Pest management

Didymo - learning from success

IPM - a safer way?

Marine biosecurity

Controlling a canine outbreak
Biosecurity magazine

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I would like to reflect on some achievements, changes and challenges that I have noted across the pest management system since my recent return to MAF Biosecurity New Zealand (on secondment from the Department of Conservation) after two years of working in a different area.

One key reflection is that a real strength of New Zealand’s pest management system is the collaborative effort of regional councils, central government agencies, industry, research institutions, iwi and others to improve pest management systems in New Zealand for the future. This has been clearly demonstrated over the last two to three years with the extensive input and engagement from a large number of individuals, agencies and institutions in the future of pest management project. This has culminated in the endorsement by Cabinet and the chief executives of all central and regional government agencies of the Pest Management National Plan of Action 2010–2035 (see page 14).

We are now at an exciting stage, with work under way to implement the plan of action. Significant and sustained effort will be required to achieve the plan’s vision of improved pest management systems for New Zealand – that vision includes improving access to best practice information and tools, greater support for collective action and simplified legislative processes. There is no doubt that the successful implementation of the plan of action will depend on the ongoing commitment, both in terms of resourcing and expertise, from all of the key pest management players in New Zealand.

The Top of the South Marine Partnership is an excellent example of how a number of the planned improvements in the plan of action have already been implemented due to the efforts of a committed partnership across a number of stakeholders (see page 15).

A new approach to controlling bovine tuberculosis in New Zealand, a disease that could jeopardise New Zealand’s international deer, beef and dairy industries, has been developed through a recent review involving significant collaborative efforts across the Animal Health Board, Ministry of Agriculture and Forestry, regional councils and the cattle and deer industries. The management of tuberculosis is an important component of New Zealand’s pest management system (around $80 million expenditure per annum) and the revised strategy will continue with the aim of reducing the level of disease in cattle and deer herds, but also test the feasibility of eradicating tuberculosis from populations of wild animals in areas of heavy forest (see page 28).

While on the topic of collaboration, I will take this opportunity to mention something about a subject close to my heart. The collective engagement over the last three years of industry, regional and central government, and research institutes has led to an agreed rabbit plan of action (soon to be available on the MAF Biosecurity New Zealand website) that identifies a number of practical actions that will remove barriers to effective and efficient rabbit management.

The last two years have seen further developments around MAF Biosecurity New Zealand’s leadership role in nationally significant long-term management programmes. In this edition you can read about the didymo programme’s partnership approach using the well recognised “check, clean, dry” message to reduce the impact of other significant regional freshwater pests (see page 8), and the establishment of the kauri dieback management programme (see page 5) which is the first such programme to operate under a joint leadership model.

There are some great examples of pest management in this edition of Biosecurity. They highlight some of our achievements but also represent what we need to do more of. You can read about the efforts to develop our toolbox for managing vertebrate pests, specifically around new trap technologies and demonstrating the benefits of pre-feeding (see Electronic technologies keep tabs on possum foraging behaviour on page 7).

Other articles on the National Pest Plant Accord (page 13), marinas (page 18) and hydrilla (page 6) all show how the combined efforts of the players in the pest management system are making a real difference.

There is little doubt that existing pest risks will change, and that new risks will emerge in the future. The challenge for us all is to continue to improve the way we work together, and to fully engage in the system improvements that the pest management plan of action outlines, so that we can deliver the greatest possible benefits for New Zealand.

Dr Ben Reddiex, Acting Group Manager – Pest Management, Post Border, MAF Biosecurity New Zealand
Biosecurity for Conservation

Ten years on from the inception of the New Zealand Biodiversity Strategy, it is time to take stock and see how things have improved.

It should be obvious that protecting our unique indigenous biodiversity is a fundamental driver for why New Zealand undertakes biosecurity work. Invasive species are seen globally as one of the top three threats to conservation and are arguably the biggest issue we currently face for biodiversity management in New Zealand.

Biodiversity objectives

It is perhaps less obvious that our biosecurity strategy was, in part, precipitated from our international commitment to biodiversity protection. Our ratification of the Convention on Biological Diversity drove the development of the New Zealand Biodiversity Strategy in 2000, which contains specific biosecurity objectives covering biosecurity co-ordination and management of biosecurity risks.

A comprehensive review in 2006 noted substantial progress towards meeting these objectives. The review emphasised the importance of two key milestones – the development of the New Zealand Biosecurity Strategy in 2003 and the formation of Biosecurity New Zealand in 2004. However, it also highlighted the need for continued improvements in the co-ordination of biosecurity management, improving risk assessment and risk management, and managing potential pest species already here.

Making good progress

Ten years on from the biodiversity strategy and four years on from the review, we are now in the International Year of Biodiversity. While all evidence points to the continued decline of biodiversity, we are making progress towards the biosecurity objectives of the strategy.

MAF Biosecurity New Zealand now has staff tasked specifically with improving the co-ordination of biosecurity for biodiversity and improving decision making regarding the management of biosecurity risks to biodiversity values. We are better at assessing and managing risks, and we have tackled major biodiversity pests using national-scale collaborative approaches. Further gains are also anticipated from the Pest Management National Plan of Action, the Department of Conservation’s natural heritage management system, the emerging regional council’s biodiversity monitoring framework and numerous initiatives from central and regional government, non-governmental organisations, Crown research institutes, universities and the private sector.

Challenges ahead

Of course, many challenges remain. We need to continually remind ourselves that biosecurity is an important tool for the protection of biodiversity and is not an end in itself – the biosecurity–biodiversity dichotomy is an unhelpful myth. Accordingly, we need to find better ways to integrate biosecurity approaches into our biodiversity management frameworks.

Underpinning all of this is a need for greater collaboration and alignment. The biosecurity system is diverse and complex, but major gains can be made by recognising that, collectively, we seek similar outcomes and ways to work towards them.

Erik van Eyndhoven, Principal Adviser Conservation, Pest Management Group, MAFBNZ, erik.vaneyndhoven@maf.govt.nz
Kauri dieback (Phytophthora taxon Agathis or PTA) is a recently discovered disease that can kill kauri trees of all ages and sizes. Kauri dieback appears to affect only kauri, and is believed to be a soil-borne disease spread mainly through soil and soil–water movement and transferred by people, tracked from place to place on shoes, equipment and tyres. Affected trees show yellowing leaves, canopy thinning, dead branches and lesions that bleed resin across the lower part of the trunk.

The kauri dieback management programme came into being a year ago as a response to identify and manage the risks to kauri. In late 2009, Cabinet, tāngata whenua and regional councils opted to work together to protect New Zealand’s ancient kauri forests.

The six agencies involved – MAF Biosecurity New Zealand, the Department of Conservation, Auckland Council, Northland Regional Council, Bay of Plenty Regional Council and Environment Waikato – are working together and with Māori to develop the programme’s strategy. This is to protect kauri by containing the disease to infected sites, reducing its impact within those sites, preventing or slowing its spread across the kauri region and concentrating efforts to keep high-value sites disease free.

During the programme’s first nine months, the key was to learn more about kauri dieback and how to manage it, put protection measures in place (such as upgrading tracks and installing cleaning facilities at forest entrances and exits) and inform forest users about their part in the success of the programme. Another important focus was to develop the programme’s management plan and finalise the core team to deliver it.

The programme has already developed simple diagnostic tools to identify whether PTA is present in an area so the next priority is to get a detailed understanding of where the disease is located.

This surveillance data will refine the programme’s strategy, allowing efforts to be targeted or re-evaluated if the disease proves more widespread. As the status of key kauri sites is clarified, the best mix of protective measures will be implemented at each site – whether it be signage and interpretation, track hygiene stations, track upgrades, track rerouting or animal vector control and closure.

Lisa Gibbison, Senior Communications Adviser, MAF Biosecurity New Zealand, lisa.gibbison@maf.govt.nz

Kauri is a nationally and regionally significant species that is a taonga of great significance to Māori and has cultural value for many New Zealanders. Kauri are among the world’s tallest trees and once covered much of the upper North Island. They are part of New Zealand’s history and an essential part of the ecosystem as they are home to many other trees, plants and threatened wildlife.

All visitors to kauri areas are asked to always keep to defined tracks, clean their footwear and equipment before and after leaving kauri forest areas, and stay away from kauri tree roots.

For more information on kauri dieback and preventing its spread visit www.biosecurity.govt.nz/pests/kauri-dieback
MAF Biosecurity New Zealand’s (MAFBNZ) eradication response for hydrilla, New Zealand’s worst aquatic weed, is showing early signs of success. The annual survey of the Hawke’s Bay Lakes Tutira, Waikopiro and Opouahi, carried out by NIWA scientists has shown that almost all (99.3%) the hydrilla plants have been eliminated by the grass carp introduced in December 2008.

The grass carp were introduced as a form of bio-control, specifically to rid the lakes of hydrilla. Their introduction follows their success in eliminating hydrilla from nearby Lake Elands and their use elsewhere around the country to control other invasive water weeds that are destroying many of our treasured lakes.

Trout fishing in the Hawke’s Bay lakes has reportedly improved, with lines no longer getting snagged in the extensive weed beds. Fish size and condition has also been good.

Importantly, the NIWA scientists report that the native aquatic plants have not changed much since the grass carp were introduced.

Once the risk of hydrilla being spread is lowered, cages will be put into Lake Opouahi to keep the grass carp out and provide a refuge for native plants and animals. This will aid the restoration process once the hydrilla is eradicated from the whole lake.

Numerous baby freshwater mussels were found in Lake Waikopiro this year, compared to last year when only a few adult mussels were found. NIWA scientists think this may be a recolonisation of the area that used to be smothered by dense, tall hydrilla beds.

Bird numbers and species found at the hydrilla affected lakes have stayed much the same. The bird survey showed that the only notable changes are lower coot numbers now that the hydrilla has gone and increased shag numbers.

Hydrilla is one of the worst invasive water weeds in the world, and controlling it costs hundreds of millions of dollars each year in the United States. Because it has only been found in the four Hawke’s Bay lakes, it is possible to eradicate it completely from New Zealand, before it spreads. If hydrilla were to get into other iconic lakes such as Lake Waikaremoana or Lake Taupo, it would be devastating, and eradication would be impossible. Spread from lake to lake is caused by people moving boats or fishing equipment contaminated with fragments of hydrilla.

Grass carp are the only bio-control available and the only other way of controlling hydrilla in New Zealand is a herbicide, which effectively controls but will not eradicate hydrilla.

Hydrilla is one of 11 established pests that MAFBNZ is managing as National Interest Pest Responses.

The MAFBNZ hydrilla eradication report is available at www.biosecurity.govt.nz/pests/hydrilla

Victoria Lamb, Senior Adviser Pests and Pathways, Pest Management Group, MAFBNZ, victoria.lamb@maf.govt.nz
INNOVATION IN PREDATOR TRAPPING

There is a new weapon in the fight against predators — the Henry trap. This series of self-resetting traps is the latest innovation in predator trapping in New Zealand.

With the destruction of native wildlife by stoats being reported by scientists in the 1970s, conservationists realised there was a major problem.

"All we wanted was a trap that killed stoats," says Darren Peters, National Predator Officer with the Department of Conservation (DoC). The answer was the Fenn trap.

While the Fenn trap is very effective at killing stoats, it requires a high level of skill to set correctly and is considered by some to be an inhumane control method.

With experience, DoC learned that it needed a trap that was simpler to use. This thinking was central to the invention of a series of traps in the early 2000s, namely the DOC200 stoat trap. Lighter and considerably easier to set, the DOC200 quickly became the best-practice trap for stoat control. "If it is easier to set, you can set more in a day," says Mr Peters.

The Henry trap is a recent addition to the trapping toolbox. It uses a carbon dioxide gas canister that can fire and reset the killing mechanism 12 times before it needs servicing.

"If the Henry works as well as we think, the labour savings could be quite impressive, as more traps can be carried into the bush at a time," says Mr Peters.

But self-resetting traps can target more than just stoats — the Henry also works on rats and another model in development targets possums.

For a long time, leg-hold traps were seen as the best device to trap possums. But leg-hold traps must be checked every day, so in the mid to late 2000s, the Sentinel kill trap was developed and possum traps could be left for longer periods without being checked.

The next step is to test self-resetting traps like the Henry in the field at a large-scale operational level. The planned research will use DoC’s existing knowledge of traditional traps and current best practice to help determine the efficacy of self resetting traps. These gains can be transferred to the next generation of trap innovation.

“We have to keep improving, we need to keep getting better at predator control,” says Mr Peters.

Phil Bell, Senior Technical Support Officer – Biosecurity, Department of Conservation

A Henry possum trap with five dead possums. This trap has seven kills left in it before it needs servicing (photo courtesy of the Department of Conservation).
The success of the didymo “Check, clean, dry” campaign has led to the same approach being used to combat other freshwater pests.

The vision of the Didymo Long-Term Management Programme has always been to slow the spread of didymo (*didymosphenia geminata*) and other freshwater pests. In the early stages of the programme, the focus was on implementing the “Check, clean, dry” campaign and operational activities to slow the spread of didymo.

Recently, partners in the programme have recognised the benefits of applying the “Check, clean, dry” campaign and the programme’s successful partnership approach to reducing the impacts of other significant regional freshwater pests. For example, *lagarosiphon* in the South Island and hornwort in the North Island have reduced water quality and availability for drinking, recreational activities and biodiversity and, like didymo, these pests can spread easily.

Waterway-user research undertaken in 2010 showed awareness of a range of freshwater pests was relatively high and seen as a national problem of growing importance. With continued emphasis on the importance of cleaning equipment between waterways, the research found that...
Internationally, didymo has recently established in the temperate Patagonian waterways of Chile and Argentina. National Institute of Water and Atmospheric Research (NIWA) freshwater ecologist Cathy Kilroy travelled to Chile in September to attend a workshop run by the Chilean government. Chile is currently looking to New Zealand for guidance on how to slow the spread of didymo, and MAFBNZ has given the Chilean government permission to use the “Check, clean, dry” message.

Jane Bowden, Adviser National Coordination, Pest Management Group, MAFBNZ, jane.bowden@maf.govt.nz

22 percent of respondents had checked, cleaned and dried more regularly than in the previous year.

It is six years since it was confirmed that didymo is present in New Zealand. In that time, MAF Biosecurity New Zealand (MAFBNZ), the Department of Conservation, Fish and Game New Zealand, regional councils, Māori, affected industry and researchers have worked together to create an enduring partnership focused on reducing the impacts of all freshwater pests and protecting the values they threaten.

MAFBNZ invested in a long-term social marketing campaign to slow the spread of didymo and other aquatic pests that may adversely affect fresh waterways. The campaign, which began in 2005, focuses on getting waterways users to always check, clean and dry equipment and clothing between waterways.

Average awareness of freshwater pests amongst the Check, clean, dry survey respondents in 2010.

- **Hydrilla 49%**
  Highest amongst kayakers/rafters

- **Didymo 100%**

- **Koi carp 88%**
  Highest amongst anglers

- **Hornwort 41%**
  Highest amongst kayakers, rafters and anglers

- **Lagarosiphon 80%**
  Highest amongst boaters
INTEGRATED PEST MANAGEMENT

– A SAFER WAY FORWARD FOR NEW ZEALAND?

Biological, cultural and chemical control, and preservation of natural enemies. To those of us outside the agricultural arena, this sounds like a type of modern warfare, but to growers it is the everyday battle of managing pests and diseases in their crops using integrated pest management (IPM).

A need for managing pests and diseases within agricultural systems has been a struggle farmers have faced for centuries. Insects destroy crops, weeds compete for space and soil nutrients, and fungi and bacteria infect plants, lowering yields and causing mortality. Over time, an array of control methods have been developed and applied, with varying levels of success or consequence. Of these, the overuse of synthetic pesticides during the 20th century has potentially been the most damaging to the environment, human health and the pest–crop dynamic.

Balancing act

Born out of the era of chemical overuse that caused pesticide resistance, pest resurgences and residue issues, IPM offered an environmentally sensitive approach for long-term sustainable management of pests and diseases in both agricultural and non-agricultural settings. Unlike the goal of chemical control to eradicate pests, the emphasis of IPM is to use multiple complementary techniques to control pests to a manageable level or economic threshold that does not reduce crop yield. The economic threshold is the stage at which the pests exceed a tolerable level and requires control to ensure the crop is profitable.

An IPM programme sounds like a juggling act – and it is – but when successfully operated, it has many advantages. In an agroecosystem, based largely on ecological impacts, an IPM programme can:

- increase food safety due to less chemical residues;
- decrease environmental contamination and improve resource sustainability;
- increase biodiversity and wildlife habitat through ecosystem balance;
- reduce pesticide resistance.

Figure 1: The IPM pyramid: a representation of some of the control measures often used by IPM systems. Preventative methods can sometimes be sufficient to maintain pests at low levels, while monitoring crop and pest populations to determine if the economic threshold is exceeded, which often results in chemical control. The level of impact on the environment increases with the level of control, and conversely reduces the biodiversity of the agroecosystem.
However, IPM programmes have significant disadvantages when compared with single forms of pest control. They are:

- more complex than chemical controls;
- take longer to establish than chemical controls;
- require more monitoring of pest and natural enemy populations;
- necessitate knowledge of pest and natural enemy ecology and efficacy of measures.

**How does IPM work?**

IPM is a multidisciplinary collaboration that can include entomology, weed science, plant pathology, soil science, wildlife ecology, economics, anthropology and the social sciences. Considering these disciplines, IPM systems are developed to support decisions based on an analysis of costs and benefits (to determine an economic threshold) and impacts on the environment, society and human factors associated with an agroecosystem.

IPM uses three important stages – prevention, observation and intervention – to maintain pest populations below an economic threshold. It is a holistic approach, used when pest populations reach a scientifically determined level that causes economic damage, when the cost to yield and the cost of lost crop quality are more than the cost for control.

A variety of available complementary pest control measures are then applied, beginning with the least environmentally disruptive. These impact on the environment and biodiversity to varying degrees, as illustrated in Figure 1.

There are many other control measures used in IPM systems. Which measure to select depends on a grower's background and knowledge of IPM, their resources and if there are established industry programmes and support. Other measures commonly used include:

- crop rotation and intercropping;
- field sanitation and hygiene measures;
- pruning, weeding and grazing management;
- use of sex pheromones for mating disruption;
- weather and pest population forecasting;
- soil health maintenance.

**IPM in New Zealand**

IPM in New Zealand has evolved with the support of government departments, the scientific community and agricultural industries to be a widely respected option for pest control. Some of our primary industries use IPM programmes that emphasise the reduced use of pesticides, higher quality and yield of crops, and improvements in sustainable land management. Programmes are currently in use for several crops including outdoor lettuce, pipfruit, vegetable brassicas, viticulture and greenhouse crops.

**Case study: Greenhouse tomatoes**

Two species causing significant damage in New Zealand greenhouse tomato crops are the greenhouse whitefly (*Trialeurodes vaporariorum*) and the sweet potato whitefly (Bemisia abaci). Both transmit viruses of economic importance and have developed resistance to commonly used pesticides. In an effort to control these pests, the New Zealand tomato industry now uses IPM systems focused on the natural enemy parasitoid wasp – *Encarsia formosa*.

The IPM system used for the whitefly species includes a variety of measures:

- selection of whitefly resistant tomato varieties;
- planting crops asynchronously to whitefly life cycles;
- greenhouse and crop sanitation;
- yellow sticky traps and insect barriers on doors and windows;
- crop monitoring of pest populations;
- periodic release of natural enemies – *E. formosa*;
- modification of environmental conditions to favour *E. formosa*;
- selective and targeted use of pesticides.

Within this IPM system, when preventative measures and monitoring of whitefly populations indicate initial crop damage, growers begin to release mass-produced *E. formosa*. These female parasitoid wasps deposit their eggs inside the bodies of whitefly nymphs and pupae causing mortality and allowing their own offspring to develop, emerging as adults of the next generation. Releases are repeated at weekly intervals until 80 percent control of whitefly populations is achieved (the economic threshold). Parasitism can be seen as black scales of the pupating wasps within parasitised whitefly juveniles.

Only when whitefly populations cannot be controlled by *E. formosa* and other IPM measures, will selective and targeted pesticides be applied to the tomato crops.

Continued on next page ›
“There is a continuing trend towards decreasing the use of chemical products, in favour of good agricultural practice and IPM.”

IPM’s role in biosecurity

The importance of IPM systems does not end at the farm gate but carries over into the acceptance of New Zealand’s phytosanitary export systems for fresh produce. Balancing exports is the recognition of IPM on imported fresh commodities, and IPM is important from a safe-trade perspective for several reasons.

As part of New Zealand’s contribution toward global environmental sustainability, we have committed to phasing out the ozone depleting fumigant methyl bromide under the Montreal Protocol and Clean Air Act, signed in 1994 by over 162 countries.

There is a continuing trend towards decreasing the use of chemical products, in favour of good agricultural practice and IPM.

MAF Biosecurity New Zealand has shifted focus from single methods of chemical control to integrated systems approaches (including IPM) for phytosanitary requirements of fresh produce imported into New Zealand. Integrated systems approaches include multiple independent measures that cumulatively provide phytosanitary protection of the commodity.

Case study: fresh pears from China

Importing fresh pears from China provides a good example of the acceptance of an IPM programme as part of a systems approach for trade in fresh produce. To satisfy New Zealand’s requirements for the importation of fresh pears from China, an agreed systems approach for pest control is used to provide phytosanitary assurance. This systems approach includes an orchard IPM programme, with the following components:

- good agricultural practices;
- pest and disease monitoring;
- biological controls;
- cultural controls;
- chemical controls;
- field sanitation;
- record keeping of all chemical applications.

Collectively, IPM and other systems measures (grading, secure packaging, growing in areas free from high-profile pests and cold treatments) allow these fresh pears to be imported into New Zealand and obtain biosecurity clearance.

Future of IPM in New Zealand

The success of IPM requires a commitment from the New Zealand Government, the scientific community and primary industries to continue to support research and development of new control measures and an increase in knowledge of pest–crop dynamics. A trend in this direction will promote long-term environmental sustainability, increase our agricultural sector and the safety of our food.

Leanne Stewart, Fresh Produce Imports Adviser MAFBNZ.

Fresh pears (Pyrus communis) from the People’s Republic of China.
“Be careful online” — wise words, but not ones normally associated with biosecurity. However, it seems the wrong online purchase could unwittingly spread some of the most invasive pest plants in the country.

Approximately 124 plant species listed in the National Pest Plant Accord (NPPA) are managed through a partnership between MAF Biosecurity New Zealand, regional councils, the Department of Conservation and the Nursery and Garden Industry Association.

Bay of Plenty Regional Council Pest Plant Officer Walter Stahel visits nurseries and checks roadside stalls and weekend flea markets to ensure species listed in the NPPA are not propagated, sold or distributed in the region.

Walter says that managing the NPPA is working well in the Bay of Plenty as there is a high awareness of the prohibited species and much peer pressure, especially at the flea markets. "People will quickly let me know if a prohibited plant is being sold by someone elsewhere in the market," he says.

Walter recently followed up on a report from the Auckland Regional Council and Ministry of Agriculture and Forestry that the prohibited aquatic plant hornwort had been bought through the Trade Me website. Hornwort is an invasive aquatic plant that has not yet established in the South Island. Walter tracked down the purchaser and collected the hornwort for destruction.

The buyer – a Tauranga Fish and Reptile Club member – was impressed with the speed and efficiency of the biosecurity system. The plant was seized and destroyed within hours of being sold. Walter says that the buyer was completely unaware that hornwort was a prohibited NPPA plant. "He was very apologetic and happily surrendered it."

Walter was then invited to be a guest speaker at the next Fish and Reptile Club meeting. He told club members about the NPPA and how they can help to prevent invasive species from making their way into the New Zealand environment.

John Mather, Environment Bay of Plenty, john.mather@envbop.govt.nz

Hornwort grows rapidly in freshwater, choking waterways and affecting native aquatic plants and animals.
Pest management systems set for change

The Pest Management National Plan of Action 2010–2035 has been endorsed by Cabinet and the chief executives of all central and regional government agencies involved in biosecurity. Implementation of the agreed programme of improvement began in November 2010.

The purpose of the Pest Management National Plan of Action 2010–2035 is to make it easier for everyone involved in pest management to act collectively in New Zealand’s best interests. “It sets out key changes agreed by central and regional government to improve pest management systems in New Zealand for the future,” says Ben Reddiex, MAF Biosecurity New Zealand’s Acting Group Manager – Pest Management.

While New Zealand’s pest management systems are relatively well developed in an international context, there are opportunities to improve the current system where pests are not always managed in the best way. In other words:

- some pest management is not happening when it should;
- some pest management is happening when it should not;
- some pest management is not as effective as it could be;
- some costs are not fairly distributed.

“The plan of action has been developed with the key organisations involved in pest management including MAF, Land Information New Zealand, Department of Conservation, regional councils, research institutions, Māori and industry representatives,” says Dr Reddiex.

The proposed plan of action was released for public consultation in June 2010. Sector representatives worked across six work streams to shape the proposed plan and achieve clarity around system characteristics, shared outcomes and performance measures.

“It was great to see that feedback from consultation largely supported the proposed changes to pest management systems, and that only refinements were required to the plan,” Dr Reddiex says.

The key improvements covered by the plan are to:

- clarify roles and accountabilities;
- improve and simplify processes;
- develop better and more accessible tools;
- improve capacity for collective action.

The improvements are drawn together in an implementation programme to provide for immediate action in some areas (within two years), while outlining longer term processes to fit pest management for the future in other areas (over the next 25 years).

The first phase of changes will be implemented in a timely fashion and include the following.

1. Best practice: A collective governance committee will be established in 2011 to develop a toolbox of effective practices for the future.
2. Collective action: A Māori Advisory Committee will be established. Shared leadership models are being developed and community funding processes reviewed.
3. Legislative change: A Biosecurity Law Reform Bill will be introduced to Parliament before the end of 2010 to amend the Biosecurity Act 1993. This will implement several changes in the plan of action, including providing for:

- the establishment of a national policy direction to ensure that pest management activities provide the best use of available resources for New Zealand’s best interests and align where necessary;
- the Crown to meet good neighbour rules under regional pest management strategies, once strategies align with the national policy direction;
- the leadership functions of the Ministry of Agriculture and Forestry and regional councils to be established in the amended Biosecurity Act;
- the Minister for Biosecurity to make decisions on complex issues that do not get resolved;
- more flexible legislative tools, including the ability to manage pathways that have the potential to spread harmful organisms.

“MAF will lead the implementation of the plan of action, with collective governance and broad input being provided from all the key pest management players,” says Dr Reddiex. “The pace of implementation will need to be sustainable and will be subject to the prioritisation and funding decisions of participating organisations.”

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Top of the South Marine Partnership

Many of the actions in the Pest Management National Plan of Action 2010–2035 that are planned to improve marine pest management have already been implemented in the upper South Island through the efforts of the Top of the South Marine Biosecurity Partnership.

In 2009, members of the partnership signed up to a strategy to prevent the introduction and minimise the spread of damaging marine pest species. The partnership is a pilot for a regionalised partnership approach to marine biosecurity management and includes the Tasman, Marlborough and Nelson councils, iwi, MAF Biosecurity New Zealand, industry, the Department of Conservation, research institutions and the Ministry of Fisheries.

“In developing our strategy we had to find pragmatic solutions to get things done and allocate roles amongst partner agencies. It’s pleasing to see that the newly clarified roles in the Pest Management National Plan of Action reflect the way we are already working together to implement a local solution for top of the south,” explains Paul Sheldon, Nelson City Council’s Environmental Monitoring Co-ordinator and Chair of the Partnership.

The national plan of action proposes further improvements for marine pest management including identifying MAF Biosecurity New Zealand as the lead agency for the development of national marine vector management strategies and changes to the Biosecurity Act 1993 to enable management of dirty vessels. The current management approach is reactive so vessels need to have unwanted organisms present before action can be taken. Additionally, for a complex pest management issue where it is unclear which party should be accountable the Minister will be able to allocate a lead agency.

The plan of action endorses extending this successful Top of the South model for regional partnerships to all parts of New Zealand. The success of marine partnerships to date has been recognised and the benchmark set for all marine stakeholders to work together and get the job done.

WORKING WITH UNWANTED ORGANISMS

Certain species that pose a threat to the wildlife, environment or industry of New Zealand are classed as unwanted organisms (UOs). In other words, under the Biosecurity Act 1993 it is illegal to breed, exhibit, sell or deliberately move these species.

The Ministry of Agriculture and Forestry keeps a searchable online database of close to 15,000 UOs. To find out whether a species is a UO, visit the MAF Biosecurity New Zealand (MAFBNZ) website at www.biosecurity.govt.nz and check the UO register.

If you want to carry out any activity involving a UO (regardless of how many are found in the wild), you must obtain special permission from MAFBNZ’s Chief Technical Officer. Permissions have been given for activities such as exhibiting pest plants, researching pest pathogens and capturing pest fish.

For more information, visit MAFBNZ’s website and search for “unwanted organism”.

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ELECTRONIC TECHNOLOGIES KEEP TABS ON POSSUM FORAGING BEHAVIOUR

Pre-feeding is used to encourage target species to consume toxic bait and receive a lethal dose of poison. It has generally been accepted that pre-feeding does this by overcoming animals’ aversion to novel foods. But recent research indicates that pre-feeding might also change animals’ foraging patterns and use of space in ways that increase the likelihood of them finding and eating a lethal dose of poison bait.

Pre-feed can be delivered in several ways – aerial sowing, restricted in bait stations, or placed in localised strips or piles of bait on the ground. There is normally a one-to-two week delay between the application of pre-feed and the laying of toxic bait. When pre-feed is applied in restricted areas, the target animals have to remember not only the positive response resulting from consuming pre-feed bait (consumption memory) but also where the bait was available (spatial memory).
Change in behaviour

Bruce Warburton and Richard Clayton of Landcare Research have been investigating how pre-feeding affects the time that brushtail possums spend foraging at or in close proximity to a pre-feed source. Their investigations show how possums changed their home range use over the period that pre-feed was available. The data will enable smarter poison application methods that will minimise the cost and amount of bait.

Mr Warburton says that while considerable research has looked at the role pre-feeding plays in overcoming food aversion, little research has looked at how pre-feeding changes animals’ foraging behaviour.

“Part of this is because it has been very difficult to monitor animals, at sufficiently frequent intervals, to determine where an animal is in its home range. Recent developments in electronic tracking and global positioning technology (GPS) have provided tools that now enable researchers to keep close tabs on what animals are doing.”

New ways to track possums

Mr Warburton says possums captured in cage traps in the Orongorongo Valley were collared with GPS VHF transmitters and continuously monitored for seven weeks (three weeks before and four weeks after pre-feed was applied).

The data shows that before pre-feeding, possums had restricted foraging patterns, probably due to their use of one or two favoured feeding trees. Subsequent to pre-feed becoming available, this localised foraging pattern changed to a more widespread movement, presumably a result of possums searching for pre-feed on the ground.

Mr Warburton says pre-feeding clearly encourages possums to look for bait where they had previously found it and should therefore influence both the time they spend on the ground and the time searching for baits.

“Pre-feeding should also increase the likelihood of possums quickly encountering toxic bait when it is sown,” he says, “especially in isolated strips or clusters, as occurs with either aerial strip sowing or any form of ground-based poisoning.”

He says a key benefit of pre-feeding is that it increases the likelihood that possums will more actively look for, and therefore more frequently encounter, a second toxic bait as soon as they have finished eating the first bait they encounter. This reduces the chance of possums surviving if the first bait encounter does not deliver a lethal dose of toxin.

Wide implications for pre-feeding

Mr Warburton says the team has concluded that pre-feeding has a far broader effect on possum foraging behaviour than just increasing their willingness to accept and consume bait. “It clearly changes where they spend time, and we infer that it teaches them to search in likely places for bait. This insight can be used to design pre-feeding programmes that increase the efficiency of poisoning (or even trapping operations) by drawing possums to easily baitable areas. This includes the possibility of applying toxic bait in localised clumps rather than broadcasting baits across the landscape. Such an approach might reduce concerns about poisoning, by permitting a move away from broadcast sowing operations, to much more localised baiting regimes.”

■ Bruce Warburton, Richard Clayton, Landcare Research

“When pre-feed is applied in restricted areas, the target animals have to remember not only the positive response resulting from consuming pre-feed bait (consumption memory) but also where the bait was available (spatial memory).”
Working together for marine biosecurity

New Zealand’s marina network is working closely with MAF Biosecurity New Zealand (MAFBNZ) to help protect our coastal environments from the impacts of marine pests.

The New Zealand Marina Operators’ Association (MOA) is phasing in an international environmental initiative known as the clean marinas programme and has been working with MAFBNZ to incorporate biosecurity information in this initiative.

Embracing the many aspects of environmentally friendly boating, including sewage management, boat refuelling, bilge water and boat cleaning, the programme applies the world’s best practice in terms of sustainability in the marine environment.

It is designed for both individual boaties and marina operators. Operators participate through a self-assessment audit, which includes criteria around biosecurity management. Requirements include having run-off contained at haul out areas, ensuring staff know how to identify and report key marine pests, and having information on hand for boaties about preventing the spread of marine pest species.

For boaties themselves, there is a website devoted to environmental boating (including biosecurity) at www.cleanboating.org.nz

MAFBNZ has also collaborated with the MOA to produce the Clean Boats - Living Seas booklet. The booklet is full of information on biosecurity best practice, including effective boat cleaning and the importance of thorough anti-fouling. It also provides guidelines for environmentally sound use of tidal maintenance grids.

This booklet has been widely distributed by regional councils to around 14,000 berth holders through the marina network and to boat owners who tie up at the country’s 10,000 swing moorings. The MOA’s spokesperson Brett Colby says, in terms of environmental education, his organisation is in a prime position to be a conduit between the boating community and environmental agencies promoting best practice and environmental concerns.

Lou Hunt, Senior Adviser National Coordination, Pest Management Group, MAFBNZ, lou.hunt@maf.govt.nz
Clearing all incoming mail to New Zealand is a job with great variety for MAF Biosecurity New Zealand (MAFBNZ) staff based at Auckland Airport’s International Mail Centre (IMC).

On average, 2.5–3 million mail items arrive on our shores each month and go through x-ray screening and past our detector dogs. One of our busiest times, Christmas, is fast approaching and this number will rocket up to around six million items.

Kaleidoscope of diversity
Because mail cargo is both personal and commercial, consignments can be extremely varied. An officer’s day might include permitted biological (diseased animal tissue or DNA samples), milk, wool, or fresh and processed plant products being imported for testing at our universities and commercial laboratories.

Spring and autumn see consignments of bud wood, bulbs and bulk seeds coming in for growers. Throughout the year, many packets of unique seeds arrive for clubs and hobbyists. Winter sees prescriptions for Chinese herbal soups containing a variety of fungi, roots, twigs, seeds, citrus peel, dried insects and deer horn coming to New Zealand to ward off colds and flu.

The diversity of New Zealand’s population means a kaleidoscope of ethnic goods arrive at our shores. Moon cakes containing meat, fruit and egg for the Korean mid-autumn festival, live shamrocks for St Patrick’s day, decorated eggshells for Easter, goods for Diwali, Shofar Ram’s horns for Jewish festivals, and European Christmas boxes containing pine branches, straw decorations, meats and cheeses are just a few examples.

Bomb scares are also not unheard of; and two boxes of grenade-shaped cigarette lighters, an Israeli missile casing ornament and a suspicious parcel with protruding wires all recently came under close scrutiny.

Continued on next page
Co-operation between New Zealand Customs and MAFBNZ is a benefit to both agencies. We x-ray alongside each other and share information, for example, to identify dried dates stuffed with Contac NT (a precursor for methamphetamine or "P") or fresh Khat leaves from Yemen or Ethiopia. We also provide extra staff for air cargo, metro, the port, the international terminal and cruise ships, so our staff are becoming experienced in handling all types of cargo and passengers crossing our border.

Our active dog team works alongside us to provide the superior sniffing power needed to locate smuggled items and small goods that are more difficult to spot by x-ray technology. Cream TV, the crew responsible for producing Border Patrol, Dog Squad and Coastwatch, is often in residence filming our dogs at work.

I can recall some strange items over the last 15 years, including potted trees, a carton of eggs declared as bluing tablets, a tree-ant nest desk ornament, a turtle shell with turtle spine, baked rats, a squirrel, mole and armadillo diorama, live Siamese fighting fish, snakes, an ant farm, a tiger skin, zebra and zebu skins, mounted boar rears, ingredients for curry from a local Thai supermarket (including limes, chillies, ginger-root, lemongrass and Kafir lime leaves). And live fish eggs packed in damp peat.

Fiona Klassen, Quarantine Officer, MAFBNZ, fiona.klassen@maf.govt.nz
Earlier this year, working dogs on a remote East Cape station began to show signs of a severe and fast-moving respiratory disease. When dogs began to die, MAF Biosecurity New Zealand’s (MAFBNZ’s) incursion investigation team was called in to assist and investigate.

In mid-summer 2010, a respiratory disease outbreak affected half the working dogs on a sheep and beef station on the East Cape over a four-week period. The station ran around 100,000 stock units and 15 dog teams, each with around 10–12 dogs. One dog affected later in the epidemic was a seven-year-old, 34-kilogram intact female working huntaway. She was found lying in her kennel, and would only rise with difficulty and refused to eat her dinner. She had been working the previous day and the shepherd had not noticed anything unusual. The shepherd had several other dogs with a productive cough, three of which were being treated with broad spectrum antibiotics.

Initial treatment
On examination by a veterinarian (2pm, 6 March) she was tachypnoeic (80 breaths per minute), dyspnoeic (abdominal effort on inspiration) and tense in her abdomen. She had pale, tacky mucus membranes with a capillary refill time of two seconds. She had trouble rising, but could walk short distances if encouraged. She had increased lung sounds diffusely and her temperature was 37.7°C.

The dog was hospitalised and intensive medical treatment started, including intravenous fluids, analgesics and broad spectrum antibiotic cover (enrofloxacilin, Baytril).

A purulent nasal discharge developed about four hours later (6pm). A swab was taken for bacteriology and sensitivity testing and a further antibiotic (doxycyline, Vibravet) added to the dog’s treatment regime.

In the morning (4am, 7 March) her breathing had improved and her respiratory rate had lowered to 40 breaths per minute, but abdominal effort on inspiration was still present. The antibiotic and analgesic therapy was repeated and intravenous fluids were continued. By evening (4pm) she was obtunded and unable to rise. Later that evening (8pm) she was found dead in her cage.

A biosecurity risk
Given the presentation and the history of deaths earlier in the outbreak, the veterinarian was concerned that it may have been a new or emerging condition similar to an aggressive strain of equine influenza that affected dogs in the United States. The Ministry of Agriculture and Forestry’s (MAF’s) exotic disease and pest emergency hotline was called. In consultation with MAF, a post mortem was conducted and a range of tissues collected for histology, bacteriology and virology.

A range of fixed and fresh tissues were sent to New Zealand Veterinary Pathology and MAFBNZ’s Investigation and Diagnostic Centre (IDC) at Wallaceville, Upper Hutt. As part of the investigation, further sera and deep nasal swabs were collected from 13 other station dogs – eight with early stage respiratory disease and five that had never been affected. Convalescent sera were

Continued on next page

MAFBNZ investigates severe canine respiratory outbreak
collected from the same dogs approximately three weeks later. On gross examination, the dog’s organ systems appeared normal, except her lungs had diffuse, multifocal white lesions ranging from 1–10 millimetres in diameter, typical of severe subacute necrotising bacterial bronchopneumonia. Histology revealed extensive local destruction and replacement of the parenchyma surrounding airways by inflammatory exudates of fibrin and necrotic neutrophils with numerous colonies of bacteria. Though a multifocal distribution often suggests haematogenous bacterial showering, sometimes, as in this case, it reflects fibrinosuppurative exudate spilling out of affected airways and then being aspirated deep into other lung lobes. The chemistry panel and complete blood count performed on presentation were unremarkable apart from the neutropenia and mild hyperbilirubinemia. Tissues from the necropsied dog and deep nasal swabs from the 13 other dogs underwent molecular assays for influenza A at IDC Wallaceville, all with negative results. Virus isolation on Madin-Darby Canine Kidney (MDCK) and Monkey kidney (VERO) cells was also carried out on the respiratory tract tissues and nasal swabs. No virus was isolated based on the absence of cytopathic effect or haemagglutinating activities. Sera from the 14 animals were tested for influenza antibodies using a commercial competitive enzyme-linked immunosorbent assay (ELISA). A positive result was obtained from one dog that had been coughing for three days. This dog remained ELISA positive at the follow-up sampling three weeks later. The ELISA-positive sera were tested by haemagglutination inhibition tests using equine influenza type 2 (H3N8) antigen with negative results. Bacterial culture of the nasal swab resulted in heavy growth of haemolytic Streptococci, Staphylococcus intermedius and Klebsiella species. A heavy growth of haemolytic Streptococci was cultured from the lung tissue. The haemolytic Streptococci was sensitive to all antibiotics in a routine sensitivity screen, while the Klebsiella was found to be resistant to clindamycin and doxycycline. No Bordetella spp. were cultured.

**Outbreak control**

Handouts were developed and delivered to the shepherds explaining the factors that promoted the spread of infectious disease and ways to combat the outbreak. The key factors that increase the likelihood of transmission include housing density and frequency of contact, the host’s susceptibility due to stress, nutrition and immunity, and the persistence of infectious agents in the environment. The shepherds were directed to combat the outbreak by resting and isolating affected and exposed dogs, regularly cleaning and disinfecting areas where dogs have contact, vaccinating healthy dogs and keeping kennels dry, well ventilated and warm. Antibiotic treatment should be broad spectrum and based on culture and sensitivity analysis. Treatment should be started early, because by the time severe signs develop, it is often too late, and treatment of newly admitted healthy animals should be considered, particularly if complete decontamination of premises or isolation of exposed animals is not possible. If animals are sent off-site to private homes for treatment, individuals should be made aware of the possible risks to pet animals. For working dogs, not all measures may be practical, but everyone involved should be made aware of the highly infectious nature of the disease, and that practical measures to limit disease spread should be implemented.

**Outcomes**

Three dogs died during the outbreak and a large number of dogs were affected. All dogs showing signs of respiratory illness on the station were given trimethoprim sulphamethoxazole (Trisul) for two weeks past resolution of clinical signs. This selection was based on culture and sensitivity analysis, and the cost for the large number of dogs involved. There were no additional mortalities.
The incursion investigation team at Wallaceville manages the investigation and initial response to any suspected exotic animal disease. The team’s remit has expanded and it is now responsible for investigating not only the major exotic diseases of livestock, but also cases where a new or emerging syndrome is suspected in any terrestrial, freshwater or marine species.

The incursion investigation team is especially interested in syndromes involving multiple animals. Newly imported companion animals presenting with something unusual should always trigger a call to the team. In the past, it has investigated abortion or infertility (Brucella canis), blood film inclusion bodies (haemoparasitic diseases), neurological presentations (feline spongiform encephalopathy, rabies), transmissible venereal tumour of dogs, ticks on recent imports and cardiac disease in dogs or cats with an overseas travel history (Dirofilaria immitis).

Infectious tracheobronchitis, more commonly known as “kennel cough” in dogs, is typically caused by a single or mixed viral or bacterial respiratory infection. Protection against the majority of these infections can be achieved through vaccination, and, in general, kennel cough with single-agent infections are mild, self-limiting and have an excellent prognosis for recovery. In this case, a variety of factors may have led to the high morbidity with three mortalities. The likelihood of multiple infectious agents, lack of immunity and working the dogs while compromised may have aggravated the situation.

Beta hemolytic Streptococci were isolated in this case. Streptococci may contain several virulence factors associated with increased tissue damage, and may work synergistically with Klebsiella to cause severe bronchopneumonia. On this station, no dogs were vaccinated against kennel cough (Bordetella bronchiseptica), and most were overdue for their core vaccine booster. The start of the outbreak coincided with the arrival of a casual mustering team from which two dogs died suddenly soon after arrival, indicating the potential introduction of a virus or bacteria to which the resident dogs had little immunity.

Kennels are considered a high-risk environment for the emergence of pathogenic Streptococci. Working dogs are housed in close contact and are in direct contact with one another on a daily basis. They are often fed a poor diet, worked strenuously and not rested when they show signs of illness. These factors may increase the likelihood of transmission and fulminant infection.

Acute and convalescent sampling found no evidence of sero-conversion to influenza A, ruling out the involvement of these viruses. The outbreak of respiratory disease in these dogs is considered most likely to have been caused by a primary viral agent with varying secondary bacterial involvement. In addition, the clinical course may have been exacerbated by poor herd immunity, high dog density, close contact and strenuous exercise.

Christina Meyer, Veterinarian, VetEnt Gisborne, Sandy McLachlan, Veterinary Pathologist, NZ Veterinary Pathology, Thomas Rawdon, Incursion Investigator, MAFBNZ Investigation and Diagnostic Centre, Włodek Stanisławek, Veterinary Scientist, MAFBNZ Investigation and Diagnostic Centre.

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Our staff members of MAFBNZ recently visited Fresno, California to attend a technical plant quarantine meeting with officials from the United States Department of Agriculture (USDA). The bilateral meeting focused on importing and exporting issues from both the United States and New Zealand.

Tim Knox (Director, Border Standards), Stephen Butcher (Group Manager, Plant Imports and Exports), Karen Sparrow (Team Manager, Plant Exports) and Joanne Wilson (Fresh Produce Imports Team) discussed improving or gaining market access to the United States for New Zealand horticultural products including persimmons, capsicums and apples. At the top of the list for importing issues were the emergency measures that MAFBNZ imposed on stone-fruit (including cherries), strawberries and table grapes to manage the risk posed by the spotted wing Drosophila – Drosophila suzukii. Keeping this fly out of New Zealand is a key objective and any changes to current measures proposed by the United States will have to be technically supported.

Also under discussion were MAFBNZ’s draft additions to requirements for United States citrus and market access requests. Discussion items were supported by comprehensive technical briefings by California state, federal and county scientists on the current monitoring and control programmes for Asian citrus psyllid, the European grapevine moth and light brown apple moth.

“The meeting was very positive and productive with both sides agreeing further steps necessary to progress key issues,” says Tim. “It was an excellent mix of technical information and highlighted positive and challenging aspects associated with key import and export programmes.”

The USDA also organised field trips to a table grape vineyard, cool-store and citrus pack house. The team was also able to briefly visit the Fresno County Fair, a significant community event for the region, which highlighted the diversity of horticultural products produced in California. The visits also gave the team a good overview of traceability systems and post-harvest processing of fruit before phytosanitary inspection.

Tim says it has been several years since MAFBNZ officials have visited the United States for bilateral phytosanitary discussions as most recent meetings have been held in...
New Zealand. “It provided an opportunity for MAFBNZ staff to further cement working relationships with their USDA colleagues, progress key market access issues and view the practical aspects of two important United States export programmes – citrus and table grapes.”

Following the meeting, Tim and Stephen travelled to Mexico to meet with officials from Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA) to strengthen bilateral working relationships.

While there, they provided an overview of the Ministry of Agriculture and Forestry’s amalgamation with the New Zealand Food Safety Authority, an update on the Border System Programme, Joint Border Management System and amendments to the Biosecurity Act 1993, before discussions moved on to the technical items relating to current trade in fresh produce, Mexico’s market access requests to New Zealand (including citrus) and electronic phytosanitary certification.

After the official talks, Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA) hosted a visit to citrus orchards in the Veracruz area in eastern Mexico. The tour included information on Mexico’s fruit fly surveillance and control programmes. The tour also took them to a citrus pack house where fruit is prepared for export.

“The facility was a combination of the best and most modern processing equipment and was equal to that seen in the United States,” says Stephen. “The extensive use of manual labour for the individual inspection of fruit also provides an additional level of phytosanitary assurance for New Zealand.”

Tim says that MAFBNZ plant officials have not visited Mexico for many years, making this an important opportunity to develop a stronger bilateral relationship with Mexico. “It was also timely, with respect to discussing shared pest concerns, namely spotted wing Drosophila and European grapevine moth in California, and for progressing market access requests for citrus,” says Tim.

“The visits provided an excellent forum for progressing market access issues and requests from both countries,” he adds. “We all returned to New Zealand with positive experiences from the meetings and a better understanding of the phytosanitary systems of both countries.”

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Stephen Butcher, Group Manager, Plant Imports and Exports, Border Standards, MAFBNZ, stephen.butcher@maf.govt.nz

“It was an excellent mix of technical information and highlighted positive and challenging aspects associated with key import and export programmes.”

From left, Karen Sparrow from MAFBNZ and Karen Ackerman and Mike Guidicipietro from the USDA inspect produce at Fresno’s Big County Fair.
Regional councils develop consistent monitoring approach

In February, the Regional Council Biodiversity Forum met with Landcare Research and the Department of Conservation to discuss the design of a framework to monitor terrestrial biodiversity.

Developing a monitoring framework for terrestrial biodiversity on private land is a priority for regional councils, and consistency between councils would ensure high-quality reporting and data to enable robust monitoring.

The Forum obtained funding to develop indicators through the terrestrial and freshwater biodiversity information system fund. Landcare Research was commissioned to identify indicators for councils to measure change and trends in terrestrial biodiversity. This builds on work by the Auckland Regional Council (now Auckland City Council) and Department of Conservation’s natural heritage management system.

“We have a unique opportunity to develop a consistent approach to monitoring across all regional councils and have significant buy-in from regions. There is a real willingness to collaborate on this development,” says Rob Phillips, Director Operations at Taranaki Regional Council.

The results of Landcare Research’s preliminary work were presented at the Forum’s most recent meeting in September 2010. The Forum is now seeking funding to undertake the next stage in the development of a consistent monitoring approach – the design of sampling strategies, methodologies and procedures.

Rob Phillips, Taranaki Regional Council, rob.phillips@trc.govt.nz

Workshops help ensure national approach to plant pest management

The 2010 National Plant Pest Accord (NPPA) workshops provided an opportunity to discuss plant pest issues at a national level.

The annual NPPA workshops were held in Hamilton and Lincoln in early October.

The workshops enabled NPPA officers from several regional councils to get together for a day and a half to discuss current issues.

The NPPA is a co-operative agreement between the Nursery and Garden Industry Association, regional councils and government departments with biosecurity responsibilities – primarily MAF Biosecurity New Zealand (MAFBNZ) and the Department of Conservation (DoC).

The NPPA lists over 100 unwanted organisms under the Biosecurity Act 1993, plant species that cannot be sold, propagated or distributed in New Zealand.

The Pest Management Group in the Post Border Directorate of MAFBNZ provides leadership and co-ordination for the NPPA as well as administrative and advisory support.

The workshops were organised by MAFBNZ’s NPPA co-ordinator, Katherine Garnett. They included sessions on the purpose of the NPPA, plant name changes, plant taxonomy, aquatic and terrestrial plant identification, regional compliance reports and the Biosecurity Act 1993.

NPPA officers must be appointed as authorised persons under the Biosecurity Act 1993 so they can carry out their role in preventing the sale, distribution and propagation of plants contained in the NPPA list. The Biosecurity Act 1993 sessions were delivered by Lee Osborn and Jayne Parkin, MAFBNZ trainers from the Border Standards Directorate’s Border Training Team.

MAFBNZ and the NPPA Steering Group, which consists of representatives from MAFBNZ, the regional councils and DOC, are committed to holding the annual workshops aligning them to current issues and keeping them cost-effective for attendees.
With several prestigious architectural, engineering and sustainability awards under its belt, the Ministry of Agriculture and Forestry's (MAF's) multipurpose building looks set to become an iconic addition to New Zealand’s scientific community.

The National Centre for Biosecurity and Infectious Disease (NCBID) building just keeps on winning. The building, which includes a response centre, seminar rooms and a staff cafeteria, has been awarded a five-star rating by the Green Star rating tool for office design, the first government-owned building to achieve this rating. A computer simulation of the building’s energy use shows it uses just 39 kilowatt-hours per square metre per year, one-third of the Green Star benchmark.

In the event of an emergency, the building is designed to house response management staff from several agencies, NCBID epidemiologists and laboratory staff under one roof.

Located in Wallaceville, Upper Hutt, the multipurpose building, designed by Stephenson and Turner Architects, has won several design and sustainability awards. It was recognised at the 2010 Timber Design Awards, where it won the coveted Sustainability award and picked up a highly commended in the Commercial Architectural Excellence award. It also received a 2010 Resene Total Colour Sustainable System Award and 2010 New Zealand Lighting Design Award.

Most recently, the building won the Sustainable Architecture category of the Wellington Architecture Awards for its use of materials, air management and water recycling.

Judges commented that the architects’ response to a demanding programme was a sensitive and sustainable building. They noted the integration of large totara that terminate galleries, the recycling of materials to create major joinery items, passive and active air management, storm-water swales that give water back to the land and comfortable acoustic and thermal environments. The judges finished by saying that possibly the biggest and most sustainable aspect is the building’s dual use.

The building now goes on to the national architectural awards early next year.

To check out the judges’ comments, read descriptions and see more photos of the building, visit www.nzwood.co.nz/case-studies/maf-multipurpose-building; www.resene.co.nz/colourawards, www.iesanz.org and http://bestawards.co.nz/entries/spatial/category/built-environment/maf-multipurpose-building
NEW APPROACH TO CONTROLLING
BOVINE TUBERCULOSIS IN NEW ZEALAND

In November, the Minister of Agriculture, Hon David Carter, and the Animal Health Board (AHB) announced a new approach to the control of bovine tuberculosis (Tb) throughout New Zealand.

The new approach to controlling bovine Tb aims to continue progress in reducing the level of disease in cattle and deer herds. The approach includes:

• testing the feasibility of eradicating bovine Tb from populations of wild animals in two difficult areas of heavy forest;
• reducing the extent of vector risk area around the country;
• policies to reduce the risk of herd-to-herd transmission and, over time, reduce the need for continued herd testing in low-risk areas.

The revised approach was made following the five-yearly review of the bovine Tb test management strategy with the AHB, MAF Biosecurity New Zealand, the cattle and deer industries and regional councils. This approach will give stakeholders and funders the ability to consider new information about the technical feasibility and cost to eradicate bovine Tb from New Zealand when the next five-year review of the strategy is undertaken.

William McCook, Chief Executive of the AHB explains, “The strategy maps out the future of Tb management in New Zealand and includes a proposal to eradicate Tb in wildlife from 2.5 million hectares, or one quarter, of the total area deemed by the AHB to present a wild animal disease risk.”

The basis of the earlier bovine Tb strategy was one of controlling the spread of the disease, with the aim of lowering the percentage of cattle and deer herds infected each year to no more than 0.2 percent by the target date of 2013.

Progress toward achieving this aim is running well ahead of target, with the current national incidence at around 0.34 percent. Since the bovine Tb strategy was introduced in 1998, infected cattle and deer herds have fallen from over 900 at the start of the period to fewer than 100. At its peak in 1994, there were more than 1700 infected herds.

One of the most important single factors in managing bovine Tb is preventing the spread of the disease from infected wild animals (primarily possums) to cattle and deer herds. Nearly 40 percent of New Zealand is currently classified as a “vector risk area”, where a reservoir of the disease remains in feral animals. Without significantly reducing the size of the bovine Tb vector risk areas, we will not be able to maintain the low infected herd rates and reduce the ongoing costs of controlling bovine Tb says Mr McCook.

The development of this option follows a long period of consultation, beginning in November 2007, with the AHB’s members and a range of funding stakeholders to set out proposals. This was followed by the AHB preparing a discussion document to outline the preferred option for beef, dairy and deer farmers, which was supported by almost two-thirds of farmers.

The Minister of Agriculture invited public submissions on the strategy review in September 2009, in a discussion document that set out the preferred option. Ninety-seven submissions were received from a wide range of stakeholders and organisations. Apart from 13 submissions, which opposed the strategy because of the use of pesticides, almost all submissions supported continuation of the strategy.

Number of Tb infected cattle and deer herds and expenditure on vector control
MAFCRAFT lines up MAFBNZ and CUSTOMS

A new initiative known as “MAFCraft” will be introduced from 15 December, involving the creation of a database within the CusMod system, which is owned by the New Zealand Customs Service (Customs). MAFCraft will assist MAFBNZ clear overseas vessels which are visiting New Zealand.

MAFBNZ Group Manager, Geoff Gwyn, said “the Craft (Vessels) initiative, MAFCraft, aims to deliver improved ability to gather, store and assess information from vessels arriving here, as well as enable a verification approach to vessel inspection and clearance based on risk.”

MAFCraft represents collaboration between MAF and Customs and supports changes represented in the new MAFBNZ Joint Border Management System.

MAFCraft implementation is part of the wide-ranging MAFBNZ Border Change Programme focussing resources on greatest risk areas through improved risk targeting. MAFCraft will enable implementation of the new vessels import health standard, Requirements for Vessels Arriving in New Zealand where inspection activity will be targeted to the level of risk posed by each vessel.

Mr Gwyn, said “on a practical level, MAFCraft will involve all arrival information and declarations being sent to the combined MAF and Customs national processing centre, rather than the first port of arrival. MAFBNZ activities relating to vessels, which are visiting New Zealand ports, will be directed via the MAFCraft application back to ports.”

Individual worksite leadership will access MAFCraft to oversee deployment and undertake assurance on activities. Information held within the MAFCraft database will be updated and risks re-assessed based on information from Quarantine Inspectors.

Training in the new application has begun for MAFBNZ staff and new computer equipment is gradually being rolled out around the country.

For more information, contact Geoff Gwyn, Group Manager, Border Operations Central & Offshore. Email: Geoff.Gwyn@maf.govt.nz

Hernando Acosta joins the Animals Surveillance team as a Geographic Information Systems (GIS) Senior Adviser. Hernando previously worked on a range of ecology, marine biology, biosecurity, environmental education and GIS projects. He also worked for the Auckland City Council in the Spatial Analysis team. Hernando holds an MSc in marine and environmental sciences from The University of Auckland and a specialisation in GIS from the Instituto Geográfico Agustín Codazzi – Universidad Distrital (Colombia).

Sarah Clark has joined the Policy and Risk Directorate as a Senior Adviser in the Plants Risk Assessment Group. Sarah is a biochemist and molecular biologist by training and her PhD investigated the pathogenicity of a fungal pathogen of pip-fruit. Sarah has lectured in biochemistry at the University of Otago and worked in a biotechnology company with interests in food traceability. After working as a Research Contract Manager at the Cawthron Institute in Nelson, Sarah and her family left the mainland to settle in Wellington. Sarah joins MAF Biosecurity New Zealand after working for three years as a Research Adviser in the health sector.

Catherine (Cathi) Duthe joins MAF Biosecurity New Zealand’s Risk Analysis – Plants Team as an Adviser. She has just completed her PhD at Victoria University of Wellington with a dissertation focused on competitive interactions between native ants and invasive wasps. She has an interest in the ecological impacts of invasive species.

Zena Groom recently joined MAF Biosecurity New Zealand as an Executive Co-ordinator in the Post Border Directorate, providing support for David Hayes, Manager Biosecurity Response. Zena has recently returned to New Zealand from living in Sydney, Australia. She has a strong background in administration and has worked in various government departments in previous roles.

Paula Loader joins the Post Border Directorate’s Plant, Environment and Marine Surveillance Team on a fixed-term contract as a Senior Adviser and Acting Operational Liaison for the fruit fly and gypsy moth surveillance programmes. Paula has a strong interest in biodiversity restoration and a background in environmental management. Before joining the Ministry of Agriculture and Forestry, Paula worked as a contractor with LECG, managed a small non-governmental organisation office and helped to develop a community-based research fund at the Department of Internal Affairs. Paula also led the Take Care community environmental projects team at the Greater Wellington Regional Council and developed a community resource kit for restoring the Kauwharawhara Stream for Wellington City Council. Paula holds a masters degree in environmental studies from Victoria University of Wellington.

Lynn McIvene joins MAF Biosecurity New Zealand’s National Co-ordination Team in the Post Border Directorate as a Team Support Officer. She will be working on the Kauri Dieback Long-term Management programme and Future of Pest Management programme. Lynn comes from Scotland and has been living in New Zealand for 15 years, with a short stint in Dubai. Her background includes communications, events and project co-ordination, mostly in the government sector.
Pest watch: 26 August 2010 – 1 November 2010

Biosecurity is about managing risks – protecting the New Zealand environment and economy from exotic pests and diseases. MAF Biosecurity New Zealand devotes much of its time to ensuring that new organism records come to its attention, to follow up as appropriate. The tables here list new organisms that have become established, new hosts for existing pests and extensions to distribution of existing pests. The information was collated between 26 August and 1 November 2010. The plant information is held in the Plant Pest Information Network (PPIN) database. Wherever possible, common names have been included.

**ANIMAL KINGDOM RECORDS**

**Validated new to New Zealand reports**
No validated new to New Zealand records during this period.

**Significant find reports**
No significant find records during this period.

**New host reports**
No new host records during this period.

**New distribution reports**
No new distribution records during this period.

If you have any enquiries regarding this information please contact surveillance@maf.govt.nz.

Ornamental fish and marine invertebrates
As part of the consultative process, MAFBNZ has also distributed the draft import health standard for ornamental fish and marine invertebrates for public consultation and comment.
Submissions on these draft documents should be forwarded to MAFBNZ by close of business on 29 December 2010. Depending on the results of consultation, it is anticipated the new requirements will be in place by 1 March 2011.

Import Health Standard for Zoo Lizards from Australia

Import Health Standard for Zoo Lizard Hatching Eggs from Australia

**Issue Date:** 22 October 2010


Two new import health standards have been issued for the import of Zoo Lizards, and Zoo Lizard Hatching Eggs into New Zealand from government approved collections in Australia. These standards will allow the import of various species of lizards into MAF approved zoological containment facilities.

Animal Imports
Biosecurity New Zealand
PO Box 2526
Wellington
Phone: 04 894 0100
Fax: 04 894 0733
Email: animalimports@maf.govt.nz

Import Health Standard for Zoo Lizards from Australia

Import Health Standard for Zoo Lizard Hatching Eggs from Australia

Ornamental animal products
The import health standard for ornamental animal products has been amended to provide clearer guidance for imported game trophies, reduce associated non-compliances and address interpretive issues. The new draft standard also amalgamates mammalian game trophies from the European Union and private consignments of untanned trophy fur skins from Australia.

MAF Biosecurity New Zealand (MAFBNZ) is seeking stakeholder feedback on the draft import health standard, prepared from recommendations contained in a risk management proposal. MAFBNZ also provides a guidance document on the import health standard.
- To view the draft standard visit www.biosecurity.govt.nz/files/biosec/consult/draft-ihs-netroic.all.pdf
- For more information on the current import health standards visit www.biosecurity.govt.nz/ihs/search

All submissions on these draft documents must be received by 24 December 2010.

**UPDATES**

Draft import health standards for public consultation

Ornamental animal products
The import health standard for ornamental animal products has been amended to provide clearer guidance for imported game trophies, reduce associated non-compliances and address interpretive issues. The new draft standard also amalgamates mammalian game trophies from the European Union and private consignments of untanned trophy fur skins from Australia.

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- To view the draft standard visit www.biosecurity.govt.nz/files/biosec/consult/draft-ihs-netroic.all.pdf
- For more information on the current import health standards visit www.biosecurity.govt.nz/ihs/search

All submissions on these draft documents must be received by 24 December 2010.

**Making a submission**

Comments and submissions on these draft documents should be emailed to Charlotte Richmond at charlotte.richmond@maf.govt.nz. To make a submission in writing, send it to:

Animal Imports
Biosecurity New Zealand, Ministry of Agriculture and Forestry
PO Box 2526, Wellington, New Zealand

For more information on making a submission visit www.biosecurity.govt.nz/faq/term/915/consultation-2.htm
### PLANT KINGDOM RECORDS

#### Validated new to New Zealand reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardidelus rufotestaceus (insect: wasp, no common name)</td>
<td>Inanimate host (plants in garden)</td>
<td>Auckland</td>
<td>IDC</td>
<td>(general surveillance)</td>
</tr>
<tr>
<td>Nysius caledoniae (insect: true bug, no common name)</td>
<td>Lactuca sativa (lettuce)</td>
<td>Auckland</td>
<td>Landcare Research</td>
<td></td>
</tr>
<tr>
<td>Alphacryptovirus Radish yellow edge virus (virus: RYEV)</td>
<td>Raphanus sativus (radish)</td>
<td>Auckland</td>
<td>IDC</td>
<td>(general surveillance)</td>
</tr>
<tr>
<td>Plenis brassicae (large white butterfly)</td>
<td>Tropaeolum majus (garden nasturtium)</td>
<td>Nelson</td>
<td>IDC</td>
<td>(general surveillance)</td>
</tr>
</tbody>
</table>

#### Eradicated organisms

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrysomphalus aonidum (insect: Florida red scale)</td>
<td>Gnetum pendulum (no common name)</td>
<td>Auckland</td>
<td></td>
<td>Eradicated from New Zealand</td>
</tr>
<tr>
<td>Puccinia cygnorum (fungus: no common name)</td>
<td>Astartea fascicularis (no common name)</td>
<td>Hawke’s Bay</td>
<td></td>
<td>Eradicated from New Zealand</td>
</tr>
</tbody>
</table>

#### New host reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uraba lugens (insect: gum leaf skeletoniser)</td>
<td>Corymbia calophylla (Marri, Port Gregory gum)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Saissetia oleae (insect: black scale, olive scale)</td>
<td>Olea traversii (no common name)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Lecanocithon actites (insect: no common name)</td>
<td>Metrosideros sp. var. Tahiti (no common name)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Pulvinaria vitis (insect: cotton grape scale)</td>
<td>Salix matsudana (tortured willow, willow)</td>
<td>Bay of Plenty</td>
<td>Scion</td>
<td>(personal inquiry)</td>
</tr>
<tr>
<td>Nigrospora sacchari (fungus: no common name)</td>
<td>Beilschmiedia tarairi (taraire)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(public enquiry)</td>
</tr>
<tr>
<td>Saissetia coffeae (insect: hemispherical scale)</td>
<td>Catha edulis (Khat)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Pseudaulacaspis eugeniae (insect: white palm scale)</td>
<td>Olea traversii (no common name)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Puccinia coprosmae (fungus: no common name)</td>
<td>Coprosma acutifolia (no common name)</td>
<td>Auckland</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Xylotoles griseus (insect: longhorn beetle)</td>
<td>Foeniculum vulgare (fennel)</td>
<td>Wellington</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
<tr>
<td>Sphaeropsis cordylines (fungus: no common name)</td>
<td>Cordyline pumilio (dwarf cabbage tree)</td>
<td>Wellington</td>
<td>Scion</td>
<td>(MAF high-risk site surveillance)</td>
</tr>
</tbody>
</table>

#### Extension to distribution reports

<table>
<thead>
<tr>
<th>Organism</th>
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<th>Comments</th>
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<tbody>
<tr>
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<td>Salix matsudana (tortured willow, willow)</td>
<td>Bay of Plenty</td>
<td>Scion</td>
<td>(personal inquiry)</td>
</tr>
</tbody>
</table>

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If you have any enquiries regarding this information please email surveillance@maf.govt.nz.
MAF general enquiries: 0800 00 83 33
Exotic disease and pest emergency hotline: 0800 80 99 66
www.biosecurity.govt.nz