BIOSECURITY ACTIVITY - PLANTS

1 Biosecurity Plants

1.1 Overview

1.1.1 This report is to update Council on the progress of programmes giving effect to the **Regional Pest Management Plan** (RPMP) and other works, according to the 2018-19 Pest Plant Operational Plan approved by Council during the reporting period 1 April 2019 to 30 June 2019; and an overview of the full programme within the 2018-19 financial year.

1.1.2 The Long-term Plan (2018-28) set the Pest Plant team new performance measures, (Table 1), which are reflected throughout this document in the work programmes to which they apply. The targets were all met except for the 72 hour response time target for enquiries; 94% compared to 95%. We endeavour to address all enquires as soon as practicable given workload and staff absences.

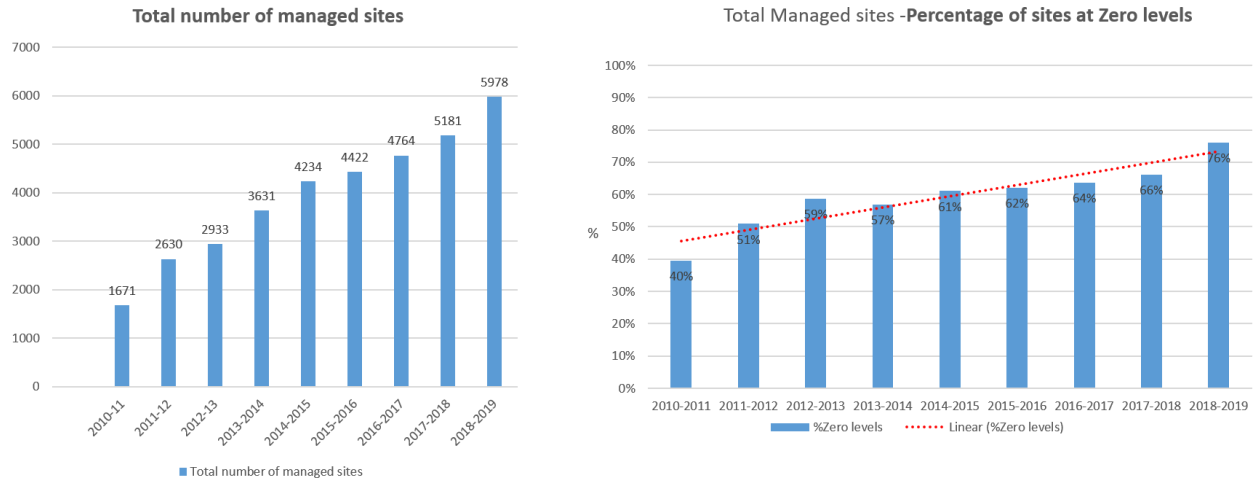


Figure 1 Weed site numbers showing total number of sites managed and 76% of these at zero-levels

1.1.3 Pest plant sites are usually found when adult and self-sustaining via seeding or vegetative means, the Pest Plan goal is to reduce the viability of every site to one where only regrowth or seedlings are produced i.e. zero-levels. Searching for and creating 797 new weed sites, and through effective control increasing the number of sites at zero-levels to 76% from 66%, shows progress is being made (Figure 1).

1.1.4 We now manage 5,978 sites of which 4,547 are at zero-levels.

1.1.5 Due to increased investment by Council, the 2018-19 year saw a corresponding lift in activity for our biological control programme. We also received an increase in allocation of approximately $130,000, targeted to species identified as requiring more resource to enable achievement of the Pest Plan goals. The largest portions of this extra funding were to support the wilding conifer and Darwin's barberry programmes.

Table 1 Long-term Plan performance measures (2018)

#	PERFORMANCE MEASURES FOR LEVELS OF SERVICE	Annual Plan Target 2018-19	Result
1	Any exclusion category pest plants that are found in the Region are promptly managed.	Exclusion category pest plants are found in the Region	None found
2	Any exclusion category pest plants that are found in the Region are promptly managed.	An initial response plan will be completed within 2 weeks of finding these. Response plan enacted (if not enacted before 2 weeks).	No response plans required
2	Number of managed sites at zero-levels increases for pest plants identified for eradication in the Regional Pest Management Plan.	Overall % of managed sites at zero-levels increases by 10%	Achieved (75%, required 65%)
4	Number of managed sites at zero-levels increases for pest plants identified as progressive containment - mapped in the Regional Pest Management Plan.	Overall % of managed sites at zero-levels increases by 10%	Achieved (78%, required 64%)
5	Financially support the national bio-control agent development programme and report annually to Council on this programme.	Financial support provided and annual report to Council	Achieved
6	Monitoring of some released biological agents will be completed to assess establishment and host damage, using the national protocol.	20 assessment plots will be monitored	Achieved
7	Pest plant enquiries received are responded to within three working days.	95% of enquiries will be responded to within three working days	Not-achieved (94%)

2 Progress Report

2.1.1 Pest plant management is mandated under the Biosecurity Act (1993) and Horizons has chosen to undertake management via a **Regional Pest Management Plan** (RPMP) as well as activities detailed in an annual Operational Plan. These activities focus on transformative pest plants which, if left uncontrolled or unmanaged, would reduce the value of the Region's biodiversity and productive capacity by either increasing the costs of traditional production or preventing it entirely. This report overviews the work undertaken according to the Operational Plan structure which features the RPMP programmes first, followed by the other programmes.

2.2 Exclusion Pest Plants

Activity Overview

2.2.1 For those pests that are in New Zealand but not in our Region, our goal is to prevent establishment via the Exclusion programme. We aim to detect these pests before they become widely established in the Region and facilitate a quick response through appropriate funding that will enable the control or management of these species on rateable land.

2.2.2 Staff inspect locations which may harbour our target species: Californian bulrush, Chilean needle grass, heath rush, humped bladderwort, Manchurian wild rice, Noogoora burr, *Phragmites australis*, saffron thistle, *Sagittaria platyphylla*, sweet pittosporum and tussock hawkweed.

2.2.3 Some of the hotspot search locations are sale yards and any holding paddocks nearby. Searches during the reporting period did not locate any target species.

2.2.4 The annual plan targets of responding to incursions and delivering response plans of the named species was not required as no species were found via active surveillance or as response to promotion by members of the public.

2.2.5 Staff are concerned about the potential movement of Chilean needle grass from established locations including recently discovered river margin areas in Waipawa as they are the closest to our region and spread can occur via many scenarios, and not all are controllable. The example of Canterbury discovering large areas of well-established Chilean needle grass in areas previously free, provides motivation for staff to ensure we are vigilant.

2.3 Eradication Pest Plants

Activity Overview

2.3.1 High-risk species that we believe should be totally removed from the Region are managed via the Eradication programme.

2.3.2 Species worked against this period: alligator weed, cathedral bells, climbing spindleberry, Queensland poplar and woolly nightshade.

2.3.3 Staff are always on the lookout for new sites of our target pest plants and it was during a late season aerial survey for Old Man's Beard where two large infestations of Chilean rhubarb were discovered on river cliffs of the Mangahao River. One site was located about one kilometre from the assumed parent site but hidden from view due to the cliff.

Photo 1Chilean rhubarb (dark green plants middle of image) on cliffs above the Mangahao River, spotted while on aerial survey for Old Man's Beard. (Jack Keast)

2.3.4 Queensland poplar is new to the Pest Plan, and our staff are building up knowledge of its distribution. Attending an urban site in Whanganui recently, highlighted why it went from an

Investigation plant to being designated for Eradication, as a site with one adult was discovered and a quick search revealed 30+ seedlings spread through a relatively small area.

2.2.3 The annual plan target of increasing the zero-level percentage of the sites we manage for the Eradication species by 10% from the Pest Plans creation date was achieved. For all the species we are targeting for Eradication, 80% of all sites are at zero-levels. This is an improvement on last year's figure of 67%. Another measure of the effectiveness of staff site management is the zero-level percentage of sites managed for longer than 3 years. This moderates the snapshot view of all sites, as newly discovered sites are usually found when adult; not at zero-levels. When we look at the mean across all Eradication species 84% are at zero-levels; not producing off-spring. This metric when compared to the all site measure tends to show for most species a slowdown in the number of new sites; we are getting on top of the species distribution.

2.4 Progressive Containment – mapped Pest Plants

Activity Overview

2.4.1 Where population levels or difficulty and expense of control prevent achievement of a Region-wide zero-density objective, high-threat pest plant species will be managed under a Progressive Containment objective. For each species managed this way, an active management zone is defined within which the pest plant species will be controlled wherever it is found, as per the Eradication designation.

2.4.2 Species worked against: Banana passionfruit, Darwin's barberry, Old Man's Beard, *Pinus contorta and Pinus sylvestris*.

2.4.3 The significant increase in Annual Plan funding targeted towards the pest pine species allowed staff to organize for the felling or chemically treat large amounts of mature trees currently creating seeding issues in the Central Plateau.

2.4.4 Scots pine (*Pinus sylvestris)* was the most commonly treated conifer apart from *Pinus contorta* and staff were able to identify and have removed shelter rows affecting Raketapauma wetland complex and mature trees seedling into the Whangehu River corridor.

Photo 2 Scots pine dying after stem applied herbicide application via helicopter, Whangehu River. (R.Bashford)

2.4.5 The National Wilding Conifer Control Programme was fully delivered with work being undertaken right through to the last week of June. All partners undertook safe and successful control programmes across the Kaimanawa Management Unit.

2.4.6 The 2018/19 programme for all Partners receiving support from the National programme totaled $651,738, of which $554,692 was national programme expenditure. Horizons received $64,100 of a $100,020 spend. The rest was split across Waikato Regional Council, $10,000 of $18,000; Department of Conservation, $448,000 of $556,919; and Hawkes Bay Regional Council, $32,592 of $69,597.

2.4.7 The annual plan target of increasing the zero-level percentage of the sites we manage for the Progressive Containment-mapped species by 10% from the Pest Plans creation date was achieved. For all the species we are targeting for zero-levels in the Active Management Zone, 75% of all sites are at zero-levels. This is an improvement on last year's figure of 67%. The measure of the effectiveness of staff site management is the zero-level percentage of sites managed for longer than 3 years. This moderates the snapshot view of all sites, as newly discovered sites are usually found when adult; not at zero-levels. When we look at the mean across all Progressive

Containment-mapped species 84% are at zero-levels; not producing off-spring. This metric when compared to the all site measure and when factoring in the increase in sites for this project by 643 shows the ability of staff to effectively reduce the pest plant burden and reduce risk of future spread and effect long-term reduction over time.

2.5 Progressive Containment – un-mapped Production Pest Plants Activity Overview

2.5.1 Production pests are managed using a mix of a clear land rule and a good neighbour rule. These species are generally widespread but some parts of the Region are clear of them and it is desirable to keep them clear. For occupiers of large land areas, farmers and organisations, we have the ability to allow responsibility to be acknowledged and actions planned via Approved Management Plans. The intent of these plans is to meet the objective of rules and contribute to the outcomes of the RPMP by eradicating or reducing the spread of pests from the place(s) occupied or managed by the plan maker.

2.5.2 Species we dealt with during this reporting period were blackberry, gorse and tutsan.

2.5.3 We have received a small number of complaints from across the Region this period, predominantly regarding weeds between neighbouring properties and roadside weeds.

Table 2 Good neighbour rule activity

Description	Report period numbers	2018-19 totals
Boundary complaints received and actioned outside of compliance	2	19
RTCs (Required to Clear) issued		1
NODs (Notice of Direction) issued		2
Notices resolved in this period	**2**	**7**

2.5.4 The 2018-19 year was similar to previous years in terms of total number of 'boundary' complaints. A few friction points have been identified where land manager obligations need to be reinforced and staff have recently re-engaged with Kiwirail, LINZ and NZTA to ensure there is a common understanding around communication protocols.

Crown and Local Territory Authority (TLA) engagement

2.5.5 The table below shows the progress of engagement with the local councils and the Crown, with eight out of eleven councils and Crown agencies met with, and agreement reached around pest programmes.

2.5.6 We have received Pest plant management annual reports from Palmerston North City Council, Manawatu, Horowhenua, Ruapehu, Tararua and Whanganui District Councils at the time of writing. We expect to receive other reports prior to July 31st.

Table 3 Progress towards an approved management plan (AMP) or other liaison

Measure	Reporting Period					YTD Actual	Target	%
	1st	2nd	3rd	4th	5th			
MOU/Liaison progress	2	1	1	4	3	11	11	100%

2.6 Progressive Containment – un-mapped Aquatic Pest Plants Activity Overview

2.6.1 Eelgrass, egeria, hornwort, lagarosiphon, and reed sweetgrass are grouped into the Aquatic Pest Plants category on the basis they are aquatic pests managed the same way for the same objectives. Their distributions cannot be mapped with any certainty at present. The aim is to progressively contain or reduce the number of sites across the Region affected by them to prevent further spread and reduce adverse effects on the environment.

2.6.2 Through 2018-19 these plants are included in the freshwater awareness program as a part of the conversation with lake users about spread prevention. All of these pests only spread between discrete water bodies by human assisted transfer, as such behaviour change by lake users is the best hope for spread prevention, apart from restricted access to all water bodies. Management of existing infestations is not undertaken by Horizons due to the ongoing nature of such operations due to regrowth and re-infestation. Control or removal of any of these species is expensive, and relies on the earliest intervention possible.

Lake Namunamu

2.6.3 In early May, Ian Henderson a Massey University Freshwater Scientist reported a new to the lake discovery of hornwort in Lake Namunamu. Hornwort is the worst submerged freshwater weed in the country and is able to totally transform a lake environment, un-rooted it can cover vast areas of the surface and is able to grow to 17m subsurface. This is a 13ha private lake near Hunterville, stocked with trout by Fish and Game and with public access only allowed by walking. The Manawatu Anglers Club also maintain a row boat for use by the public near a jetty and picnic area. The lake ranks highly in the region given it has only one other pest plant and is in relatively pristine condition along with its use value to the public.

2.6.4 Horizons firstly pulled together a team of staff along with the scientist; to seek information and general advice from organisations such as the Environmental Protection Agency, Fish and Game, National Institute of Water and Atmosphere (NIWA), Boffa Miskal, Bay of Plenty Regional Council and service providers such as AquaAg and Chisholm Associates. We have also involved the landowner in the steps and decisions we made and consulted with the Department of Conservation and local iwi as well.

2.6.5 The team is fortunate to have Ian Hendersons long-term data series of lake condition measures which will enable any intervention to be undertaken at the optimum time of year. The second factor was needing to find out more about the amount and distribution of hornwort within the lake. Subsequent survey by boat and a specialist diver team confirmed the existence of a moderate

infestation estimated to be about two years old with some beds at 6 m below the surface and attaining a height of 4 m.

2.6.6 A consent has been lodged to treat the lake with herbicide if the outcome of an independent report from NIWA gives our goal of an eradication attempt a favourable score within an acceptable cost.

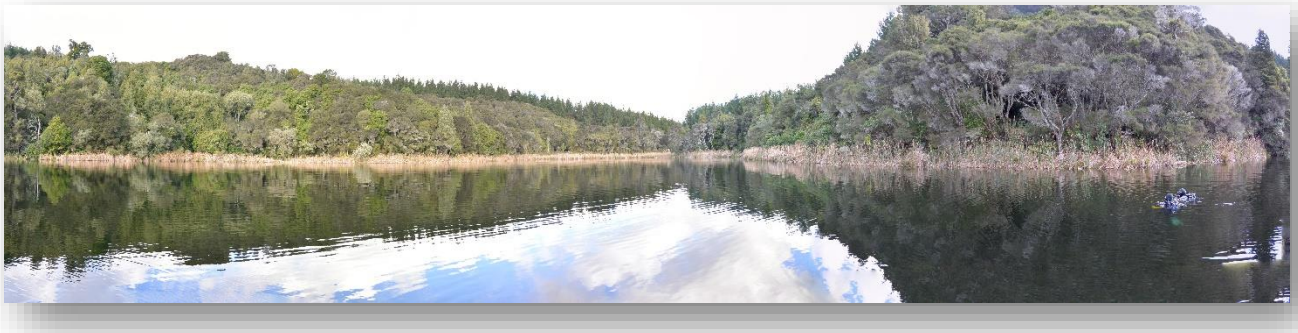


Photo 3 Looking towards the boat ramp arm of Lake Namunamu with divers in shot. (C. Davey)

Lake Otamangakau

2.6.7 Horizons, in conjunction with Genesis and the Department of Conservation, funded a weed cordon at Lake Otamangakau in Ruapehu district a number of years ago and this 'weed net' was inspected and cleaned during June.

2.7 Response Activity

Activity Overview

2.7.1 The Response programme aims to provide immediate and effective assistance for all national or regional biosecurity incursions and any transitions to long-term management. Through 2018-19 there has not been any new responses within the region and staff were not needed to assist with the 2019 fruit fly find in Auckland as the size of the response did not demand it. We maintained a watch on the pea weevil controlled area programme in the southern part of the Tararua; contributed to the national velvetleaf programme, hosting the North Island facilitator and enabling infected paddocks to be searched by the detector dog; and kept an eye out for myrtle rust within our region, finding one new site in Taumarunui.

Pea Weevil

2.7.2 We received the latest update on the Controlled area for pea weevil, which covers the lower Tararua District and Wairarapa. The response is well on the way to eradicating pea weevil, however the Controlled Area Notice currently in place remains in force and will continue through the 2019-20 growing season.

Velvetleaf

2.7.3 AgResearch met with staff to discuss the season's results and particularly the variation in genetics observed between the Koputaroa site and the rest of the fodder beet associated velvet leaf. Staff will again collect plant material to assist with AgResearch's investigation and, based on AgResearch trials engage with the affected farmers to seek proactive seed striking through crop and pasture options to expire the seedbank rather than wait and deal with it reactively.

2.7.4 Farmers, staff and the detector dog only discovered five plants across 19 paddocks through 2018-19, none flowering. All plants were found in one paddock located in an historic hotspot.

2.8 Investigation and surveillance

2.8.1 A number of plants present in the Region may have the potential to become economically and ecologically damaging. This output includes projects aimed to prevent the propagation, sale and distribution of legislated plants via the National Pest Plant Accord; determine the current extent in our Region of certain potential pest plants and investigate management options; and prevent further establishment of nationally notifiable plants.

2.8.2 Through 2018-19 staff assessed two pinus species, nigra and ponderosa, that were nominated as potentially able to be managed by inclusion in the Pest Plan. Both were assessed by addressing the potential risk to the region given their weediness, ability to be controlled, current distribution and likely management scenario. The investigations concluded management by rule or programme intervention would not be required and their inclusion as a target in any site management approach would deliver an appropriate result.

2.8.3 Staff also contributed to the AgResearch trial of giant buttercup control options as part of that species ongoing investigation. The progress report on mowing versus spraying will be available later in the year.

2.8.4 Staff did not undertake nursey inspections this year as the programme is on a biennial basis with the next inspections set for 2019-20.

Totara dieback

2.8.5 Many examples of unexplained dieback were noticed by a staff member, as well as members of the public. We have included this body of work in the Investigation section as an example of how we are sometimes called to assist with evidence and collection projects.

2.8.6 The Biosecurity New Zealand Incursion investigator provided a report of the soil and foliage samples collected within our region near Taumarunui earlier in the year.

2.8.7 Four species of fungus were isolated. Three are known to exist here already but one species was undescribed in New Zealand, though this genera of fungus has been associated with conifers in New Zealand and are widely distributed around the world. The pathogenicity on totara is unknown and its thought unlikely any of the four fungus found were the cause of the dieback observed.

2.8.8 In summary, it's unknown what caused the symptoms observed but in the meantime the best we can do is monitor distribution, and provide additional samples if particularly worse symptoms during the cooler, damper months are discovered. Scientists may decide to describe the new species in future, but that generally takes a number of years to complete.

2.9 Biological Control Activity

Overview

2.9.1 Many entrenched pest plants in the Region are now the target of our Biological Control programme, which aims to assist the development of insects and diseases to control a wide range of pest plants and to release, distribute and monitor those within the Region.

Annual Plan targets

2.9.2 The annual plan targets of supporting the New Zealand biocontrol collective and monitoring 20 sites was completed. We contributed $40,000 to support projects across a range of target species prioritised nationally. Many of these are directly related to species we manage and projects we champion, such as; old man's beard, field horsetail, Darwins barberry, tutsan, and banana passionfruit as well as others which may become a problem to us in the future, such as; ginger and pampas.

Target	Agent	Completed activity
Buddleia	Buddleia weevil	We assessed spread and visited historic sites to assess the decline of plants.
Old man's beard (OMB)	OMB sawfly	Agents in the country and release made near Lincoln for best monitoring of establishment.
	OMB bud and leaf gall forming midge	Presented at the Environmental Protection Agency (EPA) hearing. Spoke to two community groups regarding the potential and engaged with Taihape iwi to seek sites for release and monitoring.
Californian Thistle	Green Thistle Beetle	Transferred less populations than desired due to nursery sites not yielding high numbers, We think this is due to natural dispersal of the agents and will try earlier in the season next year. Monitoring of 3 locations for AgResearch assessment completed this year.
Broom	Broom gall mite	Begun recording many self-established locations. In conjunction with the Communications department we ran a hang a gall on your tree this xmas promotion and gave 15 populations to farmers.
Tutsan	Tutsan beetle and tutsan seed moth	Continued the support of the Tutsan Action Group (TAG) through to its wind up after 12 years of continued effort to deliver a biological control for tutsan

Target	Agent	Completed activity
		to the Ruapehu. We monitored historic releases of the tutsan beetle at one release site and the seed moth at 15 sites for establishment. Both were not found. We released two more leaf beetle populations.
Field horsetail	Horsetail weevil	Horizons supported the RHG by funding another importation of the field horsetail weevil from England and staff looked for weevils at historic release sites – none found.
Privet	Privet lace bug	We released three new populations of lace bugs.
Agent progress register	All	Refine the system to provide an assessment of how individual agents are tracking through the stages of a project lifecycle. This will allow staff to plan future work against an agent and best inform others of the status of an agent's population within the Horizons Region. This will include but not be limited to descriptions of: Release, matching to suitable sites; Establishment, monitoring and site protection; Assessment, baseline metrics and monitoring; Distribution, using nursery sites and/or purchases to ensure maximum geographical distribution occurs; and, Review, assessment of impacts and long-term plant population change. See table

Table 4 Current status of biological control projects in Horizons region, 2018-19.

Species	Agent	Pre Release Work	Releasing Agents	Checking Establishment	Checking Population and Damage levels	Population Effects	Ecosystem Effects	Economic Analysis	Status
Arundo	Giant Reed Gall Forming Wasp	Y	Y	Y					Populations introduced
Boneseed	Boneseed Leaf roller	Y	Y	Y					Population introduced but establishment has not been confirmed.
Buddleia	Buddleia Leaf Weevil	Y	Y	Y	Y	Y			Self establishment occurring. Ecosystems effects need study
California Thistle	Green Thistle Beetle	Y	Y	Y	Y	Y			Self establishment occurring, staff transfers ongoing
Darwins Barberry	Darwins Barberry Seed Weevil	Y	Y	Y					Waiting to confirm establishment
Field Horsetail	Field Horsetail Weevil	Y	Y	Y					Waiting to confirm establishment
Gorse	Gorse Colonial Hard Shoot Moth	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
	Gorse Pod Moth	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
	Gorse Seed Weevil	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
	Gorse Soft Shoot Moth	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
	Gorse Spider Mite	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
	Gorse Thrips	Y	Y	Y	Y	Y	Y		Widespread, no staff intervention
Heather	Heather Beetle	Y	Y	Y	Y	Y			Self establishment occurring

Species	Agent	Pre Release Work	Releasing Agents	Checking Establishment	Checking Population and Damage levels	Population Effects	Ecosystem Effects	Economic Analysis	Status
Hemlock	Hemlock Moth	Y	Y	Y	Y				No staff intervention - natural dispersal
Japanese Honeysuckle	Honshu White Admiral	Y	Y	Y					Initial Release 2018/19
Nodding Thistle	Nodding Thistle Crown Weevil	Y	Y	Y	Y	Y	Y	Y	Widespread, no staff intervention
	Nodding Thistle Gall Fly	Y	Y	Y	Y	Y	Y	Y	Widespread, no staff intervention
	Nodding Thistle Recepticle Weevil	Y	Y	Y	Y	Y	Y	Y	Widespread, no staff intervention
Old Mans Beard	Old Mans Beard Leaf Fungus	Y	Y	Y					Did not establish - discontinued
	Old Mans Beard Leaf Miner	Y	Y	Y	Y	Y	Y		Widespread, minimal impact
	Old Mans Beard Sawfly	Y	Y	Y					Releases occurred in Canterbury
	Old Mans Beard Bark beetle	Y							Failed Host Testing. No further work
	Old Mans Beard Bud Gall Fly	Y							Waiting for MPI approval for importation
Privet	Privet Lace Bug	Y	Y						Releases just occurred
Scotch Broom	Broom Gall Mite	Y	Y	Y	Y				Self establishment occurring. Staff transfers ongoing
	Broom Leaf Beetle	Y	Y	Y	Y	Y	Y		Widespread population. Impacts need study
	Broom Psyllid	Y	Y	Y	Y	Y	Y		Widespread population. Impacts need study
	Broom Seed Beetle	Y	Y	Y	Y	Y	Y		Widespread population. Impacts need study
	Broom Shoot Moth	Y	Y	Y	Y	Y	Y		Widespread population. Impacts need study
	Broom Twig Miner	Y	Y	Y	Y	Y	Y		Widespread population. Impacts need study
Scotch Thistle	Scotch Thistle Gall Fly	Y	Y	Y	Y				
St Johns Wort	Greater St Johns Wort Beetle	Y	Y	Y	Y	Y	Y	Y	Widespread control
	Lesser St Johns Wort Beetle	Y	Y	Y	Y	Y	Y	Y	Widespread control
Tradescantia	Tradescantia Fungus	Y							To be released shortly into horizons region
	Tradescantia Leaf Beetle	Y	Y	Y					Population establishment occurring in places
	Tradescantia Stem Beetle	Y	Y	Y					Population establishment occurring in places
	Tradescantia Tip Beetle	Y	Y	Y					Population establishment occurring in places

Species	Agent	Pre Release Work	Releasing Agents	Checking Establishment	Checking Population and Damage levels	Population Effects	Ecosystem Effects	Economic Analysis	Status
Tutsan	Tutsan Leaf Beetle	Y	Y	Y					No populations found yet
	Tutsan Moth	Y	Y	Y					No populations found yet
Woolly Nightshade	Woolly Nightshade Lacebug	Y	Y	Y	Y				Establishment confirmed, damage occurring
Yellow Ragwort	Cinnibar Moth	Y	Y	Y	Y	Y	Y	Y	Widespread ongoing control. Economic analysis complete
	Ragwort Flea Beetle	Y	Y	Y	Y	Y	Y	Y	Widespread ongoing control. Economic analysis complete
	Ragwort Pume Moth	Y	Y	Y	Y	Y			Self-establishment occurring, staff transfers ongoing

Green Thistle Beetle

2.9.3 Staff assisted AgResearch in a survey at one of our long term monitoring farms to look for overwintering sites for the green thistle beetle. This is the second round of location based assessments conducted by Crown Research Institutes trying to better understand why not all populations establish. Factors such as aspect, soil conditions, altitude, exposure and land management practice all play a part. Other conditions such as suitable habitat for full lifecycle completion are becoming better understood as very critical for establishment success and population expansion. This particular site has a mix of deciduous and native vegetation with areas particularly suitable for the insects overwintering and as such has been our main nursery site from early in the programme.

Woolly nightshade

2.9.4 A few of our heavily infested Whanganui properties are experiencing large expansion of lace bug numbers with the insects found on nearly all plants. We are now able to harvest and relocate to other properties.

Photo 4 Woolly nightshade plants in Whanganui affected by the lace bug, left, and the gregarious clustering of lace bugs on the underside of leaves. (R.Sicely)

Yellow flag iris

2.9.5 Staff collected plant samples from three sites in the Whanganui area for Landcare Research. We are collaborating with the Centre of Biological Control at Rhodes University, South Africa, on a global genetic analysis of yellow flag iris and as part of this, they require samples from within New Zealand. Initially, it was believed this species predominantly spreads vegetatively through rhizomes, but recent studies from US populations show high levels of genetic diversity, indicating dispersal and spread via seed. The current research will allow us to see just how genetically diverse yellow flag is both globally and in NZ, which could help to inform on biocontrol options. These were sent away for DNA testing to work out whether they are spreading via seed or clonal reproduction.

2.10 Awareness and Promotion Activity

Activity Overview

2.10.1 The aim of the Awareness programme is to alert the community to the issues, threats and weed management solutions.

2.10.2 Media picked up stories about:

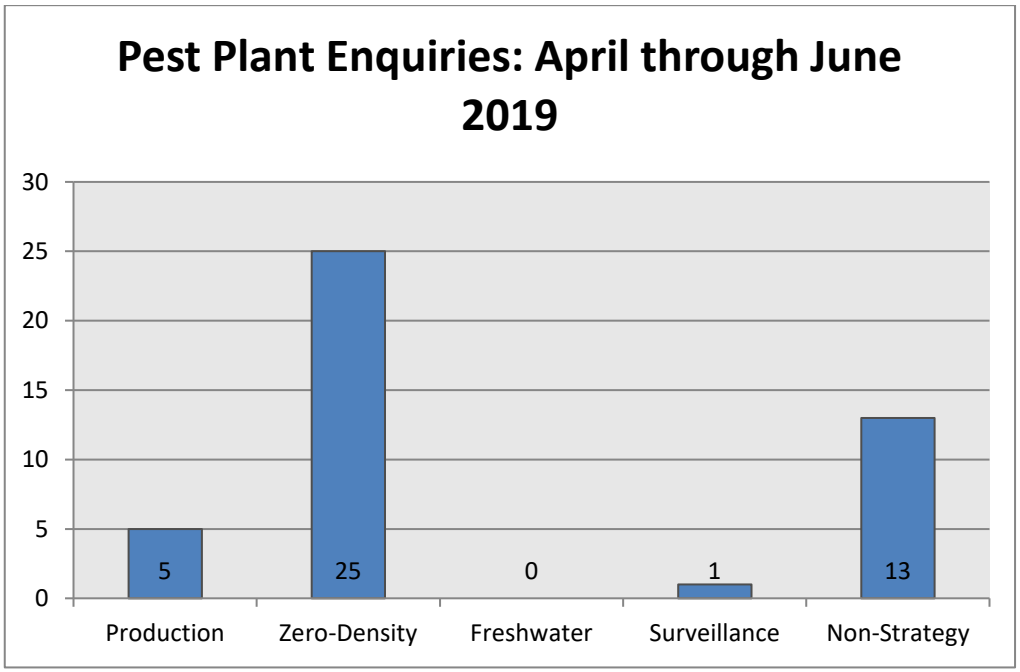
- *HRC - Duck hunters urged to keep clean - Whanganui Chronicle among others*
- *NZDF supports wilding pine survey* - The News Westport

2.10.3 Staff talked to Forest and Bird Palmerston North and Rangitikei branches about biocontrol and in particular the Old Man's Beard gall forming mite. We also spoke at a guided field trip to look at biological control in action on site at Massey University where there are tradescantia beetles and broom infested with gall mites.

2.10.4 Staff attended the Deer Expo in Fielding to talk about pest plants.

2.10.5 The pest plant team received 44 enquires this period with the main topics being:

- Production — Blackberry
- Zero-Density — Old Man's Beard and banana passionfruit
- Non-Strategy — Giant willow aphids, holly, agapanthus

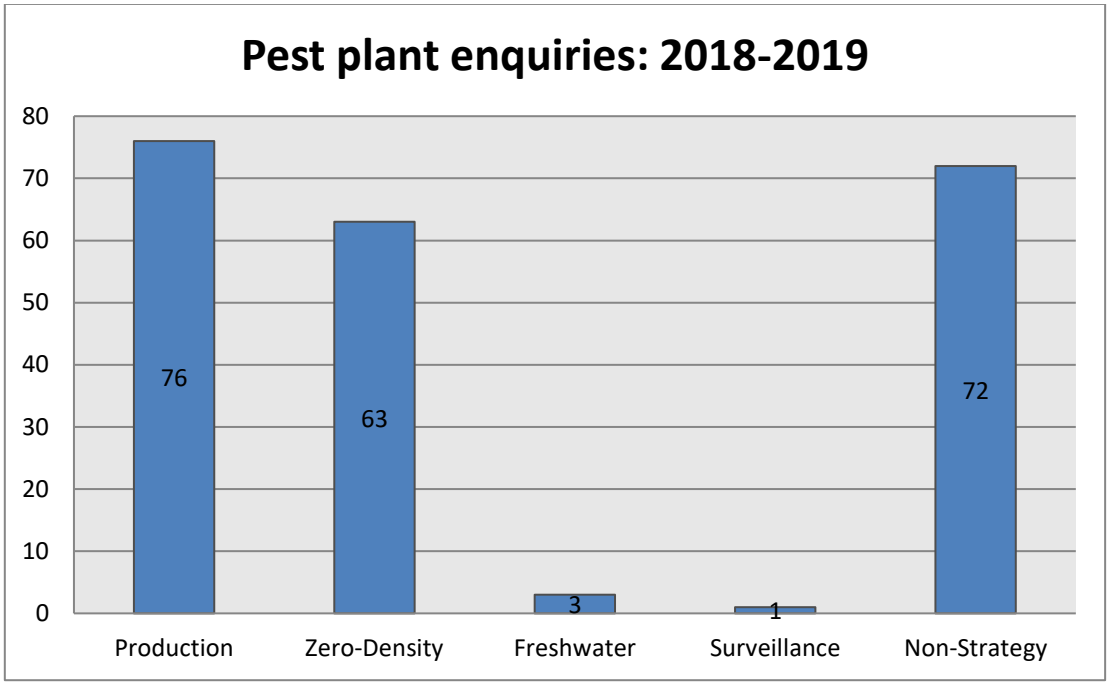


Graph 1 Pest plant enquiries summary - reporting period.

2.10.6 During 2018-19 staff were able to respond to 94% (c.f, 95% target) of all enquires logged in the Frontlines database within the expected timeframe. We endeavour to address all enquires as soon as practicable, however staff leave and out of office work programmes occasionally reduce staff availability to respond within the desired timeframes.

2.10.7 The 2018-19 year saw a reduction in the total number of pest plant enquiries fielded by the pest plant team from 350 last year to 215 this year. There has been a reduction in requests for information over time, in part due to no significant pest incursions driving enquiry as was observed around myrtle rust and velvetleaf as well. Urban enquiries have also reduced this year.

2.10.8 The enquiries this year were predominantly made up with Production pest complaints/information requests or people seeking assistance for non-pest plan species where staff are happy to provide best practice control advice. (Graph 2)



Graph 2 Pest plant enquiry by type for the 2018-19 financial year.

2.10.9 Our Check, Clean and Dry Summer freshwater advocate for 2018-19 was the high energy 'Didymo Dave'. Our key audiences were users of the upper Whanganui River and we used a mix of communication vehicles – signage, events, water side, sports shops, print media, long-lead media (fishing and outdoor audience), vehicle leaflet drop, accommodation providers, campgrounds, radio talk back and social media to get the message out there.

2.10.10 Dave had 1177 conversations with fisher people, freedom campers and other users of the great outdoors. He screened 3000 event participants (multisport and trail-running events) as well as squeezing in impromptu lollipop quizzes in carparks and at campgrounds.

2.10.11 The main aim for the summer was to connect with locals to encourage more site guardians and to show the importance of connecting to their special places and the people who visit them.

3 Activity Summary

Project	Key Deliverables	YTD Progress
Wilding Conifer – Central North Island Regional Steering Group (RSG) – Fund holder and Chair	Work with partners and other stakeholders re: 1. Planning for management unit activity and reporting 2. Annual meeting scheduled	Ministry of Primary Industries - Horizons contract signed, partners' variations signed. Work across the programme area. No health and safety issues.
Waimarino-Tongariro National Park Darwin's barberry control programme	Coordinated control across public and private land to increase the protection of previously cleared areas.	Programme completed.
Rangitikei Horsetail Group	Support group activity with population releases and monitoring.	Weevil numbers from the rearing facility at Lincoln were disappointingly low this season, Horizons funded repeat collection of weevils from England in May and June.
Tutsan Action Group	Support group activity with population releases and monitoring.	The TAG wound up after twelve years. Delivering two bioagents against tutsan.
Desert Road Invasive Legume Control Group	▪ Relationship between parties maintained. ▪ Memorandum of Understanding maintained and out-worked. ▪ Coordinated action in priority areas is undertaken against the target species.	Successful meeting delivered three agencies using one contractor to undertake landscape-wide removal of target species with pro-rata payments. No update since.
Freshwater Pest Partnership Programme and Check, Clean, Dry (CCD) advocacy programme.	Representing Horizons at national forum to champion behaviour change and freshwater pest protection. Attendance at high-risk events and strong advocacy with the main users of waterways in our headwater areas.	Advocacy work started on 1 October at Lake Otamangakau and continues. Good partnership formed with Ngāti Rangi volunteers for Ohakune-based events.

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