Waiheke alert

Marron discovery

International observers rate Exercise Taurus
Biosecurity magazine

Biosecurity magazine is published 6-weekly by Biosecurity New Zealand, with regular input from the Department of Conservation, Ministry of Health, Ministry of Fisheries and regional councils. It is of special interest to all those with a stake in the protection of New Zealand’s economic, environmental and social assets from the dangers posed by pests and diseases. Animal welfare issues are also covered. The articles in this magazine do not necessarily reflect government policy.

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Cover: Pest management features: pages 3, 12, 17, 18, 19, 22.
Landscape photo – Tina Nixon.
Montage: Words and Pictures.
Pest management accounts for over half of total biosecurity expenditure. More than $140m is spent annually by central and regional government and agencies such as the Animal Health Board alone.

In the national arena, effective pest management contributes to biodiversity, production and health outcomes. It is crucial if we are to protect iconic species such as the kiwi, and if we are to improve the state of highly threatened ecosystems.

Pest management is economically important if we are to eradicate bovine Tb and ensure future access to markets for our cattle and deer herds. It is also an integral part of protecting human health through control of nuisance pests such as mosquitos.

In a regional council context, pest management is integral to achieving biodiversity and production outcomes. This includes controlling wilding trees to protect tussock grasslands and eradicating aquatic weeds.

Examples of good progress being made in the pest management area include DOC and regional councils increasingly focusing on where they can make a difference, including pest eradication and control in priority areas. The third National Pest Management Strategy (for varroa mite) has been approved, and a management agency of regional councils and beekeepers has formed to implement a strategy.

There are barriers to progress, however. The Biosecurity Strategy highlighted a number of these, including the lack of strong national leadership and overview in pest management, unclear roles and responsibilities, lack of strategic pest management, and pest problems that were not being addressed.

Much has been achieved in addressing these problems. MAF has been given overall responsibility for pest management and has assumed a leadership role; pest management is seen as a legitimate part of the biosecurity system. A central government and regional council biosecurity forum has been established to ensure coordination and alignment between central and regional councils. An officials group, the Biosecurity Coordination Group, is ensuring that priorities identified by the forum are addressed, and members are looking for opportunities to work more effectively between central and regional government.

MAF has picked up an overview role for pest management, but still has very limited resources – insufficient to provide the ‘grunt’ necessary to make it happen. Additional resources are planned, but more are urgently needed.

We need to demonstrate that the present investment in pest management is effective, and we need to build the case for additional funding. We need to focus effort in areas of most need and where there is the biggest return and align work programmes between regions, the Crown and other agencies.

A delay in action can exacerbate the adverse effects of a pest problem and result in a rapid increase in costs – for example, the cost of controlling wilding conifers increases 10 times every 6 years. This would appear to be a compelling reason to invest in this area.

There are huge challenges in ensuring we have access to control tools. New Zealanders need to understand the impacts of existing pests and the consequences of control so that informed decision making can occur. Pest management will only succeed if we capture the hearts and minds of our fellow New Zealanders and the public understand the impact of pests and the need for control measures. The community can be a very effective pest management partner, whether in a surveillance role or through self-help programmes such as possum control. People involved in these activities are powerful advocates for active pest management.

We also need to continually refine and improve our control tools and ensure the regulatory framework for these tools is appropriate.

Science is a key to the future of pest management, but there is limited research funding available. This reinforces the need to develop joint priorities through the planned Biosecurity Research Strategy. These priorities need to be a mix of strategic and tactical research. The FRST outcome-based investment model provides opportunities for close involvement in charting the direction of research.

The stakes are high. Pest management must be more effective if we are to achieve national and regional outcomes. This can only happen if all involved in pest management continue to lift their game.

Rob Phillips, Portfolio Manager Pest and Biosecurity, Environment Canterbury, and Convenor, Biosecurity Managers’ Group
Swift response reassures trading partners

The letter to the Prime Minister contains a threat no right-thinking New Zealander wants to hear. It claims foot and mouth disease (FMD) has been released on Waiheke Island the previous day and threatens another release elsewhere in four days, unless the Government changes its tax policy and pays a large sum of money.
The letter arrives among the many the Prime Minister receives each day at about 8.30am. Like the others, it is opened and put aside. At 10am the private secretary of correspondence begins to sift through the pile. Minutes later, she is the first to read the threat that captures New Zealand’s attention for the next week. The Diplomatic Protection Squad is called, and arrives almost immediately.

The letter is put in a protective plastic cover and copies made. Chief Executive of the Department of Prime Minister and Cabinet, Maarten Wevers, summons the Officials Committee for Domestic and External Security Coordination (ODESC), which forms during in red alerts to provide advice and help run the response. The committee includes the Ministry of Foreign Affairs and Trade (MFAT), the Defence Force, The Ministry of Defence and the SIS, the Government Communication Security Bureau, Police, Ministry of Civil Defence and Emergency Management and Treasury. (See Biosecurity 58:16, 15 March 2005 for more on ODESC.)

Wevers also calls MAF Director-General Murray Sherwin, who quickly summons MAF Director of Biosecurity, Dr Barry O’Nei. Also in the meeting is New Zealand Food Safety Authority Executive Director Andrew McKenzie. Both men will feature on the television news that evening and will become regular faces in New Zealand homes for the rest of the week.

All three, along with Peter Thomson, Biosecurity New Zealand’s Director Post-clearance, head to the Reserve Bank to meet with ODESC and formulate a response. The common view is that the letter is a hoax, but given the risks to New Zealand’s agriculture-based economy, the only option is a proactive response. Any hint of a real outbreak could irreparably damage New Zealand’s overseas trade, and it is only responsible to keep trading partners and the public informed.

The Prime Minister, Deputy Prime Minister and Agriculture and Biosecurity Minister Jim Sutton are briefed and approve the response plan. Two staff from MAF’s National Centre for Disease Control at Wallaceville board a plane to Auckland.

The media are summoned to a press conference. The large room is filled to overflowing.

At 3pm, a controlled area notice for Waiheke becomes effective. Issued under the Biosecurity Act 1993, it restricts the movement of risk material, including live animals, hay, equipment used with animals, untreated products from animals, milk, cheese, meat and wool.

The news that night seems unreal, but for MAF, NZFSA and MFAT staff at least, the situation is not totally foreign – many have had a dry run only a month before during MAF’s FMD simulation, Exercise Taurus. The two-day exercise pays huge dividends, but the officials will work late into the night, and be up again long before breakfast.

By the time the conference is over, the news has gone around the world. The two MAF staff are on the ferry to Waiheke. The New Zealand dollar and the sharemarket weaken slightly, but recover with the news that it’s most likely a hoax.

Overnight, over 50 trading partners, including major member countries of the EU, are informed of the situation. Most express appreciation at the early advice, confidence in New Zealand’s management of the situation, and a desire to be kept informed.

Major trading partners, the United States, Canada and the EU offer assistance. Only Mexico imposes light restrictions. The proactive approach has worked, and there is no lasting damage.

The World Organisation for Animal Health (OIE) has also been informed and MAF is working with the farming industry to address their concerns.

Out of the public’s gaze, in a large meeting room at MAF in Wellington, the National Response Centre opens. It will be home to about 20 staff for the next week. Overall, the response takes in 111 staff: 60 from MAF and the New Zealand Food Safety Authority in Wellington, 20 at the Exotic Disease Response Centre in Wallaceville, and 31 on the Field Operations Response Team in Auckland and on Waiheke Island.

Staff in Wellington trace recent stock movements off the island to track the risk of disease spread. No high risk movements are identified. On Waiheke Island, the 48-hour inspection programme for the 18,000 sheep and 2,600 cattle for the maximum 14-day FMD incubation period is well under way.

Media interest is high, and updates are frequent. It takes two MAF media specialists to handle the huge media contingent on the island – TV One alone has three crews. Over the weekend, helicopters are sent up to confirm animal tracing procedures.

The second letter arrives a week after the first, this time at the offices of the Dominion Post, stating that the first letter was a hoax.

Vets on the island are on the phone to farmers within minutes. After a week of sleepless nights and long days of animal testing, farmers are relieved the operation will be scaled back.

However, with the need to reassure trading partners, low level monitoring is carried out until the end of the 14-day incubation period which ends, as predicted, with no sign of the disease.

Source: Some of the material used in this article was sourced with permission from the New Zealand Herald.

The cost of FMD

The Reserve Bank puts the cost of an FMD outbreak to New Zealand’s agriculture-based economy at $10 billion and 20,000 jobs. Even a rumour could cost New Zealand millions and damage New Zealand’s reputation with trading partners. The final cost of responding to the hoax FMD threat is likely to fall between $1.5 and $2 million, including likely compensation payments to farmers and staff time.
FRONTLINE NEWS

Exercise Taurus: Phase one – An overseas perspective

With the Reserve Bank suggesting an estimated $10 billion/20,000-job price tag by the second year after an FMD outbreak, New Zealand is fortunate indeed to have been FMD free to date.

Exercise Taurus ran in two parts: the first tested systems on the ground, while phase two tested systems within Government.

The first phase, from 14 – 18 March, tested the capability of New Zealand’s Exotic Disease Response Centre (EDRC) and the field operations response team (FORT) in a scenario located in the Manawatu region.

Overseas observers

Observing phase one of Exercise Taurus were five invited overseas veterinarians and emergency response experts, all of whom have had personal experience in a national response to actual animal disease outbreaks. Dr David Harris, a veterinarian with the United Kingdom’s State Veterinary Service (SVS) Contingency Planning Division, and Dr Sally Gaynor, Superintending Veterinarian Inspector with Ireland’s Department of Agriculture and Food, have been directly involved in emergency responses to FMD outbreaks in their respective countries. Other observers were Peter Koob, Emergency Preparedness Manager for Australia’s Department of Agriculture, Fisheries and Forestry; Dr Roger Holley, Sectional Veterinary Medical Officer for the United States Animal and Plant Health Inspection Service (APHIS); and Dr Carolyn Inch, National Manager for Disease Control, from the Canadian Food Inspection Agency.

The visitors observed the EDRC and FORT work through the

By Louise Thomas

In the light of last month’s bioterrorism hoax which claimed that foot-and-mouth disease (FMD) had been unleashed on Waiheke Island, Biosecurity New Zealand’s Exercise Taurus in March and April this year could not have been timelier. The exercise tested New Zealand’s rapid response to a simulated FMD outbreak.

A team of overseas observers was impressed with what they saw, but were also able to share their first-hand experience to further strengthen New Zealand’s FMD response preparedness.
FMD plan and evaluated the logistics, policies, tasking and communication processes between all parties involved in the exotic disease response.

A CULTURE OF EXERCISE

Dr David Harris is acutely aware of the impact of FMD, particularly on the rural community. The outbreak in the UK in 2001 cost at least £3 billion and led to the slaughter of 6.5 million animals from 9,677 farms. It was believed to have been caused by illegal meat imports being passed on into animal swill.

“It is important to maintain a culture of exercising for exotic disease preparedness,” he says. “We’ve certainly had our share of troubles in the UK: FMD, BSE, Tb, swine fever in 2000 and Newcastle disease in the late 90s. Despite all these real life events, the SVS continued to have a culture of exercise. One aspect that has markedly improved since 2001 is the better sharing of the lessons and the engagement of the local staff with HQ in developing the responses. You cannot afford to waste resources relying on each local office developing its own procedures and structures. A consistent approach is needed and only the centre can coordinate the sharing of best practice that brings it about,” says Dr Harris.

“Post 2001 in the UK we’ve put in place a very robust but flexible response structure which brings together the lessons so we can make a generic response. We can share the lessons of 2001 with other countries, from the strategic level to local procedures.

“The organisation and conduct of Exercise Taurus has been impressive, though it is important to take into account what an exercise is for. I think the most successful exercises are those that throw up the most problems. In the ‘safe’ environment of an exercise it can go as wrong as you’d like, because that is when you want to do your learning – not in the face of a real outbreak.”

REALISM

Dr Harris felt that perhaps too much had gone right with Exercise Taurus. “In real life you will get complications – those events that you can’t predict but which potentially soak up enormous amounts of resource, often disproportionate to the benefit of resolving it. You almost need some sort of random event generator, a vivid imagination or participants to have lived through a real outbreak to provide the realism.”

Dr Roger Holley also picked up on some similar themes. Dr Holley has worked on disease response teams since 1984, and has seen action fighting avian influenza, Newcastle disease, and BSE. “I think the exercise was realistic and certainly went to a greater extent than many of the exercises I’ve been involved with in the United States. The amount of planning was amazing. Although I’m not sure about some of the modelling; FMD is highly contagious, and I think it would have spread a lot more in a three-and-half-week period.”

HUMAN FACTOR

Dr Holley would like to see greater importance attached to the ‘human factor’. “During Exercise Taurus we had one farmer’s wife break down in tears when she thought about the potential impact that FMD could have on their lives. In a real outbreak you have to multiply this reaction by 1000. Counselling especially has to be taken into account, not only for the general population affected by the outbreak, but also the workers. Workers’ stress levels can go through the roof, especially if you have to take the remaining herd and cull apparently healthy animals. Killing is a horrible business, couple that with the fact you’re taking people’s livelihoods.”

He adds that losing a herd is a tremendous emotional drain for the farmer. “People in response teams are focused on what they have to do to manage the outbreak and are often shocked at other people’s emotional responses – especially when it’s directed at them!”

NON-DISEASE CONTROL ISSUES

Dr Carolyn Inch says New Zealand’s preparedness is very good. In Canada, Dr Inch has been involved on response teams for both avian influenza and BSE.

“We went into our BSE crisis unprepared in terms of the impact it would have beyond agriculture. Because of our prior experience with BSE, we are now better prepared for most of the non-disease control issues such as the impact on people’s lives and media interest.

“There are a lot of issues around a disease outbreak not directly related to disease control that may not be part of a contingency plan. With avian influenza, a highly contagious disease, the challenging aspects were disposal and compensation.”

In New Zealand, Biosecurity New Zealand is developing a memorandum of understanding (MOU) on carcass disposal with Regional Councils which includes burial locations and the logistics of mass burials (Biosecurity 59:18, 1 May 2005). Biosecurity New Zealand is also developing a memorandum of understanding with a North Island rendering plant. (Biosecurity 55:8, 1 November 2004). In April, Biosecurity New Zealand also trialled an air curtain incineration, an option for on-farm disposal of a small number (i.e. hundreds) of animal carcasses. (Biosecurity 56:14, 15 December 2004).

On the issue of compensation, the Biosecurity Act 1993 states that any losses resulting directly from the exercise of powers under the Act (e.g. stock killed, movement controls imposed), are fully compensatable. The objective of the compensation is to leave affected people “in no better or worse position” than people in similar circumstances to those not directly affected by the exercise of powers. However, the Act does not provide for compensation to downstream industries, such as transport companies and meat exporters. MAF is currently examining the need for a Recovery Policy to address impacts not covered by the Biosecurity Act. This could be integrated with work underway on how the Government may provide support to communities affected by natural disasters.

RESOURCING THE RESPONSE

Dr Inch added that in terms of documented response plans, New Zealand is well prepared at the field level. “It will be interesting to see how well this scales up to the next level with a bigger exercise. For example, what would be the true impact of the sudden stoppage of trade?”

“Are there physically enough people allocated to answer phones and respond to compensation requests?”

Dr Sally Gaynor, too, had some resource concerns. She has had direct experience of a FMD outbreak in Ireland in 2001. In Ireland’s first outbreak since 1941, about 49,000 sheep together with some cattle, deer and goats had to be slaughtered to prevent the disease spreading.

“We had more people and resources involved at both levels in one outbreak. People probably don’t appreciate how big FMD
is in terms of its knock-on effect on various organisations and the resources you need to put into it.

“It’s very difficult to allocate resources in a simulation – you can only make a stab at it really.”

**Detailed preparation**

Dr Gaynor identified several background training issues that she felt could be strengthened, including giving overseas helpers background on legislation, their powers, what happens if overseas vets have a road accident, procedures for cleaning and disinfecting between farms, procedures for carrying out the inspections, and procedures for taking and delivering samples.

She is planning training videos on similar topics for Ireland.

“A picture is worth a thousand words.” She also felt that communication with the public could be improved with better use of the media, signage, leaflets and posters. “All of these points aside, I am in awe of the planning and management of the exercise.”

Dr Inch was impressed by the amount of detailed preparation for the exercise. “There were very detailed policies and procedures for every little contingency surrounding disease control. For example, my package as a control vet contained pictures of foot and mouth lesions in different species and lesion ages.”

Dr Harris adds that it is very hard to run an exercise of this sort without actually having had a real outbreak. “That said, I feel confident that New Zealand is better prepared and, in part because of its geographical isolation, better protected than the rest of the world. I also feel that they are genuinely going to make every effort to learn from this exercise and things will be even better as a result.”

Dr Holley liked the way all participants treated the exercise as real. He also thought travel and logistics were very well provided for. “I’ve learned a tremendous amount myself.

Learning is a two-way street, and I’ve really got a lot out of being on the observation team for this exercise.”

**Industry participation ‘magnificent’**

Peter Koob also had positive feedback on Exercise Taurus. “I’ve been running exercises now for 16 years and this was one of the best I’ve ever seen. It was very professionally conducted and it was taken very seriously by the participants. Those two things need to be in sync for an exercise of any sort to work. “I think the level of industry participation, from companies like Fonterra, in this exercise was magnificent. I haven’t seen it done with individual companies before, and most countries see an emergency disease control response exercise as a purely government function. When you think about it, this is probably a flawed attitude because the animals and industries are owned by private companies and individuals. If you don’t involve them in your exercises it might be very easy to make some false assumptions in the real event. We are certainly looking for a higher level of industry involvement in future exercises in Australia,” says Mr Koob.

Dr Harris added that he was not only impressed by industry involvement in the exercise, but also the level of involvement from local government, including police for any enforcement issues and regional council involvement in carcass disposal.

**Phase two**

In April, Exercise Taurus moved into its second phase, aimed at testing the National Response Centre (NRC). Biosecurity New Zealand tested whole-of-government response procedures, in particular those stopping livestock movements nationally, as well as vaccination and infected carcasses disposal.

We’ll report on the reaction of our overseas observers to phase two in the next issue of *Biosecurity*.

Australian subterranean termites eradicated

Biosecurity New Zealand has welcomed the successful eradication of the Australian subterranean termite (*Coptotermes acinaciformis*) from sites at Otorohanga, Morrinsville and Matamata.

Subterranean termites are one of the world’s most destructive urban pests. In Australia, termites cause more than $100 million in damage each year and more than 150,000 houses (1 in 20) are damaged by infestations. Damage in the United States in 2002 was noted at around $US2.2 billion per annum.

**Otorohanga eradication**

Termites were first reported from Otorohanga in 1990, having first entered the town during the 1950s via two imported utility poles. Initial response actions by the then Ministry of Forestry involved removal of the utility poles adjacent to infested properties and insecticide treatment. One nest was found in a pole and destroyed. Further termite activity was detected on private properties between 1994 and 1998, despite treatment carried out after each find.

In 1999 the MAF Biosecurity Authority – now Biosecurity New Zealand – explored options to eliminate the increasing termite population, which had by now infested eight houses.

**Strategy for elimination**

A group of invited international and local experts met to overview the site and develop a strategy for elimination. As a result of the meeting, MAF Biosecurity developed a comprehensive response programme. The main strategy involved the placement of up to 300 Sentricon bait stations at the site. These bait stations contain hexaflumuron, an insect growth regulator, which prevents termites from moulting. This results in termite death and colony elimination.

To complement the bait stations, MAF Biosecurity:

- placed 200 wooden stakes at the site
- inspected and removed untreated hardwood utility poles from the immediate area
- placed sticky traps at 10 metres height on selected utility poles to monitor flight
- annually inspected properties within the area for new activity
- placed movement controls on termite host material, and
- liaised with the local community of 3000 to enable them to assist with identifying signs of termite activity.

One month after bait stations were placed during November 1999, active termites were found feeding within six stations. By March 2000, three months after placement, termite activity had ceased. As of May 2005 regular monitoring and on-going inspection of bait stations has resulted in no further evidence of termite activity. Biosecurity New Zealand formally announced the successful eradication of subterranean termites at Otorohanga on 5 May 2005.

As part of the general forest biosecurity programme, Biosecurity New Zealand will continue annual inspections of the Otorohanga area.

**Morrinsville and Matamata**

Infestations at the Piako substation power storage depot near Morrinsville, and a house in Matamata, both of which were first detected in the late 1990s, have also been declared eradicated by Biosecurity New Zealand. The sites were treated and also intensively monitored, with no termite activity detected since 2001.

**Success factors**

The attributes which made the programmes successful include the rigorous technical analysis of implemented strategies, the level of commitment and leadership shown during the programme by team members, readily available operational field capacity, and community support from councillors and residents. The Otorohanga District Council in particular was an integral component of the successful result.

Biosecurity New Zealand Senior Adviser, Mark Ross, says that with people’s biggest assets being literally chewed apart by the termites, the infestations were extremely traumatic for the affected families.

Residents in Otorohanga affected by the infestation formed a group called RASTs – Residents Against Subterranean Termites. “The termite response team is acutely conscious that the programme could not have succeeded without the goodwill and support of local residents,” Mark says.

Mark Ross, Senior Adviser Surveillance and Incursion Response, Post-clearance, Biosecurity New Zealand, phone 04 498 9611, fax 04 470 2741, mark.ross@maf.govt.nz
The surprise discovery sparked a successful inter-agency investigation led by Biosecurity New Zealand in collaboration the Department of Conservation (DOC), Auckland Regional Council (ARC), Ministry of Fisheries (MFish), and AgriQuality New Zealand Limited.

The crayfish was not as far from home as first thought – an inspection of an adjacent property soon uncovered several marron (*Cherax tenuimanus*) in large tanks. Investigators also found gudgeon (*Gobio gobio*), an exotic freshwater fish, were being bred. Both species are unwanted organisms under the Biosecurity Act 1993 and could have severe environmental impacts if they became established in New Zealand.

**Marron (***Cherax tenuimanus***)

This large freshwater crayfish is native to the south western region of Western Australia. They are favoured as an aquaculture species due to their wide environmental tolerances and because they are one of the largest freshwater crayfish in the world. A conditional permit was granted by MAF in the late 1980s for the importation of marron into New Zealand under strict conditions, as part of an experimental aquaculture venture in the Warkworth area. However, the Government decided that the disease and environmental risks posed by this species were too severe to allow them to be farmed in New Zealand. Subsequently all known marron stocks were ordered to be destroyed. The impact that marron might have on New Zealand’s native flora and fauna is largely unknown; however they would probably compete directly with, and potentially displace, koura (native freshwater crayfish).

**Gudgeon (***Gobio gobio***)

A small freshwater fish belonging to the carp (Cyprinid) family, gudgeon are native to Eurasia. The wide distribution of gudgeon across Europe and Asia highlights the broad range of environmental conditions that this species can tolerate. This suggests that gudgeon could potentially become widely established in waterways across New Zealand.

Although small (up to 20cm in length), gudgeon can form large schools. They are primarily carnivorous, feeding mainly on freshwater invertebrates. They have also been reported to eat fish eggs. Their likely impacts...
in New Zealand are unknown, but they would be likely to compete for food with most of New Zealand’s native fish and many introduced fish.

**Further discovery in pond**

In order to contain both species, all tanks on the property were drained and treated, and all specimens euthanised. Extensive trapping of nearby waterways failed to detect the presence of either species. After further investigation, marron were caught in a pond near Helensville. Gudgeon were present in the same pond.

Trapping in further ponds on the property, some of which may have received water from the infested pond during storms, failed to detect either species.

A Technical Advisory Group (TAG) of experts was convened to evaluate the risk posed by both species and to recommend possible response options.

**Species eradicated**

Biosecurity New Zealand decided to eradicate both species from the pond in a co-operative inter-agency effort with DOC, and ARC. Once the pond was drained, all specimens were collected and euthanised. The pond was then treated with multiple applications of hydrated lime to kill any organisms that may have been missed. While the eradication appears to have been successful, further monitoring will be required to confirm this.

Biosecurity New Zealand is planning further trapping surveys of various water bodies in an attempt to determine if either of these species are present elsewhere in the Auckland region.

If you think you have seen or suspect the presence of marron or gudgeon in any water bodies please notify Biosecurity New Zealand on 0800 80 99 66.

Brendan Gould, Technical Adviser – Marine, Animal Surveillance and Incursion Response, Biosecurity New Zealand, phone 04 474 4191, fax 04 470 2730, brendan.gould@maf.govt.nz

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**E-Learning Award**

Associate Professor Alex Davies of the Institute of Veterinary Animal and Biomedical Sciences at Massey University has received the Darrylin O’Dea Award for Excellence in e-Learning. He is also nominated for the National Tertiary Teaching Award for Excellence in Innovation.

The award is part of this year’s Vice Chancellor’s Teaching Awards, which were introduced in 2003.

Professor Davies’ application for a national award is CALVE – Computer Aided Learning in Veterinary Education. The curriculum for the Bachelor of Veterinary Science course involves a variety of initiatives using computer-aided learning. He has developed about 40 different virtual teaching tools under the CALVE umbrella, covering everything from embryology to cows’ teats and galloping horses.

“Twenty years ago students saw illustrations and images only briefly during lectures, and could not interact with them,” Professor Davies explains. “Now with digital technology, we can create three-dimensional concepts of animals and organs with high quality images, and make them much more accessible to students.”

He says a desire to reduce the number of animals used in teaching was a strong motivation for developing the computer-based tools. Beyond the benefit to animal welfare, the three-dimensional graphics can actually enhance the teaching experience provided when students are using the real thing.

In addition to the virtual tutorials, Professor Davies has amassed a virtual museum of more than 700 medical images, radiographs, animals, dissections and anatomical objects.

In 2003, Professor Davies received the inaugural Three Rs Award, presented by the National Animal Ethics Advisory Committee in recognition of his contribution to the humane use of animals in research, testing and teaching.
Keeping watch on aquatic pests

A few years back, after the waters receded from some serious flooding in the Waikato River catchment, onlookers were fascinated to see paddocks dotted with the distinctive orange corpses of koi carp. The floodwaters provided a brief and graphic view of an environmental problem that is often hidden from sight.

Introduced fish species such as the bulky and destructive koi carp can foul and ruin aquatic environments. They are not alone. Pest fish like gambusia (also known as mosquito fish, or the ‘killer guppy’) attack native fish, while the catfish occupies an uncomfortably large niche in many North Island water systems.

Aquatic weeds are also a growing menace in New Zealand lakes and rivers. The South African *Lagarosiphon major* clogs the shallows of important recreational and hydro lakes.

Successfully controlling these pests presents big logistical challenges, requiring a high level of cooperation between central and local government agencies, contractors, special interest groups and the general public.

The public play a key role in the fight against invasive species. Many of the new incursions result from live material – usually plants, but also fish eggs – being accidentally taken from one place to another via boats, fishing gear and other equipment. If everyone observes a few sensible precautions the risk of spreading aquatic pests can be significantly reduced. Lake users are encouraged to clean boats, trailers, outboard motors and jet units when leaving any waterway.

A recent incursion of *Lagarosiphon* into Oreti River in Southland was thought to have spread from a garden pond. The public can ensure that they are not adding to the aquatic pest problems in their region by sourcing plants and fish for use in aquariums and garden ponds from reputable pet shops and garden shops. Composting water plants and returning fish to pet shops are good alternative ways of disposing of plants and fish, rather than releasing them into the wild.

Unfortunately not all biosecurity breaches are the result of simple accidents or negligence – many invasive fish species have been introduced into water systems deliberately and illegally. There are heavy penalties of fines up to $100,000 or 5 years imprisonment under the Biosecurity Act (1993) to try to curb these types of aquatic pest transfer.

On a positive note, the fondness of New Zealanders for our lakes and rivers adds strength to our freshwater biosecurity surveillance. Many of the most recent incursions were initially reported by the public. School children in particular have played a major role in new reports in the past 3 years.

While Biosecurity New Zealand is the lead biosecurity agency, the Department of Conservation (DOC) plays an important role in engaging the public in the battle to protect fresh water systems from aquatic pests. A baseline weeds awareness survey carried out in 2003 at the start of the successful “Weedbusters” programme (see Biosecurity 56:7) showed that while public awareness of weed problems is reasonably strong, awareness about pest waterweeds was not foremost in people’s minds.

DOC coordinates a National Aquatic Pest Awareness Group to engage the national and regional government agencies, interest groups and industry groups who are stakeholders in the aquatic pest issue. The group, coordinated by Anne Brow, provides an opportunity for the different stakeholders to share ideas, encourage cooperation and provide direction on a range of targeted initiatives designed to sharpen public vigilance.

These are just some of the regional awareness initiatives that are under way. The national group has encouraged the extension of these programmes and provided a level of consistency in the transfer messages:

- delivery of aquatic pests prevention messages to schools and incorporation of messages into public aquarium and museum exhibits
- publication of awareness articles through targeted media
- erection of warning signs at high-risk locations such as boat ramps and eradication sites
- consistent ‘aquatic hitchhiker’ messages on pamphlets and other promotional material used at regional boat ramp programmes
- awareness displays featuring aquatic pest species at shows and field days
- encouraging the development of inter-agency management and awareness plans for existing infestations
- production of boat propeller flags with the ‘aquatic hitchhiker’ message.

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Nelson/Marlborough Conservancy,
phone 03 546 3171,
abrow@doc.govt.nz

[Photo by Sjaan Charteris, DOC.]

Right: This newsletter published jointly by DOC, Fish & Game New Zealand, Greater Wellington Regional Council and MAF Biosecurity New Zealand is helping to engage the public in aquatic pest management.
Stop the spread

A GROWING PROBLEM

In recent years, the introduction of some non-native freshwater fish and aquatic plants has become a growing problem. These invasions can have severe impacts on the environment, changing habitats and altering the natural ecosystem. Some invasive species can also cause economic losses to industries, such as fishing and tourism.

PLEASE HELP

Whether you’re a fisherman, a boat owner, or just someone who enjoys the outdoors, there are steps you can take to help prevent the spread of these invasive species.

You can help by:

- Reporting sightings of non-native species to your local council or Department of Conservation.
- Not releasing fish or plants into the wild.
- Cleaning your boat, trailer, and equipment before and after use.
- Ensuring that your clothing and boots are free of mud and vegetation.
- Not spreading soil or other materials that could contain invasive species.

PEST FISH

Koi carp

Koi carp are native to central Asia and were introduced to New Zealand as ornamental fish. However, they have become a significant pest in some areas due to their ability to adapt to a wide range of environments. Koi carp can grow up to 1 metre long and may outcompete native species for food and space.

Zebra mussel

Zebra mussels are small, invasive molluscs that were introduced to New Zealand in the 1980s. They can attach to boats and other man-made structures, causing significant damage to the marine environment. Zebra mussels also compete with native species for space and resources.

Water hyacinth

Water hyacinth is a fast-growing aquatic plant that was introduced to New Zealand as an ornamental species. However, it has become a significant pest in some areas due to its ability to quickly spread and dominate waterways. Water hyacinth can also block sunlight and reduce the oxygen levels in water, which can have a negative impact on native species.

Yellow flag iris

Yellow flag iris is an invasive plant that was introduced to New Zealand as an ornamental species. It has become a significant pest in some areas due to its ability to quickly spread and dominate waterways. Yellow flag iris can also reduce the oxygen levels in water, which can have a negative impact on native species.

Purple loosestrife

Purple loosestrife is an invasive plant that was introduced to New Zealand as an ornamental species. It has become a significant pest in some areas due to its ability to quickly spread and dominate waterways. Purple loosestrife can also reduce the oxygen levels in water, which can have a negative impact on native species.

These are just a few examples of the many invasive species that pose a threat to New Zealand’s environment. By taking steps to prevent the spread of these species, we can help protect our country’s unique wildlife and ecosystems.

For more information on invasive species in New Zealand, please visit the Department of Conservation’s website.
Biosecurity New Zealand had a busy 2004/05 summer on surveillance and response activities for exotic ant incursions. There have been 15 recorded ant incursions, centred on a few ‘hot spots’. This year has also seen a disproportionately large number of Monomorium spp. detections (see Table 1).

**National invasive ant surveillance at ports of entry**

The National Invasive Ant Surveillance programme commenced in 2001 as a result of the red imported fire ant (*Solenopsis invicta*), or RIFA, found at Auckland International Airport. Each year Biosecurity New Zealand selects high-risk sites for surveillance activity based on previous incursion and detection histories, climate and trade patterns. Each site is then overlaid with 15 x 15m grids, and grid cells containing suitable ant habitats are visually inspected and baited with attractants. Baits are laid for two-hour periods to coincide with optimum foraging conditions. All ants detected are identified and appropriate response actions initiated where required.

The number of finds since January 2005, primarily as a result of surveillance activities, indicates that significant numbers of containers carrying ants are passing through New Zealand ports. Some of the hitchhiking colonies are establishing nests at ports, and it is likely that some are also establishing at devanning sites (transitional facilities).

Biosecurity New Zealand is confident that all nests treated so far this year have been killed. Post border surveillance activities have proven very effective at detecting exotic invasive ants. Results however indicate that a significant expansion of surveillance effort is required, and that both onshore and offshore risk mitigation methods need improvement.

**TABLE 1: SUMMARY OF ANT DETECTIONS FOR 2004/05 SURVEILLANCE PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Species</th>
<th>Location</th>
<th>Site details</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-01-05</td>
<td>Paratrechina longicornis</td>
<td>Port of Napier</td>
<td>Drain</td>
<td>Nest destroyed, toxic baiting</td>
</tr>
<tr>
<td>16-01-05</td>
<td>Monomorium destructor</td>
<td>Port of Napier</td>
<td>Foraging on and around sea containers</td>
<td>Toxic baiting area</td>
</tr>
<tr>
<td>16-01-05</td>
<td>Tapinoma melanocephalum</td>
<td>Port of Napier</td>
<td>Foraging around wash bay</td>
<td>Toxic baiting of area</td>
</tr>
<tr>
<td>24-01-05</td>
<td>Iridomyrmex sp.</td>
<td>Port of Napier</td>
<td>Attractant bait pottle</td>
<td>Toxic baiting</td>
</tr>
<tr>
<td>26-01-05</td>
<td>Monomorium sp.</td>
<td>Port of Napier</td>
<td>Wash bay area</td>
<td>Nest destruction, toxic baiting</td>
</tr>
<tr>
<td>28-01-05</td>
<td>Monomorium sp.</td>
<td>Wellington Port</td>
<td>Sea container at wash bay</td>
<td>Toxic baiting area</td>
</tr>
<tr>
<td>3-02-05</td>
<td>Monomorium sp.</td>
<td>Wellington Port</td>
<td>Wooden bollard</td>
<td>Fumigation of suspect nest site</td>
</tr>
<tr>
<td>3-02-05</td>
<td>Anoplolepis gracilipes</td>
<td>Ports of Auckland</td>
<td>Attractant bait pottle</td>
<td>Site investigation</td>
</tr>
<tr>
<td>09-02-05</td>
<td>Camponotus sp.</td>
<td>Air NZ cargo warehouse</td>
<td>Single queen in lunch room</td>
<td>Site visits, toxic baiting</td>
</tr>
<tr>
<td>11-02-05</td>
<td>Monomorium destructor</td>
<td>Air NZ cargo Auckland</td>
<td>Nest in ground</td>
<td>Nest destruction, toxic baiting</td>
</tr>
<tr>
<td>20-02-05</td>
<td>Odontomachus sp.</td>
<td>Nelson, Woolworths</td>
<td>Single specimen on bananas</td>
<td>Site investigation</td>
</tr>
<tr>
<td>09-03-05</td>
<td>Monomorium destructor</td>
<td>CRS Tauranga</td>
<td>Near wash bay</td>
<td>Nest destruction, toxic baiting</td>
</tr>
<tr>
<td>23-03-05</td>
<td>Polyrachis sp.</td>
<td>Air NZ cargo warehouse</td>
<td>Air can</td>
<td>Container treatment</td>
</tr>
<tr>
<td>23-3-05</td>
<td>Monomorium sp.</td>
<td>Airport oaks</td>
<td>Attractant bait pottle</td>
<td>Site investigation</td>
</tr>
<tr>
<td>10-04-05</td>
<td>Paratrechina longicornis</td>
<td>Ports of Auckland</td>
<td>Foraging across ground and containers</td>
<td>Fumigation</td>
</tr>
<tr>
<td>10-04-05</td>
<td>Anoplolepis gracilipes</td>
<td>Ports of Auckland</td>
<td>Nest in wharf timber</td>
<td>Toxic baited</td>
</tr>
</tbody>
</table>
Ongoing response activities

In 2004, RIFA were detected at the port of Napier. The nest was destroyed and a subsequent delimiting survey failed to locate any more infestations. A second delimiting survey during the summer of 2004/05 was also negative. Precautionary follow up work will be carried out in early 2006.

Also in 2004, three exotic species were detected at a transitional facility in Mt Maunganui: crazy ant (*Paratrechina longicornis*), yellow crazy ant (*Anoplolepis gracilipes*) and tropical fire ant (*Solenopsis geminata*). Subsequent delimiting surveys did not detect any further populations of yellow crazy ants or tropical fire ants, but crazy ant was found again in February this year. Biosecurity New Zealand is confident that this find is separate from the original 2004 incursion.

Since the new detection in February this year, a further four detections of crazy ant have occurred on this site. Most sea containers received at this transitional facility are from Pacific islands, where invasive ant populations are often high. Combined with unsatisfactory container yard hygiene, this can increase the invasive ant risk of containers from these facilities (see Table 2).

Offshore treatment of sea containers already occurs in some Pacific island locations and the possibility of toxic baiting at high risk Pacific island container facilities is being explored. The ongoing toxic baiting at the infested transitional facility combined with MAFQS on-wharf inspections of containers originating from non-treated ports of origin should be sufficient to minimise any short term risk.

Simon O’Connor, Senior Adviser Surveillance and Incursion Response, Post-clearance, Biosecurity New Zealand, Phone 04 498 9939, fax 04 470 2730, simon.o’connor@maf.govt.nz

<table>
<thead>
<tr>
<th>Date</th>
<th>Origin</th>
<th>Site</th>
<th>Outcome</th>
<th>Nest located</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-02-05</td>
<td>Unknown</td>
<td>Attractant bait Pottle</td>
<td>Initial response</td>
<td>N/A</td>
</tr>
<tr>
<td>3-5-05</td>
<td>Unknown</td>
<td>Drain bank</td>
<td>Toxic baiting/movement control notice</td>
<td>Undetermined but from within sea containers</td>
</tr>
<tr>
<td>5-4-05</td>
<td>Pacific islands?</td>
<td>On containers</td>
<td>Toxic baiting/movement control notice</td>
<td>Undetermined but from within sea containers</td>
</tr>
<tr>
<td>30-4-05</td>
<td>Pacific islands?</td>
<td>On containers</td>
<td>Toxic baiting/movement control notice</td>
<td>Undetermined but from within sea containers</td>
</tr>
<tr>
<td>3-5-05</td>
<td>Honiara?</td>
<td>On containers</td>
<td>Toxic baiting/movement control notice</td>
<td>Undetermined but from within sea containers</td>
</tr>
<tr>
<td>10-5-05</td>
<td>PNG/Australia/NZ?</td>
<td>On containers</td>
<td>Toxic baiting and tracing exercise</td>
<td>Undetermined but from within sea containers</td>
</tr>
</tbody>
</table>

Asian gypsy moth eradicated

The single Asian gypsy moth that triggered the eradication effort in 2003.

The Asian gypsy moth has been eradicated from Hamilton, Biosecurity Minister Jim Sutton announced last month. The Minister said it has taken two years from the trapping of the final moth to declare a pest eradicated. The last – and only – Asian Gypsy Moth found in the Hamilton infestation was trapped on 26 March 2003.

International recommendations for gypsy moth are that where no further activity is detected for two generations after treatment, then eradication can be declared successful.

Mr Sutton said the total cost of the eradication programme to date was around $5.4 million.

As well as aerial spraying, the eradication effort included ground searching, pheromone trapping in Hamilton and surrounding satellite towns, mass trapping, public awareness, and the establishment of a Controlled Area and movement controls on host vegetation. The Controlled Area Notice will be revoked and all associated movement control activities will stop.

The national gypsy moth surveillance programme will continue to monitor pheromone traps within Hamilton city.

Right story, wrong amphibian

In *Biosecurity* 59:23 we brought you the story of the cane toad from Fiji caught at Auckland International Airport near the baggage carousel. Unfortunately when it came to ‘outing’ the refugee toad, we got the wrong amphibian. Here, for the record, is the captured cane toad. The misnamed amphibian (see inset) was in fact *Litoria caerulea* or green treefrog. A native of Australia, this specimen is thought to have caught a ride in the undercarriage of an RNZAF Hercules when it made a stop in Darwin en route to New Zealand after duty in the Middle East.

The single Asian gypsy moth that triggered the eradication effort in 2003.

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Fall webworm response update

Following the detection of a nest of fall webworm (FWW) larvae in Mount Wellington, Auckland, in March 2003, a surveillance trapping programme was established. No life stages were found during ground searches.

In February this year, however, two male FWW moths were trapped, followed by a third find at Easter near the Otahuhu Creek – about 4km away from the February finds.

On 5 April another moth was caught at the foot of Mt Wellington in the Tamaki-Panmure area.

The existing trapping grid has been extended to encompass all finds, and extensive ground searches have been completed following these recent catches. No further life stages or evidence of FWW have been found.

The FWW Technical Advisory Group says more information is required before further action can be recommended.

In the meantime, an updated vegetation control movement zone has been put in place in order to prevent the spread of the pest (New Zealand Herald 16 April 2005).

Information on the 2003 incursion and follow-up activities can be found in the following editions of Biosecurity:

- Issue 43:5, 1 May 2003
- Issue 44:11, 15 June 2003
- Issue 46:16, 15 September 2003
- Issue 52:16, 15 June 2004


Anna Dunlop, Technical Support Officer, Eradication Programmes, Biosecurity New Zealand, phone 04 474 4215, anna.dunlop@maf.govt.nz

New ERMA NZ Chief Executive announced

Rob Forlong has been appointed the new Chief Executive of ERMA New Zealand. Currently Divisional Manager, Landcare for the Wellington Regional Council, he will assume the new role 1 August 2005.

ERMA New Zealand regulates the introduction and use of hazardous substances and new organisms in New Zealand. It deals with explosives, poisons, insecticides and pesticides as well as other hazardous substances. It also decides on the importation and use of plants, animals and other new organisms including genetically modified organisms.

After completing an MSc (Hons) in Zoology in 1988, Mr Forlong worked for the Department of Conservation as a Conservation Officer for coastal and marine environments in Dunedin. He then moved to Wellington to work on conservation policy.

In 1993 he moved into the role of Resource Planner for waterways at the Wellington Regional Council – where he began his considerable involvement with the Resource Management Act.

Rob remained at the Wellington Regional Council for twelve years. From 1996 to 2001 he was Manager of the Consents Management process. Since 2001 he has been the Divisional Manager of Landcare.
The Government summarised this as a need to collectively improve coordination and consistency across pest management agencies, to create direction and an overall view of priorities, and to broaden our view of the values that we protect through managing pests.

When the biosecurity system was reorganised in 2004, two of the new responsibilities assigned to Biosecurity New Zealand (BNZ) were:

- to provide national leadership and coordination for pest management (from the date BNZ was created)
- to deliver national pest management programmes (from 1 July 2005).

The intent behind this was clearly expressed by the Government when it stated ‘MAF will not take on the existing pest management responsibilities of agencies such as DOC, but … rather it will involve such things as ensuring roles are clear, that pests are being managed at the appropriate (national or regional) level, and that legislative tools are appropriate’

Within BNZ’s new structure, a new Pest Management Group has been established within Biosecurity New Zealand (February 2005). It provides a focal point for BNZ’s new pest management responsibilities, and for working alongside other pest management agencies. The group currently comprises a manager (Andrew Harrison) and a senior adviser (Carl McGuiness – see staff profile on page 18), to be strengthened shortly by two secondment positions (one from regional councils and another from DOC). This is a start-up capability, which BNZ anticipates will need to grow from July 2006.

Additionally, the Biosecurity Strategic Unit provides a strategic capability for the system (including for pest management), and works closely with the Pest Management Group and other biosecurity agencies.

Some of the initial pest management work undertaken includes:

- convening pest management workshops at the 2004 Biosecurity Summit to identify how critical pest management gaps can be addressed
- getting agreement on a single set of pest management priorities for central and regional government (see separate article in this edition)
- establishing formal arrangements for coordinating central and regional government’s pest management activities
- progressing the National Pest Plant Accord (an agreement between government agencies and industry to prevent the sale, distribution or propagation of pest plants)
- agreeing arrangements with DOC that relate to transfer of their five national pest management programmes and a surveillance programme to BNZ.

Looking to the future, some of BNZ’s key pest management priorities for 2005/06 include:

- a stock take of pest management activity
- identifying a priority set of national pest management programmes (reviewing existing and evaluating potential new programmes), while managing existing programmes (pyg grass, hydrilla, hornwort, white bryony, rainbow lorikeet, Johnson grass, salvinia, Cape tulip and water hyacinth)
- clarifying how roles and responsibilities for pest management will be distinguished across agencies, and how this will work in practice (using case studies)
- agreeing, with regional government, how the Crown will contribute to regional councils’ regional pest management strategies
- establishing active coordination for high priority regional pest management programmes that need this.

As the Biosecurity Strategy emphasised, the road to pest management success will be built upon strong partnerships and a willingness to agree direction and align our collective efforts. BNZ acknowledges the strong support for and positive role that other pest management agencies have played in this way to date.

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1 (CAB Min (03) 28/8 refers)
Pest management strategic priorities agreed

In May 2005, chief executives from all regional authorities and central government biosecurity agencies confirmed a single set of priorities for pest management. The purpose of these is to improve alignment and focus of our pest management effort.

Reaching agreement follows a substantive consultation process and joint effort by all agencies involved. The process involved consulting various experts (a questionnaire, followed by an inter-agency workshop), and seeking general submissions at the Biosecurity Summit in 2004.

Seven priorities have been agreed (in order) as follows:

1. Clarifying roles and responsibilities, including for:
   • Crown contributions to regional pest management strategies
   • when should something be a national vs. regional responsibility
   • when national coordination of regional programmes is needed
   • in the marine environment specifically.

2. Managing pests at an early stage of naturalisation/invasion (e.g. ‘emerging’ or ‘sleeper’ pests)

3. Improving public awareness and participation, including:
   • improving public and community understanding and awareness of biosecurity
   • better defining key target audiences (includes high risk groups and groups that could be active biosecurity champions)
   • enhancing collaborative relationships among the key biosecurity agencies to coordinate and harmonise public awareness activity.

4. Improving risk assessment and risk management decision-making, including:
   • improving consistency across jurisdictions
   • improving our ability to manage risks associate with pests that spread across jurisdictions
   • focusing on risk assessment to support site-protection and pathway/vector management, as well as control of pests.

5. Improving access to publicly acceptable operational tools over time

6. Improving marine biosecurity capability, including:
   • debating and clarifying roles and responsibilities in the marine environment, who pays, and what the priorities are
   • resolving future management of Undaria.

7. Developing national indicators and monitoring for the system as a whole

Surveillance has also been identified as a key priority, but the surveillance review has already covered this topic in detail. The next step is for Biosecurity New Zealand to lead implementation of this, which involves a wide range of pest management agencies.

Now that priorities have been agreed, the next stage of this work is underway. It involves a stock take of work that agencies are already doing, and an analysis of how we can improve alignment and focus effort.

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Carl McGuinness
joined the Post-clearance Directorate as Senior Adviser, Pest Management in June 2005. He came from the Department of Conservation (DOC) where he was the Manager of the Threatened Species Section. In that role he led a team of technical specialists responsible for the improvement of threatened species recovery nationally. During his seven years with DOC he has also held roles as a Species Protection Officer and Threatened Invertebrate Coordinator. Carl has a Bachelor of Applied Science (Honours) degree in Plant Science. In his new role, Carl will assist with providing leadership and coordination of pest management activities across the biosecurity system.
Biosecurity Managers’ Group

The Biosecurity Managers’ Group (BMG) is a valuable network for senior regional government staff with biosecurity responsibilities.

Regional and unitary councils have broad responsibilities for pest management at a regional level. This includes preparing and implementing regional pest management strategies, involvement in the implementation of national pest management strategies and monitoring, investigation and surveillance of pest and potential pest species.

Councils recognised at an early stage that they needed to share information and develop a coordinated approach to pest management. The Biosecurity Managers’ Group was established to help achieve this. The group is made up of managers and senior staff with leadership responsibility for regional biosecurity matters across New Zealand. In most cases, each council has one representative on BMG. The group has a mix of policy and operational skills and reports to the Regional Council Chief Executive Group.

BMG typically meets every three months. The meetings are an opportunity to discuss and progress issues with government departments, researchers and other agencies involved in biosecurity and pest management.

There are BMG representatives on various national biosecurity and pest management groups and working parties, for example the National Possum Control Agencies, the Forest Biosecurity Consultative Committee and the Exotic Disease Working Group.

One example of BMG’s work is advising on the reviews of regional pest management strategies (RPMS). A number of regional councils are to commence reviews of their RPMS during the next 12 months. A small project team of various regional council staff is being formed with the intention of reviewing and updating existing advice previously given to councils, taking account of any legislative changes and the Biosecurity Strategy.

Such an approach means that regional councils can collectively pool their experience and resources and provide sound generic advice on RPMS reviews.

The BMG is working with DOC on biological controls, and with Landcare Research to fund investigation and development of biocontrol agents. The group also works with Crown Research Institutes to help identify research priorities in the biosecurity and pest management area.

A recent development has been BMG involvement in the Biosecurity Coordinating Committee which advises the Biosecurity Central Government/Regional Government Forum and maintains an overview of, coordinates and better aligns the biosecurity activities of central and regional government.

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**PEOPLE IN BIOSECURITY**

**Ian Gear**, has been appointed Manager Eradication Programmes. Since joining MAF in 2001, Ian has worked in risk analysis and directed the painted apple moth project. He has extensive management, governance and strategic experience, spanning science, education and primary industry production. Ian’s community involvement has included participation in the planning and development of Hamilton Gardens. For eight years he was a trustee of what is now Trust Waikato, a charitable organisation with assets of over $200 million, the Hamilton Gardens Trust and the Japanese Garden Trust in Hamilton.

**Amelia Pascoe** is the Team Manager, Surveillance and Incursion Response (Plant Kingdom) in the Post-clearance Directorate. The Plant Kingdom team is responsible for managing surveillance and response programmes, systems and capability for organisms affecting plant health in the terrestrial and freshwater environments. Amelia joined the former MAF Biosecurity Authority in 2000, where she was responsible for setting up, managing and developing MAF’s environmental pest surveillance and response programme. Before joining MAF, and following completion of her MSc (Zoology), Amelia worked in research, conservation, pest management, and resource management roles for the Department of Conservation, Landcare Research, and Canterbury Regional Council.

**Sarah Kleeman** joined the Biosecurity New Zealand Post-clearance Directorate as Senior Adviser Marine – Surveillance and Incursion Response in April 2005. Sarah brings extensive experience in aquatic biosecurity, having worked for Biosecurity Australia for two years, where she managed the development of, and advised on, aquatic animal quarantine and export policy. Prior to joining Biosecurity New Zealand, Sarah worked at the University of Glasgow, Scotland, where she coordinated an aquaculture research project and studied web development and design, applying these skills to developing educational websites. Sarah is a recognised international expert in mollusc diseases, She holds a Bsc (Hons) from the University of New England and a PhD from the University of Brisbane, Australia.

**Fruit fly find?**

Insect larvae found literally leaping out of two packages of chillies are highly likely to be fruit fly. Two Philippine women, arriving at Auckland International Airport from Hong Kong, declared food and presented a large suitcase for inspection. Inside the case were two packages of chillies wrapped in newspaper and crawling with what looked like fruit fly larvae.

The women said they had grown the chillies in their backyard in the Philippines and were unaware of the risk to New Zealand. The rest of the suitcase was thoroughly inspected for any escaping larvae. The specimens have yet to be officially identified.
Researchers unravel painted apple moth pheromone

The HortResearch Insect Chemical Ecology team has identified the female sex pheromone of the painted apple moth.

Pheromone glands were extracted into liquid nitrogen, and analysed using coupled gas chromatograph and electroantennogramme analysis to determine which compounds were present and detectable by the male insect. The identity of these compounds was then checked by mass spectrometry and thin layer chromatograph analysis. In addition, female extract derivatisation, wind tunnel, field cage and finally field trapping experiments have been used.

Seven pheromone compounds were found. The blend consists of four different classes of compounds (hydrocarbons, epoxides, ketones, and secondary alcohols) making it the most complex pheromone blend identified to date in a moth.

The most important compound was especially elusive, until project leader Dr Ashraf El-Sayed deduced that it was breaking down to other compounds under the heat of the gas chromatograph! Two epoxides have been found as sex pheromones in moths for the first time. This is the first pheromone identification of an Australian member of the Family Lymantriidae (tussock moth).

Unfortunately, in addition to being unstable at high temperatures, this unusual pheromone only has a half-life of several hours. More than 99% of other moth pheromones are stable for months, so there was no way of predicting this result.

While work is underway to stabilise the main molecule, the trapping grid continues to use virgin females for monitoring the presence of any wild males. Pheromones continue to be the most cost effective monitoring tool for these cases, as the male insects come to the traps and show up at much lower densities than with any other survey approach.

More information about pheromones is available at www.pherobase.com, a major database of insect attractants designed and maintained by Dr El-Sayed.

Dr Max Suckling,
Biosecurity Science Leader,
HortResearch,
Lincoln,
phone 03 325 6609

A potentially damaging species

The painted apple moth, *Teia anartoides* was accidentally introduced into New Zealand from Australia in 1999. This invasive species, a relative of the infamous gypsy moth, has the potential for significant economic and ecological damage to New Zealand horticulture and forestry, due to its wide host range. The pest is usually controlled by its natural enemies in Australia, so little was known of its biology.

Male painted apple moths trapped with a synthetic lure.

Biosecurity: Technologies for Pest Eradication

Workshop organised by New Zealand Plant Protection Society
Ilot Theatre, Wellington Town Hall, Wellington
(next to Michael Fowler Centre)
Monday 8 August 2005, 9.15am – 6pm

Convenors: Toni Withers, Ian Popay, Pip Stevens, Ian Harvey

This workshop, held the day before the NZPPS Annual Conference, brings together scientists involved in the planning and conduct of attempted or successful eradication of insects, mammals and plants from mainland New Zealand or its offshore islands. Topics for discussion include:

- making decisions on the feasibility of eradications
- when an organism is considered ‘new’ to New Zealand
- what we can learn from overseas eradication attempts.

Taking part will be key players in the eradication industry and biosecurity research in New Zealand: Biosecurity New Zealand, Department of Conservation, CRIs (HortResearch, AgResearch, ForestResearch), ERMA New Zealand and industry. We shall also hear Australian perspectives on eradications.

The emphasis of this workshop will be on the science of eradication technologies, and important lessons from past eradication attempts, but will be of interest to all with an interest in national or localised (island) eradications.

Cost (incl. GST): $120 (includes copy of extended abstracts, lunch and refreshments)

For a detailed programme: www.nzpps.org.nz

Further Information: Toni Withers, toni.withers@forestresearch.co.nz or Ian Popay, ipopay@doc.govt.nz
Science and implications of animal sentience

The Compassion in World Farming Trust held its two-day conference ‘From Darwin to Dawkins: the science and implications of animal sentience’ in London in March. Six hundred people attended, from 50 countries. Animal Welfare Group policy adviser Joanna Tuckwell, who is on secondment to the Home Office in the United Kingdom for six months, was among them.

Opinion about the existence and importance of animals’ feelings has fluctuated over the years. Nearly four centuries ago, French philosopher René Descartes believed non-human animals to be complex organic machines, all of whose actions could be fully explained without any reference to the operation of a mind or thought. Nowadays, however, recognition of animal sentience and animals’ ability to suffer is at least implicit in our interactions with animals and our animal welfare legislation.

There is also growing scientific interest in animal sentience. Understanding animal sentience and working with it could improve animal husbandry and, ultimately, animal welfare.

Recognising animal sentience

While the overall theme of the conference was ‘animal sentience’, it was clear from the outset that ‘sentience’ and related concepts such as ‘consciousness’ are not easily defined. Speakers’ definitions of sentience ranged from broad (‘the senses’) to narrow (‘emotions and feelings’).

Professor Marian Stamp Dawkins, from the University of Oxford, acknowledged that we don’t know how physical processes in the brain give rise to subjective experience – which makes this difficult to assess in other species. Several speakers also pointed out that human experience may differ from that of animals. But there was general agreement that ‘animal sentience’ relates to animals’ mental state, both negative (e.g. suffering) and positive, as part of their overall welfare.

Tools for evaluating animals’ motivation and mental state include:

- preference testing and aversion learning techniques and the consumer demand approach (asking whether animals will ‘pay a price’ for what they want)
- other behavioural measures (e.g. abnormal behaviours)
- physiological indicators (stress hormones and immune response measures).

Many speakers also emphasised the importance of applying common sense in considering animal sentience, adding that until we can scientifically prove (or disprove) animal sentience, we should give animals the benefit of the doubt.

The implications of recognising animal sentience

Several speakers proposed that if we use sentient animals, then we have a moral duty to do so in a way that promotes their wellbeing and avoids or minimises suffering. Animal husbandry regimes should be designed from an animal-centred viewpoint, based on evidence, not a human interpretation of what animals might want. For example, preference tests have been used as a first approach for identifying flooring requirements for pigs and poultry and pen design requirements for cows and sows about to give birth. As Professor Dawkins put it, “true progress in animal welfare will come from a judicious balance between what improves animal health and what gives animals more of what they want.”

Professor John Webster, from the University of Bristol, encapsulated this in his ‘social contract’ theory: that in exchange for using farm animals, we should define the standards under which we keep them according to our perception of their needs, based on scientific techniques such as motivation analysis and robust, animal-based methods for assessing welfare on farm. Our responsibilities include:

- acknowledging and understanding sentience in animals
- breeding and managing farm animals that can sustain fitness and avoid suffering throughout their productive lives
- establishing an effective system of welfare assurance for farm animals
- increasing public demand for real improvements in farm animal welfare.

The work of Dr Temple Grandin, from Colorado State University, is a good example. Dr Grandin has been contracted by McDonald’s Corporation since 1999, to audit US beef and pork slaughter plants. Simple changes that she has introduced at the plants, such as adjusting lighting to eliminate sparkling reflections and installing non-slip floor gratings in stun boxes, have significantly reduced animal stress and improved handling at the plants. Describing her work, Dr Grandin emphasised the importance of viewing raceways etc from, literally, an animal’s eyelevel, to assess what aspects could induce fear and how they could be adjusted to reduce this.

Others at the conference recognised the importance of consumers in promoting awareness of animal sentience and setting high animal welfare standards. Representatives of major UK chains Tesco Stores and Marks and Spencer attended, and a representative of McDonald’s Corporation gave a presentation on the company’s global framework for animal welfare and how McDonald’s has implemented and monitors standards at all stages of its supply chain.

Proceedings

Proceedings from the conference will be published later in 2005.


Joanna is currently on a six-month secondment to the Secretariat of the Animal Procedures Committee in London. She will be back in Wellington in August.

1 Compassion in World Farming Trust discusses issues relating to farm animal use in its 2003 report ‘Stop – Look – Listen: Recognising the Sentience of Farm Animals’ (available on its website: www.ciwf.org.uk)

2 Improvements are measured on a numerical objective scoring system, details of which are available on Dr Grandin’s website: www.grandin.com
Australasian vertebrate pest conference

Vertebrate pest control was on the agenda at the 13th Australasian Vertebrate Pest Conference, held in Te Papa from 2 to 6 May. Don Crump (Biosecurity New Zealand Policy and Business Development), Andrew Harrison (Biosecurity New Zealand Post-clearance Pest Management) and Kate Littin (Biosecurity New Zealand Animal Welfare) held the flag for Biosecurity New Zealand.

First held in 1957 and held about every four years since then, this is the first time the conference has been hosted in New Zealand. It was organised by Landcare Research and was primarily sponsored by the Vertebrate Pest Committee. This Committee reports on vertebrate pest policy, management and science issues to the Natural Resource Management (NRM) Policy and Program Committee, which in turn reports to the Australia and New Zealand NRM Ministerial Council.

The more than 70 papers covered pests as varied as camels, foxes, carp, rabbits, pigs, goats, red-eared sliders and, of course, possums. Also covered was the development of more humane, target-specific, new, or novel methods of pest monitoring and control and the ethics and animal welfare considerations of monitoring and killing wildlife pests. Posters ranged from ‘Ecotoxicity of 1080 to plants’ to ‘Eradicating feral goats on Banks Peninsula’.

Several papers were highly relevant and significant to New Zealand policy makers, pest control managers and contractors. Mary Bomford’s paper, ‘Risk assessment for the import and keeping of exotic vertebrates’ is just one example. The vote for novelty should perhaps go to a Canadian paper, ‘Burrowing rodent control using bio-degradable foam injected into burrows’.

New Zealand Biosecurity Institute and Vertebrate Pest Management Institute of New Zealand

National Education & Training Seminar

27th – 29th July 2005, Rydges Hotel Christchurch

How we manage invasive alien species is of major importance for our environment, our health and our economy. The New Zealand Biosecurity Institute and The Vertebrate Pest Management Institute of New Zealand are pleased to announce that the National Education and Training Seminar (NETS) will be held at Rydges Hotel in Christchurch from 27th-29th July 2005. The theme for this year’s conference “In Your Neighbourhood” emphasises what we can all do for biosecurity in our own neighbourhood – be it urban, rural, regional, national or the wider Pacific region.

NETS 2005 provides a unique opportunity for those involved in biosecurity to share information and form stronger partnerships so that we can better meet the challenge of biosecurity issues in our region. The programme includes international speakers, workshops, field trips, a public outreach session, and social events – it’s all happening at NETS 2005!
Biosecurity assistance to Pacific countries

A very successful South Pacific Border Management Workshop was held in Nadi, Fiji on 19 – 21 April 2005 to prioritise regional issues facing the Pacific Islands at their borders. The workshop was opened by the New Zealand High Commissioner to Fiji, His Excellency Mr Michael Green. Biosecurity New Zealand was represented by Neil Hyde, Bob Macfarlane, Brendan McDonald and Bronwyn Wiseman who all facilitated the meeting jointly with the Secretariat of the Pacific Community representatives, Sidney Suma and Naca Waqa. Emma Monk from Biosecurity New Zealand provided an update on the Pacific Biosecurity Awareness Project.

The workshop was funded by the Pacific Security Fund. This MFAT-administered fund provides for one-off or short-term projects for government agencies to improve New Zealand’s security and help Pacific nations. The workshop also met Biosecurity New Zealand’s obligations under Expectation 35 of the Biosecurity Strategy: “That New Zealand is helping Pacific countries to reduce biosecurity threats to the region”.

Most biosecurity aid funding in the region is bilateral with only one country receiving the benefit for what is in many cases a regional issue. The aim of the workshop was to identify regionally important border management issues. The funding provided for two participants from thirteen nations: Cook Islands, Fiji, Kiribati, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tokelau, Tuvalu, Vanuatu and Wallis and Futuna.

The workshop prioritised the top ten biosecurity border management issues, and identified areas that needed work over the next 3 years, who should coordinate the work and where external resources may come from.

The three-day workshop also had a half-day field trip hosted by Fiji MAFF which included Lautoka wharf, an exporter’s pack-house, the Biosecurity New Zealand-approved fresh produce heat treatment facility, the passenger processing area at Nadi airport and the Nadi airport quarantine incinerator.

The workshop will provide valuable guidance for future multi-lateral projects for the Pacific Security Fund and help aid donors prioritise project investment.

For information about the Pacific Security Fund:

Brendan McDonald,
Senior Adviser Pre-clearance – Border Standards,
phone 04 474 4204,
fax 04 498 9888,
brendan.mcdonald@maf.govt.nz

Sally Griffin,
Technical Adviser,
Policy and Business Development,
Biosecurity New Zealand,
phone 04 474 4140,
fax 04 474 4257,
sally.griffin@maf.govt.nz

TOP TEN BIOSECURITY BORDER MANAGEMENT ISSUES THAT REQUIRE ATTENTION IN THE SOUTH PACIFIC REGION

1. Technical training
2. Equipment and facilities
3. Legislation
4. Manuals and procedures
5. Awareness and status of quarantine
6. Lack of cooperation and compliance
7. Information sharing (regional and other countries outside the region)
8. Clearance processes for high risk pathways (passengers, yachts/cargo/containers)
9. Organism identification services
10. Financial sustainability and government priorities

Suzanne Brangwin has joined the Biosecurity Standards Group in the Pre-clearance Directorate and will be primarily working on the import health standard for sea containers. Suzanne joins BNZ from the Australian Quarantine and Inspection Service (AQIS) where she has worked both in the Canberra Office and as a regional inspector. Additionally, Suzanne recently completed a one year stint as a Quarantine Adviser to the Samoan Ministry of Agriculture, on an AusAID funded programme. This provided her with first-hand experience of biosecurity operations in the Pacific and gives her a regional perspective on biosecurity issues. Unfortunately, time spent on a tropical island hasn’t helped her to acclimatise to the Wellington weather!

Melanie Newfield joined the Pre-clearance Directorate of Biosecurity New Zealand in March 2004 as a Senior Adviser, Risk Analysis (Plants). She has a particular focus on threats to indigenous flora. Before joining Biosecurity New Zealand, Melanie worked for the Department of Conservation, first in the Nelson/Marlborough Conservancy and then with Science and Research in Wellington, primarily on weed management. She also spent three months working as a volunteer in Mauritius for the Mauritian Wildlife Foundation. Prior to that, she worked for Landcare Research in Lincoln, in the Allan Herbarium, and studied botany at Auckland University (BSc, MSc). Melanie is now working on a range of pre-clearance and post-clearance risk analysis issues, including exotic moths, didymo (Didymosphenia geminata) and the National Pest Plant Accord.

Karen Sparrow recently joined the Pre-clearance Directorate of Biosecurity New Zealand as Exports Manager. The Exports team has nine people who cover the export of plants, forestry products and live animals. Karen comes from Fonterra where, as Compliance Manager, she worked closely with NZFSA to enable the successful export of dairy products. This included major involvement in E-certificate compliance and market access issues. Prior to this role, Karen worked in the food technology area, including involvement with the ice cream industry.
Chinese and Hong Kong delegations seek fire ant advice

Government and research officials from Hong Kong and China visited New Zealand in March and April to study red imported fire ant (Solenopsis invicta; RIFA) response and surveillance systems managed by Biosecurity New Zealand.

Hong Kong and China have recently reported significant infestations of RIFA and have been seeking policy and technical advice from Australia and New Zealand on appropriate management strategies for this high-impact invasive ant. The visitors were impressed with the thoroughness of the response and surveillance systems managed by Biosecurity New Zealand.

The visitors received presentations on the National Invasive Ant Programme and RIFA incursion responses while visiting the BNZ Investigation and Diagnostic Centre at Tamaki (IDC Tamaki, formerly NPPRL) in Auckland.

They also visited the Port of Napier to view first hand the most recent RIFA incursion site. Port of Napier Cargo operations manager, Grant Whitfield, welcomed the visitors followed by an onsite talk by Anti-ants manager Vivienne Van Dyke on poisoning and treatment strategies, and later by Travis Ashcroft, IDC Tamaki Incursion Investigator, on attractant baiting methodology and data management.

Both delegations appreciated the effort Biosecurity New Zealand made to provide the overview and information they required to apply to their respective RIFA problems.

Draft import health standards for consultation

The following import health standards have been developed by Biosecurity New Zealand and are available for public consultation:

**Garlic** (Allium sativum) from the People’s Republic of China dated 17 May 2005

This is a draft of a new standard.

Comments on this draft document should be forwarded to MAF by close of business on Tuesday 5 July 2005. MAF welcomes submissions and encourages respondents to forward comments electronically to the email address below. However, should you wish to forward submissions in writing, please send them to:

Biosecurity Standards – Consultation on revised IHS for Allium sativum from China

- Biosecurity New Zealand
  - Ministry of Agriculture and Forestry
  - PO Box 2526 Wellington
  - New Zealand
  - fax +64 4 498 9888
  - plantimports@maf.govt.nz

**Horse semen from Canada**, dated 17 May 2005


The import risk analysis is available from the Biosecurity website at:

- www.biosecurity.govt.nz/pests-diseases/animals/risk/index.html#livestock

Submissions on these draft documents should be forwarded to MAF by close of business on 28th June 2005. Depending on the results of consultation, it is anticipated that the new requirements will be in place by August 2005. MAF welcomes submissions and encourages respondents to forward comments electronically to the email address below. However, should you wish to forward submissions in writing, please send them to:

- Wendy Long
  - Biosecurity New Zealand
  - Ministry of Agriculture and Forestry
  - PO Box 2526 Wellington
  - New Zealand
  - fax +64 4 474 4132
  - imports@maf.govt.nz

Amended import health standards – Animals

The following new import health standards have been issued by Biosecurity New Zealand and, unless otherwise stated, are available for use:

**Zoo crested porcupines** *(Hystrix cristata, Hystrix africaineaustrialis)* from the United Kingdom, dated 18 April 2005

This standard now includes an alternative eligible species name *(Hystrix africaineaustrialis)* following ERMA approval.

Correction

The editorial in Issue 59 of Biosecurity incorrectly stated that charges had been laid against an Auckland nursery under the provisions of the Biosecurity Act and the Hazardous Substances and New Organisms Act (HSNO). No such charges have been laid. BNZ apologises for this error.
The standard is now dated 18 April 2005 and replaces that dated 16 July 1999.

**Dogs and cats from New Caledonia**
The French translation has been removed. The standard is dated 14 April 2005 and replaces that dated 12 May 2003.

**Dairy products from Thailand**
As well as minor editorial and formatting changes, a third approved manufacturing premise, Sipso Tropical Drink Co, 117 M.9 Paholyothin Road Klongneung, Klongluang, Pathumthani 12120 has been added to this standard.

All three premises are included under the Eligibility section and have been added to the Manufacturer’s Declaration. The Manufacturer’s Declaration also now states that the products are commercially packaged and identifiable as dairy products originating from Thailand.

The standard is dated 27 April 2005 and replaces that dated 21 February 2005.

**Importation of specified animal products and biologicals**
Two clauses have been amended in this standard:

6.9 Chondroitin sulphate, dermatan sulphate, heparin and heparanoid from any country may be given clearance provided the product is commercially packaged.

Dermatan sulphate is a mucopolysaccharide, like chondroitin sulphate and heparin that is processed in a similar manner. Heparinoid products contain varying amounts of heparin, chondroitin sulphate and dermatan sulphate.

6.27 Horse tails (washed horse hair plaited onto webbing tape intended for cosmetic use in show horses) from Australia may be given clearance provided they are free from any visible contamination.

Champion has been removed from this clause to allow the importation of generic horse tails, i.e. washed horse hair plaited onto webbing tape intended for cosmetic use in show horses.

**Dogs and cats from rabies-free countries**
Effective from 1 July 2005, dogs and cats imported into New Zealand from countries that do not require biosecurity direction to a transitional facility for post-arrival quarantine will no longer require a permit to import.

The permit requirement has been removed from the IHSs for dogs and cats from Hawaii, Norway, Singapore, Sweden, the Republic of Ireland and the United Kingdom.

**Importation of nursery stock**
The standard’s treatment requirements for dormant bulbs have been expanded in range.

**Amended import health standards – Plants**

**Importation into New Zealand of stored plant products intended for human consumption**
Minor changes have been made to this standard, including the addition of specified frozen mushrooms and the requirement for labelling and testing of dried Ganoderma mushrooms.

This standard is now dated 23 May 2005.

**Importation of nursery stock**
The standard’s treatment requirements for dormant bulbs have been updated. The standard is dated 27 April 2005 and replaces that dated 1 March 2005.

**Codes of welfare – update on development, issue, implementation and consultation since 1 January 2005**

**Codes of welfare issued: Nil**

**Codes of welfare coming into force/implemented**
- Pig – 1 January 2005
- Layer hen – 1 January 2005
- Zoo – 1 January 2005
- Circus – 1 January 2005.

**Consultation on codes of welfare**
- Commercial slaughter code: public consultation completed. Final code to be presented to Minister of Agriculture third quarter 2005
- Deer code: public consultation closed 28 February 2005

**Codes of welfare under development**
- On-farm husbandry procedures (including castration, tail docking and dehorning of livestock): Public consultation will commence in June 2005
- Dogs
- Dairy cattle
- Transport of animals by sea.

**Wayne Ricketts, Programme Manager Animal Welfare, phone 04 474 4276, fax 04 474 4196, wayne.ricketts@maf.govt.nz**

**Pest watch: 21/03/2005 – 06/05/2005**

Biosecurity is about managing risks – protecting the New Zealand environment and economy from exotic pests and diseases. 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 below list new organisms that have become established, new hosts for existing pests and extension to distribution for existing pests. The information was collated during 21/03/2005 – 06/05/2005, and held in the Plant Pest Information Network (PPIN) database. Wherever possible, common names have been included.

**ANIMAL KINGDOM RECORDS 21/03/2005 – 06/05/2005**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephila edulis (Golden orbweb spider)</td>
<td>Walkway</td>
<td>Gisborne</td>
<td>NPPRL</td>
<td>Frequently seen in the North Island, and slowly expanding in range.</td>
</tr>
</tbody>
</table>

**PlantKingdom Records 21/03/2005 – 06/05/2005**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden orbweb spider</td>
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</tr>
</tbody>
</table>

**Supervision van Smit, Technical Support Officer, Biosecurity New Zealand, ph 04 460 8702, suvi.vansmit@maf.govt.nz**

*The title of this section of Biosecurity has been changed to Pest watch to avoid any confusion with the legal definition of new organism in the Hazardous Substances and New Organisms Act (1996).*
### Validated new to New Zealand reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Didymosphenia geminata</em></td>
<td>Benthic surfaces</td>
<td>Southland</td>
<td>NIWA</td>
<td>First record of this organism in the southern hemisphere. Forms thick mats on river bottoms. Appears to be contained to a single Southland river system. Containment is a management priority while longer term response options are evaluated.</td>
</tr>
</tbody>
</table>

### New host reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Glomerella cingulata</em></td>
<td><em>Agave</em> (Agave)</td>
<td>Northland</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td><em>(Anthracnose, bitter rot)</em></td>
<td><em>Rhopalostylis</em> sp. (Nikau)</td>
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<tr>
<td></td>
<td><em>Cordyline australis</em></td>
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<tr>
<td></td>
<td><em>(Cabbage tree, ti kauka)</em></td>
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<tr>
<td></td>
<td><em>Howea forsteriana</em></td>
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<tr>
<td></td>
<td><em>(Kentia palm)</em></td>
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<tr>
<td></td>
<td><em>Aloe</em> (No common name)</td>
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<td></td>
<td><em>Phoenix roebelini</em></td>
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<tr>
<td></td>
<td><em>(Pygmy date palm)</em></td>
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<tr>
<td></td>
<td><em>Neoregelia</em> sp. (No common name)</td>
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<tr>
<td><em>(Brown leaf spot, Coniothyrium leaf spot)</em></td>
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<tr>
<td></td>
<td><em>Rhopalostylis</em> sp. (Nikau)</td>
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<tr>
<td></td>
<td><em>Sansevieria</em> sp. (Sansevieria)</td>
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<tr>
<td><em>Botryotinia fuckeliana</em></td>
<td><em>Yucca elephantipes</em></td>
<td>Northland</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td><em>(Botrytis blight)</em></td>
<td><em>(Yucca)</em></td>
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<tr>
<td></td>
<td><em>Aechmea luddemanniana</em></td>
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<tr>
<td></td>
<td><em>(Bromeliad)</em></td>
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<tr>
<td></td>
<td><em>Neoregelia</em> sp. (No common name)</td>
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<tr>
<td><em>(Phoma leaf spot, phoma rot)</em></td>
<td><em>(Cabbage tree, ti kauka)</em></td>
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<tr>
<td></td>
<td><em>Phoenix roebelini</em></td>
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<tr>
<td></td>
<td><em>(Pygmy date palm)</em></td>
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<tr>
<td><em>Phomopsis</em> sp.</td>
<td><em>Dyckia</em> (Bromeliad)</td>
<td>Northland</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td><em>(No common name)</em></td>
<td><em>(No common name)</em></td>
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<tr>
<td><em>Pestalotiopsis versicolor</em></td>
<td><em>Dyckia</em> (Bromeliad)</td>
<td>Northland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include kiwifruit, feijoa, passionfruit, avocado, radiata pine, Chile nut, blueberry, black currant, kaki, grape, olive, Phoenix palm, Bangalow palm, scaly zamia, fishtail palm, craneflower, yellow guava, beech, West Himalayan fir, dragon tree leaf lady palm, and <em>Eucalyptus</em> sp.</td>
</tr>
<tr>
<td><em>(Pestalotiopsis)</em></td>
<td><em>(No common name)</em></td>
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<td></td>
</tr>
<tr>
<td><em>Pithomyces chartarum</em></td>
<td><em>Vriesea</em> sp. (Vriesea)</td>
<td>Northland</td>
<td>NPPRL</td>
<td>No other hosts recorded in PPIN.</td>
</tr>
<tr>
<td><em>(No common name)</em></td>
<td><em>(No common name)</em></td>
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<tr>
<td><em>Fusarium phylophilum</em></td>
<td><em>Sansevieria</em> sp. (Sansevieria)</td>
<td>Northland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include <em>Dracaena</em> sp., petunia, dragon tree, and mother-in-law’s tongue.</td>
</tr>
<tr>
<td><em>(No common name)</em></td>
<td><em>(Sansevieria)</em></td>
<td></td>
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<tr>
<td><em>Fusarium oxysporum</em></td>
<td><em>Beaucarnea recurvata</em></td>
<td>Northland</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td><em>(Basal rot, dry rot, fusarium rot, fusarium stem root, fusarium wilt)</em></td>
<td><em>(Pony tail palm)</em></td>
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<td></td>
</tr>
<tr>
<td></td>
<td><em>Sansevieria</em> sp. (Sansevieria)</td>
<td>Northland</td>
<td>NPPRL</td>
<td></td>
</tr>
<tr>
<td><em>Pseudomonas syringae</em> pv. syringae* (Bacterial blast, brown spot)</td>
<td><em>Dactylis glomerata</em> (Cock’s foot)</td>
<td>Mid Canterbury</td>
<td>NPPRL</td>
<td>This bacterium has a very wide host range.</td>
</tr>
<tr>
<td><em>Pestalotiopsis versicolor</em></td>
<td><em>Phoenix roebelini</em></td>
<td>Northland</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td>Organism</td>
<td>Host</td>
<td>Location</td>
<td>Submitted by</td>
<td>Comment</td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sporormiella minima</td>
<td>Beaucarnea recurvata</td>
<td>Northland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include barley, avocado and pea.</td>
</tr>
<tr>
<td>(No common name)</td>
<td>(Pony tail palm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colletotrichium capsici</td>
<td>Bromelia sp.</td>
<td>Northland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include day lily, grape, table grape, wine grape and yucca.</td>
</tr>
<tr>
<td>(Anthracnose)</td>
<td>(Bromelia)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diplacarpus roseae</td>
<td>Rosa rugosa x R. foliolosa</td>
<td>Auckland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include strawberry, quince, loquat, apple, medlar, callery pear, pear, nashi, Indian hawthorn, sweet brier and rose.</td>
</tr>
<tr>
<td>(Black spot)</td>
<td>cv. Ann Endt (Rugosa hybrid rose)</td>
<td></td>
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<tr>
<td>Phragmidium mucronatum</td>
<td>Rosa rugosa x R. foliolosa</td>
<td>Auckland</td>
<td>NPPRL</td>
<td>Other PPIN hosts include sweet brier and rose.</td>
</tr>
<tr>
<td>(Rust)</td>
<td>cv. Ann Endt (Rugosa hybrid rose)</td>
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<td></td>
</tr>
<tr>
<td>Botryosphaeria lutea</td>
<td>Juglans regia (Walnut)</td>
<td>Mid Canterbury</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td>(No common name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternaria sp.</td>
<td>Agapanthus praecox</td>
<td>Mid Canterbury</td>
<td>NPPRL</td>
<td>Other PPIN hosts include capsicum, green pepper, carrot, persimmon, alpine ash, eucalyptus, shining gum, silvertop, Sydney blue gum, perennial ryegrass, black passionfruit, gum tree, avocado, garden pea, narrow leaved plantain, black-eyed Susan, maize and sweet corn.</td>
</tr>
<tr>
<td>(Alternaria rot, black mould)</td>
<td>(Agapanthus)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fusarium culmorum</td>
<td>Matthiola sp. (Stock)</td>
<td>Mid Canterbury</td>
<td>NPPRL</td>
<td>This common fungus has a very wide host range.</td>
</tr>
<tr>
<td>(Foot rot, fruit rot, fusarium kernal rot)</td>
<td></td>
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</tr>
<tr>
<td>Epiphyas postvittana</td>
<td>Zeikova serrata (Japanese zelkova)</td>
<td>Auckland</td>
<td>Forest Research</td>
<td>This common insect has a very wide host range.</td>
</tr>
<tr>
<td>(Light brown apple moth)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hierodoris atychioides</td>
<td>Pinus halepensis (Aleppo pine)</td>
<td>Taupo</td>
<td>Forest Research</td>
<td>Other PPIN hosts include Abies fargesii, Abies veitchii, Pinus radiata.</td>
</tr>
<tr>
<td>(Gregarious tineid)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Leucaspis ohakunensis</td>
<td>Hedera sp. (Ivy)</td>
<td>Wellington</td>
<td>Forest Research</td>
<td>Other PPIN hosts include Pseudopanax colensis and Pseudopanax lessoni.</td>
</tr>
<tr>
<td>(No common name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindingaspis rossi</td>
<td>Acacia pravissima (Ovens wattle, wedge-leaf wattle)</td>
<td>Wellington</td>
<td>Forest Research</td>
<td>Other PPIN hosts include banksias, New Zealand grapefruit, Poorman's orange, lemon, navel orange, sweet orange, Eucalyptus saligna, Fatsia, Laurus nobilis, coast tea tree, Monterey pine, Asian pear, nashi, grape, table grape and wine grape.</td>
</tr>
<tr>
<td>(Circular black scale, Ross's black scale)</td>
<td></td>
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<tr>
<td>Dothistroma pini</td>
<td>Pinus resinosa (Red pine)</td>
<td>Gisborne</td>
<td>Forest Research</td>
<td>Other PPIN hosts include Pinus ponderosa, Pinus radiata.</td>
</tr>
<tr>
<td>(Dothistroma)</td>
<td></td>
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</tr>
</tbody>
</table>

**Extension to distribution reports**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cecidophyopsis hendersoni</td>
<td>Yucca elephantipes (Yucca)</td>
<td>Mid Canterbury</td>
<td>NPPRL</td>
<td>Other PPIN distributions include Auckland.</td>
</tr>
<tr>
<td>(Yucca mite)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Naohidemyces vaccinii</td>
<td>Vaccinium sp. (Blueberry)</td>
<td>Auckland</td>
<td>NPPRL</td>
<td>Other PPIN distributions include Bay of Plenty and Waikato.</td>
</tr>
<tr>
<td>(Hemlock – Blueberry Rust)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Stigmella microtheriella</td>
<td>Corylus avellana (Hazel nut)</td>
<td>Mid Canterbury</td>
<td>Central Otago</td>
<td>Forest Research</td>
</tr>
<tr>
<td>(Hazel leafminer)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hysterographium fraxini</td>
<td>Fraxinus excelsior (Ash)</td>
<td>Marlborough</td>
<td>Forest Research</td>
<td>Other PPIN distributions include South Canterbury, Nelson, Wellington, Taranaki, Wanganui and South Canterbury.</td>
</tr>
<tr>
<td>(no common name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepteutypa podocarpi</td>
<td>Podocarpus totara (Totara)</td>
<td>Wanganui</td>
<td>Forest Research</td>
<td>Other PPIN distributions include Taranaki.</td>
</tr>
<tr>
<td>(No common name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microstoma album</td>
<td>Quercus robur (English oak, truffle oak)</td>
<td>Auckland</td>
<td>NPPRL</td>
<td>Other PPIN distributions include Wairarapa and Wellington.</td>
</tr>
<tr>
<td>(Frosty mildew)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Eleanor Morrison, Technical Support Officer, Biosecurity New Zealand, ph 04 498 9801, eleanor.morrison@maf.govt.nz

Plant Kingdom Records, *Biosecurity* 59:26, 1 May 2005: Corrections

1. Validated new to New Zealand reports – 3rd item. Host: *Quercus* sp. Correct common name is Oak.

2. New host reports – 11th item. Host: *Clerodendrum trichotomum*. Common name is Harlequin glory bower.

**CODES OF WELFARE – Animal Welfare Act Update**

This information can now be found in the *Update* section.
Exotic disease and pest emergency hotline: 0800 809 966
Animal welfare complaint hotline: 0800 327 027
www.biosecurity.govt.nz