells	*Cobaea scandens*	**29**
Cestrum species (four)	*Cestrum* **spp.**	**29**
Chilean flame creeper	*Tropaeolum speciosum*	**29**
Chilean rhubarb	*Gunnera tinctoria*	**21**
Chinese fan palm	*Trachycarpus fortunei*	**30**
Climbing asparagus	*Asparagus scandens*	**30**
Climbing dock	*Rumex sagittatus*	**30**
Climbing spindleberry	*Celastrus orbiculatus*	**21**
Coast tea tree	*Leptospermum laevigatum*	**21**
Coastal banksia	*Banksia integrifolia*	**30**
Crack willow	*Salix fragilis*	**30**
Darwin's barberry	*Berberis darwinii*	**22**
Didymo	*Didymosphenia geminata*	**12**
Egeria	*Egeria densa*	**22**
Elaeagnus	*Elaegnus x reflex*	**31**
Elephant's ear	*Alocasia brisbanensis*	**31**
Elodea canadensis	*Elodea canadensis*	**31**
English ivy	*Hedera helix*	**31**
Firethorn	*Pyracantha angustifolia*	**31**
Formosan lily	*Lilium formosanum*	**32**
German ivy	*Delairea odorata*	**32**
Gorse	*Ulex europaeus*	**22**
Green Goddess lily	*Zantedeschia aethiopica cv. Green-Goddess*	**22**
Grey willow	*Salix cinerea*	**32**

	COMMON NAME	SCIENTIFIC NAMES	PAGE
	Heather	*Calluna vulgaris*	**32**
	Himalayan balsam	*Impatiens glandulifera*	**32**
	Hornwort	*Ceratophyllum demersum*	**23**
	Horse nettle	*Solanum carolinense*	**16**
	Houttuynia	*Houttuynia cordata*	**33**
	Hydrilla	*Hydrilla verticillata*	**12**
	Italian buckthorn	*Rhamnus alaternus*	**23**
	Japanese honeysuckle	*Lonicera japonica*	**33**
	Japanese spindle tree	*Euonymus japonicus*	**33**
	Japanese walnut	*Juglans ailantifolia*	**33**
	Jasmine	*Jasminum polyanthum*	**33**
	Johnson grass	*Sorghum halepense*	**12**
	Kudzu vine	*Pueraria montana* **var.** *lobata*	**16**
	Lagarosiphon	*Lagarosiphon major*	**23**
	Lantana	*Lantana camara*	**23**
	Lodgepole pine	*Pinus contorta*	**24**
	Manchurian wild rice	*Zizania latifolia*	**13**
	Marshwort	*Nymphoides geminata*	**16**
	Mexican feather grass (Finestem needlegrass)	*Nassella tenuissima*	**34**
	Mexican waterlily	*Nymphaea mexicana*	**34**
	Mignonette vine (Madeira vine)	*Anredera cordifolia*	**34**
	Mile-a-minute	*Dipogon lignosus*	**34**
	Mistflower	*Ageratina riparia*	**34**
	Monkey apple	*Syzygium smithii*	**35**
	Moth plant	*Araujia hortorum*	**35**
	Nassella tussock	*Nassella trichotoma*	**17**
	Noogoora bur	*Xanthium strumarium*	**17**
	Old man's beard	*Clematis vitalba*	**24**
	Pampas grass	*Cortaderia selloana*	**35**
	Pampas grass - Purple	*Cortaderia jubata*	**35**
	Parrot's feather	*Myriophyllum aquaticum*	**35**
	Periwinkle	*Vinca major*	**35**
	Phragmites	*Phragmites australis*	**13**
	PTA or Kauri die-back disease	*Phytophthora taxon agathis (PTA)*	**13**
	Plectranthus	*Plectranthus ciliatus*	**36**
	Prickly pear cactus	*Opuntia monacantha*	**36**
	Privet	*Ligustrum* **spp.**	**36**
	Purple loosestrife	*Lythrum salicaria*	**17**
	Purple nutsedge	*Cyperus rotundus*	**36**

	COMMON NAME	SCIENTIFIC NAMES	PAGE
	Pyp grass	*Ehrharta villosa*	**13**
	Ragwort	*Senecio jacobaea*	**24**
	Royal fern	*Osmunda regalis*	**24**
	Rum Cherry	*Prunus serotina*	**37**
	Saltwater paspalum	*Paspalum vaginatum*	**37**
	Salvinia	*Salvinia molesta*	**14**
	Selaginella	*Selaginella kraussiana*	**37**
	Senegal tea	*Gymnocoronis spilanthoides*	**17**
	Shield pennywort	*Hydrocotyle verticillata*	**37**
	Smilax	*Asparagus asparagoides*	**37**
	Snow poppy	*Eomecon chionantha*	**38**
	Spartina	*Spartina* **spp.**	**18**
	Strawberry dogwood	*Cornus capitata (***synonym -** *Dendrobenthamia capitata)*	**38**
	Sydney golden wattle	*Acacia longifolia*	**38**
	Taiwan cherry	*Prunus campanulata*	**38**
	Thistle species other than variegated thistle	**(various)**	**38**
	Tradescantia (wandering Jew, wandering Willie)	*Tradescanthia fluminensi*	**39**
	Tree of heaven	*Ailanthus altissima*	**39**
	Tuber ladder fern	*Nephrolepis cordifolia*	**39**
	Variegated thistle	*Silybum marianum*	**25**
	Velvet groundsel	*Roldana petasitis*	**39**
	Water hyacinth	*Eichhornia crassipes*	**14**
	Water poppy	*Hydrocleys nymphoides*	**18**
	White bryony	*Bryonia cretica* **subsp.** *dioica*	**14**
	White edged nightshade	*Solanum marginatum*	**18**
	Wild ginger – kahili	*Hedychium gardnerianum*	**25**
	Wild ginger – yellow	*Hedychium flavescen*	**25**
	Wild kiwifruit	*Actinidia* **spp.**	**25**
	Wilding conifers	*Pinus* **spp.**	**39**
	Wonder Tree	*Idesia polycarpa*	**40**
	Woolly nightshade	*Solanum mauritianum*	**26**
	Yellow flag iris	*Iris pseudacorus*	**26**

- Agency pests
- Exclusion and eradication pest plants
- Containment pests
- Restricted pests

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