Risk pathways

The enemy within – environmental weeds

Blown in the wind

Monitoring biosecurity pathways
CONTENTS

EDITORIAL
Managing risk pathways .................................. 3

FRONTLINE NEWS
Reducing biosecurity risk for the Chatham Islands .......... 4
The enemy within ............................................. 5
Ten years of x-ray technology on the front lines ............. 6
Hot science on a cold night .................................. 7
Varroa heads south .......................................... 8
Dutch elm disease field response activities: 2005/06 ...... 8
Red imported fire ants found .................................. 9
Tomato psyllid detected in New Zealand ..................... 10
Guava rust a step closer to New Zealand ...................... 11
Honey import health standard issued ......................... 12
New airport amnesty bins .................................... 12

BIOSECURITY SCIENCE
Gumleaf skeletoniser: Potential for biological control ...... 13
Blown in the wind or border slippage? ......................... 14
Mapping the risk of a pest snail ............................. 16

BIOSECURITY SYSTEMS
Monitoring biosecurity pathways ........................... 18
Ensuring our exports measure up ............................ 20
Import health standard programme for 2006/07 ............ 22

BIOSECURITY INTERFACE
Hurricane Katrina lessons for welfare emergency group ... 23
Animal Welfare discussion at 74th OIE General Session ... 24

UPDATES
New plant import health standards .......................... 25
Animal import health standards reissued ..................... 25
New animal import health standards ........................ 25
Import risk analysis – PRRS in pig meat ..................... 25
Codes of welfare ............................................. 25
Codes of ethical conduct .................................... 26

DIRECTORY .................................................... 26-27

Cover: Risk pathways (see features on pages 4, 14 and 18).
Montage: Words & Pictures.
The articles in this edition of *Biosecurity* cover a wide range of harmful organisms – Dutch elm disease, fire ants, varroa bee mites – and a variety of pathways through which pests can spread – vessels to the Chatham Islands, passenger baggage, and even on the wind from Australia. These articles show why zero risk is impossible when it comes to biosecurity. Further, the biosecurity system must also take account of New Zealand’s trade interests as well as the need to protect us from unwanted pests and diseases. This means that we have to play by the rules because we benefit when other countries follow the rules. MAF’s recent decision to allow treated honey to be imported from Australia has put the spotlight on both these issues.

New Zealand is a trading nation and gains a large amount of its wealth – about 65 percent of export earnings – from selling food, forestry and agricultural products to the world. Unfortunately, many countries try to restrict access for our products because trade in food and agricultural products is a very political issue.

As a very small country, New Zealand cannot throw its weight around in the global trading ring – instead, we rely on world trading rules and benefit greatly from them. That is why the World Trade Organization is so important to New Zealand and why we have invested so much effort in its rules. It is also why it is so important for New Zealand to follow the rules ourselves, since we are always encouraging other countries to comply. We are recognised around the world for playing by the rules and for our science/risk-based decisions.

Since we need to trade to survive, there will always be a level of biosecurity risk involved. Even if we were to take the extreme step of closing the borders, it would not guarantee protection from organisms blowing here in the wind, arriving by sea, or being smuggled in. We also need to spread our efforts across the range of pathways and pests that threaten us – if we focus on one area too much we then end up ignoring other more important risks.

MAF recently decided to allow treated honey from Australia to be imported into New Zealand. This decision was met with calls for MAF to prove that imported honey poses no risk, do more independent research, and close the borders to Australian honey. MAF has considered this decision carefully and is satisfied that the proposed treatments appropriately mitigate the risk of bee pests and diseases – though the risk can never be zero. There is no such thing as ‘zero biosecurity risk’.

MAF’s risk analysis on honey imports took more than five years, has been peer-reviewed by New Zealand and international scientists, and has been circulated for public comment. Science cannot provide 100 percent certainty, but the available science does not justify a ban on the honey, and if New Zealand continued to do so, we may be challenged in the World Trade Organization for having unjustifiable trade restrictions.

Finally, there is no point trying to use honey to bargain against Australia’s ban on New Zealand apples – New Zealand will always lose tit-for-tat trade battles against larger players, so a better strategy is to use the World Trade Organization rules.

MAF does not want any more bee diseases in New Zealand. But we cannot justify a continued ban on honey when the science does not support it. MAF is charged with leading the biosecurity system that protects New Zealand’s natural advantages. We have been doing so since 1892 and are proud of the protection we have given to New Zealand for more than 100 years by managing the risks across many pathways.

Douglas Birnie
Director Policy
Biosecurity New Zealand

“We are recognised around the world for playing by the rules and for our science/risk-based decisions.”
Environment Canterbury (ECan), on behalf of the Chatham Islands Council, is working to decrease the risk of unwanted pests arriving on the islands. This is being done through field work, training for freight staff and development of pest management plans for land owners on the islands.

The main freight companies in Napier and Timaru which send goods to the Chatham Islands have undergone audits and received upgraded pest control programmes, with staff receiving biosecurity awareness training. Workers at Air Chathams depots in Christchurch, Wellington and Auckland have also received training.

A mix of intensive searching and active surveillance was used to survey Chatham Islands sites, such as depots and wharf areas, considered at high risk from new pest establishments.

ECan contractor Paul Bradbury, from Target Pest identified several potential weed species including Brush wattle (Paraserianthes lophanta) in a residential garden in Waitangi and a single wilding plant at Port Hutt. This plant has become a serious weed in parts of the North Island. Buddleia (Buddleja davidii) was also found spreading into areas that already had gorse.

Of the 22 samples of insects and pathogens collected, most were native or already known on the Chatham Islands, including several ant species.

“At this stage, at least one new-to-the-Chathams pathogen was collected from the endemic Chatham Island matipo (Myrsine chathamica), which was also a new host record for the fungus,” Mr Bradbury says.

“Several interesting scale insects were also collected that may be ‘new to science’ and are currently with Landcare in Auckland.”

As part of the programme, tracking tunnels were put out to record small animal activity. Although no new-to-the-Chathams finds were made, the tunnels indicated plenty of rat and hedgehog activity around the Waitangi wharf.

ECan possum contractors have also been visiting the Chatham Islands and working with land owners to carry out control in 15 conservation covenants on seven properties.

The contractors have been employed by ECan on behalf of the Chatham Islands Council in partnership with the Department of Conservation, following a successful joint application to the Biodiversity Condition Fund.

“During the initial work we met with land owners to discuss their needs and work out the best methods to control possums,” says ECan Pest Services Contracts Manager Kevin Gallagher.

Along with possums, targeting the pests defined in the Chatham Islands Council’s pest management strategy is well underway, with the development of individual pest management property plans in conjunction with land occupiers. The field work will then be extended to include all land occupiers on the islands and will continue into next year.

“One of the major problems on the Chathams is gorse. The main objectives are to prevent further spread and to identify how we can help land owners with any other pest control issues,” says ECan Biosecurity Manager Graham Sullivan.

“We will also gain feedback from land owners and discuss the sort of systems required to protect biodiversity – for example, assisting them with pest control or fencing off protected areas,” he adds.

Chatham Islands Council General Manager Owen Pickles is pleased with the biosecurity work.

“The contractual relationship with Environment Canterbury has put some ‘grunt’ into the Islands Pest Management Strategy. Continued biosecurity protection for the Chathams is essential to the islands’ security,” he says.

Rob Phillips, Environment Canterbury, phone 03 365 3828
Graham Sullivan (pest management strategy), phone 03 684 0500
By Ian Popay, Weedbusters*

Many of our biosecurity pests — didymo, mosquitoes, wasps — get here by accident, in passengers’ luggage or in second-hand machinery.

A lot of established weeds, especially the common ones of agriculture or our gardens — the groundsel, chickweeds and thistles — were also brought in accidentally, but a very long time ago, in crop seed or as impurities in plant material used for things like hay, straw or bedding. Very few, if any, get into the country that way now. In fact, it’s a long time since any new agricultural weeds appeared in this country. One of the last ones was Johnson grass, a poisonous, fast-growing grass accidentally brought in on second-hand agricultural machinery from the United States. That was before tougher biosecurity laws were introduced and implemented.

It’s a different story, though, for environmental weeds. About three-quarters of our environmental weeds were originally introduced to this country as horticultural specimens, 14 percent for agriculture or forestry, and only 10 percent were accidentally introduced. Horticultural specimens? Think of old man’s beard, wild brier, arum lily or wild ginger. Remember that most of our very serious and costly aquatic weeds — lagarosiphon, hornwort, egeria — were brought here to grace and oxygenate goldfish bowls.

Our export industries depend largely on imported plants like ryegrass, white clover and *Pinus radiata*, but some of these are also pests when they grow in the wrong places. Radiata pine is itself a threat to native vegetation in some places and, of course, kiwifruit vines are clambering all over native bush in the Bay of Plenty and elsewhere.

Worse is yet to come. Conservative estimates put the number of plants in cultivation in New Zealand gardens at 25,000; others suggest 45,000 or more. Nobody really knows, but what is certain is that quite a few of these will become the weeds of the future.

There’s a very rough rule of thumb, proposed by Williamson¹ in 1993, that one in 1,000 plants present in a country will become pests. Peter Williams² challenges that, claiming that in New Zealand perhaps two in 100 will become problem weeds. So far we have just over 2000 alien plant species established in the wild, and maybe 200 species that can be considered ‘problems’.

Even if no further plants are introduced into New Zealand, there’s a good chance that we may have several hundred more potential weeds lurking in our gardens. It sometimes takes a long time — called a lag phase — for a garden plant to escape and become established as a self-sustaining population in the wild. There is another lag phase between that happening and the species becoming a problem. The average lag phase for the first stage, estimated for plants in one province of Germany, is 170 years for trees and 131 years for shrubs (Kowarik 1995³).

Many alien species in New Zealand have gone from introduction to serious pest status in much shorter times, but neither Europeans nor alien plants have been here long enough yet for us to be able to estimate averages! Kowarik’s record, incidentally, for the first lag phase is 850 years for walnut trees.

There are many potentially serious weeds which haven’t yet found their way to New Zealand and hopefully our biosecurity defences will keep them out. But we still have much to fear from the plants already growing in our gardens — the enemy within.

*Weedbusters is an interagency weeds awareness and education programme.

---

Flight of the photon: Ten years of x-ray technology on the front lines

It’s been 10 years since New Zealand became one of the first countries in the world to add x-ray screening to its biosecurity arsenal. We outline the story so far …

A fruit fly outbreak in the Auckland suburbs of Mt Eden and Mt Roskill in early 1996 was the spark for the introduction of biosecurity x-ray screening at New Zealand airports. The flies had most likely entered the country on fruit carried by aircraft passengers. Determined to close this pathway down, the Government approved the purchase of x-ray equipment for screening arriving luggage.

It was a radical move. Although there had been experiments in the United States, no other country was using x-rays for biosecurity. “They [x-rays] had been used for security purposes for outgoing passengers in New Zealand, but nobody had thought of using them for inwards traffic,” says X-ray and Project Office Manager Howard Webber.

The MAF Quarantine Service (MAFQS) imported seven units in August 1996. They were installed at Auckland Airport (four), the International Mail Centre, Wellington Airport and Christchurch Airport. Very soon there were 100 MAFQS staff working on the units, which operated around the clock.

The decision to set up the x-ray operation, however, wasn’t a hit with everyone – initially at least. For example, some passengers and staff had safety concerns. “The bags were coming out of such a large hole [in the x-ray units]. Some people thought it might be leaking radiation,” says Webber. In addition, the airports weren’t very happy about giving up extra space for the units. And there were fears that it would take a lot longer to process passengers.

Concerns about processing speed were quickly dispelled, thanks largely to the creation of a new position – the quarantine assistant (QA) – to keep things moving.

On the safety front, MAFQS and the National Radiation Laboratory (part of the Ministry of Health) ended up pioneering a brand new Code of Safe Practice that has tightened up the use of x-rays across all industries, including the health and dentistry fields.

Not that MAFQS staff or passengers should have any concerns about x-ray radiation, says National X-ray Technician Wayne Grant. The MAFQS machines are calibrated so that they only produce minuscule amounts of radiation. In any case, safety features, such as lead-impregnated curtains, ensure that 95 percent of emissions do not escape from the units.

The benefits of the x-ray initiative soon became clear when seizure results were analysed. During the 1996/97 financial year, in which x-ray and detector dog screening started, the number of seizures per thousand passengers increased from 17 to 20. This figure very quickly increased to between 25 and 28, with only 40–65 percent of luggage being x-rayed.

Seizures jumped again in 2001 in response to the Government’s introduction of compulsory screening for 100 percent of air passenger luggage. The decision followed the foot and mouth disease outbreak in the United Kingdom. It saw the abandonment of the ‘red and green’ system whereby passengers voluntarily submitted their bags for screening (or were pinpointed by quarantine officers based on risk profiling).

MAFQS ended up importing a further nine units, extending x-ray screening coverage to regional airports and military airbases, resulting in a jump to 32 seizures per thousand passengers.

This figure has dropped a little in recent times. The improvement is thought to be due to increased numbers of trans-Tasman visitors, who have a lower risk profile, and heightened biosecurity awareness through promotions, including the recently screened Border Patrol series.

Another huge milestone in the x-ray programme was the move in 1999 to 100 percent screening at the International Mail Centre. There are now three mail conveyors with an x-ray unit slotted into each. The dual monitor systems allow both MAFQS and the New Zealand Customs Service to screen mail at the same time.

The other big MAFQS x-ray initiative in recent years has been work with the Fijian Government to replicate the Auckland Airport operation in Nadi, along with the introduction of two machines in the country’s international mail centres. MAFQS has trained more than 20 Fiji quarantine staff under the Ministry of Foreign Affairs-assisted project. The effect of the introduction of these x-ray units, since December 2004, has been a staggering 124 percent rise in seizures from air passengers. A similar project is on the cards for the New Caledonian Government.

The next decade for x-ray screening in biosecurity is looking just as exciting as the first 10 years. Webber says manufacturers and researchers have finally taken an interest in developing x-ray technology specifically for biosecurity (as opposed to normal security), and this is likely to bring ever-more sophisticated equipment to the biosecurity front lines.

www.maf.govt.nz/quarantine

MAF Quarantine Officers Andrew McKirdy and Suli Pole (both seated) check x-ray images of incoming passenger luggage at Wellington Airport.
The evening featured an expert panel and Barry was joined by AgResearch Chief Science Strategist Stephen Goldson and Landcare Research Science Leader – Pest Control Technologies, Phil Cowan. Given the theme of “Biosecurity – how New Zealand can be buggered”, Barry told the audience that we have three key advantages in New Zealand: we grow grass extremely well, have a fantastic environment for kiwis and tourists alike, and we enjoy an absence of animals or insects that can bite us or make us ill.

He said that compared with other developed countries such as the United Kingdom, primary production is hugely important, accounting for nearly 20 percent of GDP compared with 1 percent in the United Kingdom. A major biosecurity catastrophe such as foot and mouth would hit the “latte drinkers of Devonport” as well as farmers, he cautioned.

Our unique environment still retains significant native biodiversity, including an estimated 80,000 species. “But we also have over 25,000 introduced plants and animals, and an introduced species naturalises every 40 days,” he added.

New Zealand’s unique environment underpins our $7.4 billion tourist industry – the country’s biggest export earner – but with the tourists come biosecurity risks.

“Every year we seize about 20 tonnes of fruit and 10 tonnes of meat from passengers and their luggage. But let’s not blame everything on the travellers. Every year, insects blow across the Tasman, 1 million migrating birds make landfall and 500,000 sea containers arrive. Even with the toughest container import requirements in the world, it’s very hard to find a 2mm fire ant in a 40-foot container.”

On the subject of ants, Barry told the audience that New Zealand’s 11 native ant species are outnumbered by 28 exotic species. He said Australia has spent $180 million over the past six years eradicating red imported fire ant, and the United States spends about US$900 million on control.

“The good news is that we do have effective baits and promising new technology such as Container Scan that will help in the fight against this pest.”

Moving to New Zealand’s third comparative advantage – being a safe place to live – Barry said we had no snakes, no Ross River virus and no bird flu. He noted the current bird flu H5N1 virus that has health authorities on alert has been around since 1996. While the virus has killed nearly 150 people worldwide since then, so far it has not spread from human to human, and many thousands more people die each year from normal seasonal flu outbreaks. “Even in China, where the virus is thought to have originated, you are more at risk from lightning than from bird flu.”

Nonetheless, there will eventually be another human influenza pandemic one day. “It may not even be this virus, but it will happen.”

A documentary series featuring New Zealand insect expert and former MAF entomologist Ruud Kleinpaste has been nominated for an Emmy Award.

Buggin’ with Ruud is one of two New Zealand-made television series to pick up nominations. Made by Dunedin-based production company NHNZ, Buggin’ with Ruud and Equator: Power of an Ocean featured on the Animal Planet and Discovery channels respectively.

Both received nominations for outstanding achievement in cinematography, and music and sound.

In Buggin’ with Ruud, Ruud Kleinpaste leads viewers on an eye-opening journey into the world of bugs (see Biosecurity 66:7, 15 March 2006).

Equator: Power of an Ocean tells the story of island life shaped by the equatorial sun and the immense power of the Pacific Ocean.

Assistant Director General Biosecurity New Zealand Barry O’Neil sparked up a wintry night in Christchurch recently, taking part in the Lincoln Hot Science with Kim Hill series.
Dutch elm disease (DED) is a vascular wilt disease of elms caused by the fungus *Ophiostoma novo-ulmi*. The disease is currently limited to territory in the jurisdiction of Auckland, Manukau, North Shore, Waitakere City and Papakura District Councils.

Biosecurity New Zealand, in cooperation with local authorities affected by the disease, implemented in 2005/06 an interim disease management programme, while awaiting the outcomes of a review of national pest management priorities (see *Biosecurity* 60:18, 15 June 2005). The programme objectives and components were presented in *Biosecurity* 65:11, 1 February 2006.

**Surveys**

Two surveys were undertaken during the season. One visual survey targeted all elms in the DED ‘hot-spots’ and high-risk areas (over 5,500 locations). The second survey targeted all elms in the DED ‘hot-spots’ and high-risk areas (over 5,500 locations).

By the end of the 2006 growing season, seven diseased elms (three at the Auckland Zoo; two in the vicinity of the Waikumete Cemetery, one in New Lynn and one in Northcote) were detected and promptly removed. This represents a decrease in the seasonal average from 11.2 over the 2000/05 period.

**Trapping programme**

The initial grid of 23 traps baited with a pheromone to attract the vector beetles and deployed in the highest risk areas, was gradually increased to 31 following detection of diseased elms or beetles positive for carrying spores of the DED fungus. Of the 1,542 beetles trapped throughout the 2005/06 season, 32 were positive for *O. novo-ulmi*.

The percentage of positive beetles in 2005–06 (2.07 %) is an increase from an average 0.63% positive beetles per season detected from 2000/01. The vast majority of positive beetles were trapped in close proximity in Northcote (North Shore) during late January and February 2006.

For additional information on the disease management programme or guidelines on observing elm movement control regulations, and on reporting suspect sightings of diseased elms:


Alternatively, to report suspect sightings of diseased elms, call the Biosecurity New Zealand Exotic Pest and Disease Emergency Hotline:

- 0800 80 99 66

Ivan Veljkovic, Senior Adviser Surveillance and Incursion Response, Biosecurity New Zealand, phone 04 894 0527 or 029 894 0527, ivan.veljkovic@maf.govt.nz

---

**Varroa heads south**

Biosecurity New Zealand launched an immediate response after a national surveillance programme for the varroa bee mite confirmed the presence of varroa at two sites near Stoke in the Nelson region on Friday 16 June 2006.

Varroa is an unwanted organism that kills bees. It was first detected in 2000 in Auckland. By the time it was detected, it had spread too far for eradication to be feasible. Instead, the Government put in place a programme to slow its spread in the North Island and to try and keep the South Island free of this pest.

Dutch elm disease field response activities: 2005/06

Lab assistant Nicholas Dight at Gribbles Veterinary Pathology, Christchurch, with a varroa bee mite (circled), one of the first discovered on a test board from a Nelson-area beehive.

Inset: Close-up of one of the varroa bee mites found on a test board from a Nelson-area beehive – confirmation that the pest has now crossed Cook Strait to the South Island.

Red Imported Fire Ants found at Whirinaki

A single red imported fire ant (RIFA) (Solenopsis invicta) nest was found at a wood processing plant north of Napier in early June.

RIFA, which is native to South America, but has spread to many other parts of the world, is particularly aggressive and will repeatedly sting anything that appears as a threat. Biosecurity New Zealand has twice eradicated RIFA nests, the first at Auckland International Airport in 2001 and the second at the Port of Napier in 2004.

The Whirinaki nest has been destroyed and no further nests have been detected. Work is being done to examine how the ants might have been introduced, and whether spread may have occurred.

“The ants are most active in warm sunny conditions and we simply cannot do the required surveillance over winter,” says Sonya Bissmire, Biosecurity New Zealand Senior Adviser, Surveillance and Incursion Response. “Until we determine for certain that there are no other RIFA nests, we need to operate on the assumption there could be, and prevent the opportunity for them to spread as much as possible.”

The movement controls cover an area on State Highway 2 between the Esk River Bridge in the south, Whirinaki Bluff in the north, and an arc between those points from the coast to two kilometres inland. It places restrictions on moving risk items beyond a single property within the zone and/or out of the zone without prior approval.

As well as RIFA, risk goods include: soil, gravel, hay and silage, plants, plant material and garden waste, including compost, and goods other than roadworthy vehicles that have been outside and in contact with soil for more than 24 hours. Also included are: firewood, bark, wood chips and other wood products, and used electrical goods other than small portable appliances. The notice does not restrict the collection of rubbish by the municipal authority, which is covered by special arrangements to ensure the risk of spreading RIFA is managed.

“We’ve tried to make the controls as non-restrictive as possible, but we do need people to do their bit,” Ms Bissmire says.

The movement control zone has been advertised locally, and information distributed to all residents and property owners in the area. Signs have been erected on State Highway 2 at each end of the movement control zone. A public information evening was held on 27 June, and a radio advertisement ran asking the public to report any unusual ants.

RIFA impacts native flora and fauna, agriculture, horticulture and human health. It can swarm and sting repeatedly if nests are disturbed. The stings are uncomfortable, but not dangerous to most people, although as with any sting, there is also a chance of allergic reaction or secondary infection. Anyone believing they have been stung should seek medical advice.

For approval to move goods or to report unusual ants:

- 0800 80 99 66

PEOPLE

IN BIOSECURITY

The Minister of Agriculture recently appointed a new member to the National Animal Welfare Advisory Committee (NAWAC) and to the National Animal Ethics Advisory Committee (NAEAC). David Bayvel, Biosecurity New Zealand’s Director Animal Welfare, resigned from both committees after 16 years as the MAF ex officio member.

The new NAWAC member is Dr Wayne Ricketts. Wayne is Compliance Team Manager within the Compliance and Enforcement Group but prior to taking up that position earlier this year, he was Programme Manager, Animal Welfare for a number of years. A veterinarian and a member of the Animal Welfare Chapter of the Australian College of Veterinary Scientists, Wayne is also the President of the Food Safety, Animal Welfare and Biosecurity Branch of the New Zealand Veterinary Association.

Linda Carson has been appointed to NAEAC. Linda has been involved in the animal welfare field in MAF in a variety of capacities for some years and is currently Biosecurity New Zealand’s Senior Policy Adviser Animal Welfare. She was NAEAC’s first secretary when the committee was established in the mid-1980s.

Dr Katherine Clift joined the Post-clearance Surveillance and Incursion Response team in June 2006 as a Senior Adviser working with the Animal Kingdom team.

Katherine recently arrived from Australia, where she worked for Primary Industries and Resources, Adelaide, as a Senior Veterinarian on the Animal Health Disease Surveillance Programme.

In her previous position, Katherine represented South Australia on the National Technical Committee for Transmissible Spongiform Encephalopathies (TSEs), and was responsible for the implementation of the TSE Freedom Assurance Programme. In addition to this, Katherine was heavily involved with developing and reviewing passive surveillance projects.

In 2005, Katherine completed a Masters in Veterinary Public Health Management and successfully undertook the Australian College of Veterinary Scientists membership examinations in epidemiology.

Projects Katherine will be involved with include avian influenza, TSE and arbovirus surveillance.
Biosecurity New Zealand has stood down its investigation into the recent detection of the tomato/potato psyllid on glasshouse tomato and capsicum crops in the North Island. The pest has been detected in glasshouses from north of Auckland to near Taupo, as well as in volunteer field-grown potatoes.

On 4 May 2006, staff from the Incursion and Diagnostic Centre (IDC) collected specimens of a suspect new-to-New Zealand pest of tomatoes. The insect was identified as *Bactericera cockerelli* (tomato or potato psyllid, TPP). This identification was confirmed by scientists at the United States Department of Agriculture Systematic Entomology Laboratory.

When the identification was confirmed, Biosecurity New Zealand (BNZ) issued a restricted place notice to prevent further spread of the pest while investigations into the incursion continued. BNZ contacted industry representatives and trading partners to inform them of the detection.

With the assistance of the industry organisation (Horticulture New Zealand) a delimiting survey was undertaken in the Auckland region to determine the spread of TPP. This work showed that TPP was present in several glasshouse facilities from Kumeu, north of Auckland, to south of Auckland. As news of the pest spread within the industry, a sample was submitted and confirmed to be TPP from a facility near Taupo. An examination of volunteer potato plants remaining in a field in South Auckland also confirmed this crop to be infested by the psyllid.

The distribution, the lack of linkages between infested sites, and the unknown path of entry into New Zealand of the psyllid led BNZ to conclude that this pest was well established and eradication was not feasible. Following consultation with the industry and the Department of Conservation, BNZ removed the restricted place notices and stood down the response to the incursion.

**Early reporting the key**

Early detection and reporting of new pests is the single most important component in the successful management of new incursions. In the absence of active surveillance for specific pests (e.g., fruit flies), BNZ relies on observant growers, consultants, scientists and members of the public to report suspect new-to-New Zealand pests and diseases as soon as possible. The earlier a new pest is reported, the more management options are available to control, and in some cases eradicate, the pest.

The Biosecurity Act 1993 recognises this important component of incursion response and places a general duty on people to inform MAF of the suspected presence of organisms not normally seen in New Zealand.
Guava Rust

G uava rust (*Puccinia psidii*) is a serious fungal disease that affects plants in the myrtle family (family Myrtaceae). In Hawaii last year, guava rust symptoms were found on seedlings of ohia, a species closely related to our pohutukawa and rata trees. While guava rust has been previously known from Central and South America and also in Florida and Taiwan, its arrival in Hawaii last year has prompted increased concern that this species may arrive in Australia or New Zealand.

Guava rust causes powdery pustules on leaves, which progress to deformation of leaves and shoots and sometimes dieback if the infection is severe (see illustration). Flowers and fruit can also be affected. The disease has previously been identified as a threat to both Australia and New Zealand. In Australia, there are particular concerns about the effect on eucalypts. Because it is known to affect Australian eucalypts in areas such as South America, it is often known as ‘eucalyptus rust’.

In New Zealand, there are a number of species in the myrtle family considered to be at risk if guava rust arrives, among them iconic natives such as pohutukawa, rata and manuka. Introduced species such as feijoa, and, of course, eucalypts, are also expected to be affected if the disease establishes here.

Because guava rust is a subtropical species, it is most likely to establish in the very far north of New Zealand, although establishment elsewhere cannot be ruled out. The critically endangered tree known as Bartlett’s rata is found only in the very far north of New Zealand and guava rust could threaten this species if it arrives.

Both New Zealand and Australia currently have strict measures on material that may carry guava rust (especially nursery stock). These measures were updated over the last year to account for the new distribution of guava rust and also the new hosts that have been reported. Over the coming year, more work is planned to ensure that New Zealand is protected from this disease.

A pest risk analysis will be done so that we can better understand the risk to New Zealand and to thoroughly review the measures that we have in place for this pest. An economic impact assessment is also planned. This will provide information to support the risk analysis and, if necessary, any response if it arrives.

Biosecurity New Zealand staff are also working with Australia to identify approaches to managing this disease. Rust diseases are notoriously difficult to control, however, and so prevention is our priority.

For further information or to be kept updated on this work please contact: Christine Reed, Group Manager Risk Analysis, Biosecurity New Zealand, phone 04 894 0729, christine.reed@maf.govt.nz

What is tomato/potato psyllid?
The adult tomato/potato psyllid is a small (about 3mm in length), clear-winged plant-sucking insect resembling a miniature cicada. Their colour changes as they age, from light yellow through brown or green (two-to-three days) until becoming banded grey or black and white after about five days (see left).

Following mating, the females lay oval, yellow-orange stalked eggs on both leaf surfaces as well as along the edges (see left). A female can lay more than 500 eggs in her lifetime. Eggs hatch after three-to-nine days.

There are five nymphal stages, which change in colour from light yellow through tan to greenish brown. The nymphs reach about 2 mm in length and tend to feed on the underside of the leaf (see left). This feeding activity results in the production of a granular waste product (‘psyllid sugar’) on the leaves below the feeding nymphs (see left). This is often the most conspicuous symptom of psyllid infestation.

The feeding activity of the nymphs can produce a condition known as ‘psyllid yellows’ or ‘purple top’ (main photo page 10). These conditions are a collection of symptoms that include yellowing or purpling and retardation of new growth. In addition, the psyllid can cause the formation of numerous small, poor-quality tomato fruit. In potatoes, the psyllid can cause the production of small aerial tubers. Infested plants produce few tubers, and plants attacked early in their development produce tubers that sprout prematurely in storage.

There are several web pages that provide good descriptions of the psyllid and the damage caused, as well as monitoring and control strategies. To obtain further information, type ‘Bactericera cockerelli’ in your search engine.
Biosecurity New Zealand (BNZ) issued a new import health standard for honey and related bee products from Australia on 11 July. The new import health standard (IHS) allows for:

- heat treatment as a risk management measure for European foulbrood and *Nosema ceranae* for all products from areas where these diseases are likely to be present
- inspection or heat treatment or specified testing for all bee products as risk management measures for American foulbrood
- alternatively, irradiation can be used as a risk management measure for American foulbrood, European foulbrood and *Nosema ceranae* for bee products other than honey
- extra heating during packaging for bulk honey from states with small hive beetle.

The issue of the standard follows a complex process that started in 2001. At the end of 2004, BNZ completed a risk analysis of imported honey and bee products that followed two rounds of public consultation and expert peer review.

Consultation on the draft IHS began in December 2005. BNZ Director Pre-clearance Debbie Pearson said Australia had been requesting access for its honey bee products for many years. The major obstacle had been the threat of European foulbrood, a bacterial disease of bees, which is present in many honey-exporting countries.

“The comprehensive risk analysis undertaken by BNZ concluded that honey could be imported from countries where European foulbrood is present, provided it was subject to heat treatment giving a million-fold reduction in bacteria. This means that 99.9999 percent of the bacteria will have been killed,” she said.

The conditions of the issued IHS are largely in line with the draft standard released for consultation in 2005.

“Biosecurity New Zealand considers Western Australia to be free of European foulbrood and *Nosema ceranae* because of its physical isolation and its strict biosecurity controls. This means that untreated bee products can be imported from that state.”

Debbie Pearson, Director, Pre-clearance Directorate, Biosecurity New Zealand, debbie.pearson@maf.govt.nz

---

### New Airport Amnesty Bins

Keep an eye out next time you’re coming back from overseas and you may see something large, new and shiny!

International airports around New Zealand have been testing a new design for amnesty bins – the places where incoming passengers can dispose of risk goods, such as fresh produce or animal products, before they go through quarantine inspection.

The bins are based on the extremely successful Australian Quarantine and Inspection Service model. MAF’s Biosecurity New Zealand Communications Team worked closely with MAF Quarantine Service to determine the specifications for the new bins.

The requirements were simple: a bin which is light, easy to use, secure – and actually looks like a bin.

A Wellington company won the tender to develop a prototype amnesty bin. The prototype was first tested at Auckland International Airport, both on the shop floor, and also in the MAFQS/Customs staff room.

Staff comments on the bin’s effectiveness during testing at Auckland, Wellington and Christchurch airports will be incorporated into the final design specifications.

Jessica Patchett, Marketing Adviser, Biosecurity New Zealand, jessica.patchett@maf.govt.nz
Gumleaf skeletoniser
Potential for biological control

The recent discovery of gumleaf skeletoniser (*Uraba lugens*) in Katikati, Bay of Plenty, marks a southward movement of the tree pest out of the Auckland region. The pest has also been intercepted in a pheromone trap near Warkworth, Northland, confirming that gumleaf skeletoniser is on the move in both directions.

Without intervention, the spread of this Australian insect pest, which targets a large number of Eucalyptus species, could have long-term implications, mainly for hardwood growers, due to loss of productivity caused by defoliation. This increases the pressure to find long-term management options, including biological control.

Biosecurity New Zealand (BNZ) has funded the establishment of a biological control programme that offers considerable promise for helping to manage gumleaf skeletoniser in this country. BNZ support has enabled Ensis scientists to identify and import potential biological control agents from Tasmania and South Australia for further testing.

**Two potential control agents**

Ensis entomologists have narrowed the potential agents down to two parasitic wasps: *Cotesia urabae* and *Dolichogenidea eucalypti*. Both wasps are only known to attack gumleaf skeletoniser caterpillars. They lay their eggs inside the host caterpillar and the parasitic larva eventually emerges, killing its host.

Just as gumleaf skeletoniser has made itself at home in New Zealand, so both of the short-listed enemies are also expected to thrive. The challenge is to rear these wasps in quarantine in sufficient quantities so that host testing can be carried out. Host testing is needed to find out if the wasps will attack any beneficial or native species.

**Life in a goldfish bowl**

Ensis entomologist Dr Lisa Berndt says that over the past year-and-a-half scientists have wrestled with getting to know the insects and encouraging them to mate in quarantine. “This is no small task for these species, whose libido drops the minute they are placed in a jar!”

Lisa explains that biological control demands a great deal of careful research. However, once a suitable agent is identified and released, ongoing control is self sustaining.

“When it is successful, biological control offers a sustainable alternative to chemical control and is often the most desirable long-term management solution. Within the forestry sector, nine of the 12 insect pests that have been targets of biological control have succumbed to complete or substantial control.”

Eucalypt pests successfully controlled using this technique include the gum tree scale (*Eriococcus coriaceus*), the gum tree weevil (*Gonipterus scutellatus*), and the leaf blister sawfly (*Phylacteophaga froggatti***).

lisa.berndt@ensisjv.com

PEOPLE
IN BIOSECURITY

**Wellcome Ho** recently joined the Investigation and Diagnostic Centre (IDC), Tamaki as a Level 2 Scientist in Mycology. During his PhD and post-doctoral research at the University of Hong Kong, he worked on mangrove diseases and fungi on various plant substrata from Southeast Asia. He has developed considerable expertise in the taxonomy of hyphomycete and ascomycete fungi. For the last eight years he was the curator of The University of Hong Kong Mycological Herbarium and The University of Hong Kong Culture Collection, the executive editor of an international mycology journal *Fungal Diversity*, and the project manager of The Centre for Research in Fungal Diversity at the University of Hong Kong.

**Sumathi Murugan** joined the Investigation and Diagnostic Centre (IDC), Tamaki in May as Specimen Receptionist/Quality Assurance Assistant. She is responsible for both specimen reception and ensuring that the quality management requirements around the laboratory’s ISO 17025 accreditation at Tamaki are met. Prior to joining IDC, she worked as a computer programmer in Singapore and, more recently, in New Zealand. She has an MSc in computer science from Manonmaniam Sundaranar University in India and is currently completing a post-graduate diploma in biological sciences at the University of Auckland.
New Zealand’s geographical isolation is an enormous help in defending our national borders against unwanted organisms, but do we overrate the protection it affords us? Most new incursions are blamed on breaches of our border biosecurity systems – typically, a suspicious eye is cast at the half-million shipping containers we import each year, and MAF cops flak for not adequately managing the risks involved. But another entry pathway, natural wind-borne dispersal to New Zealand, might sometimes be involved. What do we really know about organisms that arrive in the wind, thus evading even the very best pre-border and border biosecurity systems?

The answer is: surprisingly little. The pioneering work of Fox (1978) provided compelling, circumstantial evidence that moths and butterflies frequently cross the 2,000 km of ocean between Australia and New Zealand, perhaps as often as 20 times per year (Tomlinson 1973). Many appeared to be in excellent physical condition, showing little evidence of having completed a two-to-three day international journey. Close et al (1978) indicated that other insects, fungal spores, seeds and pollen can also readily cross the Tasman. However, the light-trapping methods used by Fox would have sampled only a small subset of all potential trans-Tasman travellers. In windy conditions, light traps only work well for the strongest fliers amongst light-attracted organisms – such as larger moths and butterflies. They do not work at all for species that cannot or do not respond positively to light.

The prevailing impression that moths, butterflies and fungal spores are the only organisms likely to cross the Tasman in the wind is, therefore, based on a biased, though extremely valuable, set of observations (see sidebar on next page for examples of some other taxa that probably naturally dispersed to New Zealand). Moreover, the perception that wind-borne immigrants ‘blow over’ in the same way that smoke from Australian bush fires sometimes tinges our skies suggests we are badly underestimating the sophisticated adaptations possessed by many organisms for dispersing in the wind.

**Evolved for air travel**

Most aerial travellers do not become airborne by accident. Millions of years of evolution has equipped them with adaptations enabling them to detect weather conditions suitable for dispersal, become airborne, stay aloft, modify their altitude and direction relative to the wind, and survive long periods aloft. Night-flying moths will continue flying during the day if they find themselves over water, while wingless mites can adjust their body posture to modify their rate of ascent and descent through the air, and thus their dispersal distance. The greasy cutworm has become magnificently adapted to migrate northwards for over 1,600 km each northern spring, then return against the prevailing winds the following autumn (Showers 1997).

The extent of these migrations defied the imaginations of many early researchers, who fruitlessly dug up ground in the northern United States searching for overwintering cutworm caterpillars, while in reality the moths were enjoying warmer climes nearly 2,000 km to the south. Monarch butterflies make similar annual migrations between Canada and Mexico, a distance of over 3,600 km.

**Diversity spread by air**

An enormous diversity of organisms has been found to disperse aerially (see sidebar for some examples). Riley et al (1995) used aerial nets in China and found numerous insects, fungi, pollen, seeds and spiders were present in the air, and it’s notable that less than one percent of the arthropods they caught were moths or butterflies.

Another surprising feature of the published data is that a large proportion of airborne organisms are found at relatively low altitudes of around 100–300 m. The idea that trans-Tasman travellers are unlikely to survive the ravages of high altitude, cold and strong winds may not be generally true. Organisms exploit the wind for dispersing to new regions and finding new habitats, and the success of this strategy is evidenced by its prevalence in nature. Surely this is something we need to seriously consider as we refine New Zealand’s biosecurity systems?

Not only do diverse organisms disperse through the air, but they can do so in abundance. Using radar and aerial nets, Riley et al (1995) monitored airborne...
organisms and estimated that in each cubic hectare of air there were 500,000 aphids, 100,000 brown plant hoppers, 1,000 spruce budworms, 2,000–3,000 corn earworms and fall armyworms, and 700 rice leaf rollers. The point here is that New Zealand may not just be receiving one or two lucky individuals during trans-Tasman dispersal events, but a fairly serious sprinkling of new arrivals. Of course, such visitors may only have tiny chances of establishing self-sustaining populations here, but their establishment probabilities may well increase both with their frequency of arrival and with the number of individuals involved.

There have been a few studies of airborne dispersal to other remote locations. A light trap monitored for a year on tiny Willis Island situated 450 km to the east, and upwind, of northern Queensland caught 115 taxa in 12 insect orders. Eighty-four percent of these were considered to be visitors unable to inhabit the island (Farrow 1984). Adults of three moth species and of painted lady butterflies have been recorded on Macquarie Island, a sub-Antarctic island 990 km southwest of New Zealand and 1,200 km southeast of Tasmania – a distance they probably travelled in less than 10 hours (Greenslade et al. 1999). Greasy cutworm adults have been recorded at South Georgia, at least 1,750 km from the nearest possible source, and aphids are known to regularly cross the Baltic Sea into Sweden.

The meteorologist AI Tomlinson (1973) even suggested trans-Tasman travellers are more likely to be deposited in parts of New Zealand where westerly winds become weakened, including Tasmian Bay, Marlborough Sounds, Taranaki and south Auckland.

**Airborne for 30 million years**

Airborne dispersal of new species to New Zealand could well involve a greater diversity and number of organisms than is currently recognised. This east-to-west tide of natural immigration to New Zealand probably began running at least 30 million years ago when our prevailing westerly winds started. Why should we pay attention to it now?

One of the reasons is because the New Zealand that airborne organisms have been visiting for the past 30 million years has changed, and recent human modifications have created a new New Zealand for overseas immigrants to visit. Some species that previously had little prospect of establishing here are being presented with their first-ever opportunities as their exotic hosts flourish in New Zealand. For example, Withers (2001) recorded 37 Australian insects which feed on eucalyptus trees here, and many probably naturally dispersed to this country. Australia has become similarly modified and, through the establishment of its own exotic flora and fauna, is becoming the departure point for new aerial travellers that have not previously had any chance of naturally dispersing to New Zealand (e.g., poplar rust). Also, some species that have previously found our country unsuitable for establishment might be able to colonise as the effects of climate change become more evident.

Of course we cannot expect MAF to stem this 30 million year tide of natural immigration. But better knowledge of the diversity and numbers of organisms that naturally disperse to New Zealand would help us to more effectively allocate resources for incursion responses.

**Better understanding enables better targeting**

Species likely to have naturally arrived in New Zealand under wind power will probably continue doing so, and may not warrant major responses. The resources saved could then be used to help eradicate species that can only get to New Zealand by hitchhiking with people and imports, and that we have a chance of excluding in the future. Moreover, with better knowledge of natural dispersal to New Zealand, it might be possible to provide primary producers with warnings about the imminent arrival of new pests, and proactively provide them with management information and tools.

The Better Border Biosecurity research collaboration currently has a small research project on natural dispersal being led by Dr Suvi Viljanen of Crop and Food Research. Over the next few years, this project should help shed new light on the incursions by unwanted organisms that cannot be blamed on breaches of New Zealand’s biosecurity systems!

**Examples of exotic organisms that probably naturally dispersed to New Zealand**

- **Migratory locust** (*Locusta migratoria*)
- **Meteorus wasp** (*Meteorus pulchricornis*)
- **Yellow flower wasp** (*Radumeris tasmaniensis*)
- **Wolf spiders** (*Venatrix goygeri, Geolycosa tongataobensis*)
- **Lynx spider** (*Oxyopes gracilipes*)
- **Garden orbweb spider** (*Eriophora pertusolosa*)
- **Wheat aphid** (*Macrosiphum miscanthi*)
- **Australian crop mirid** (*Sidnha kinbergi*)
- **Felted pine coccid** (*Eriococcus araucariae*)

**REFERENCES**


Fox KJ (1978) The transoceanic migration of Lepidoptera to New Zealand – a history and a hypothesis on colonisation. New Zealand Entomologist 6, 368–380.


One of the world’s 100 worst pests according to the Global Invasive Species Database, the giant African snail *Achatina fulica* is an unwanted organism in New Zealand. Its establishment here could cause significant adverse effects on our economy, public health and native biodiversity. The snail’s ability to reach our borders is evident, as it is intercepted several times a year, most often in or on containers at Auckland. Should it evade New Zealand’s border defences, we would need to know if it could establish here and which areas might be at risk. Analysis using geographic information systems (GIS) shows that the snail could establish in some areas in New Zealand, despite the lack of ideal conditions.

**Why such a pest?**

*Achatina fulica* is native to the east coast of Africa, and has established in many countries in Asia, South America, West Africa and the Pacific region, primarily due to deliberate introduction by humans. Eradication is considered impossible in most of these locations. The snail has a number of characteristics that enable it to colonise new environments successfully – to the point at which it becomes a pest. In unfavourable conditions it can aestivate, or remain dormant, and is highly adaptable in terms of food requirements and environmental conditions. The snail is a hermaphrodite and can lay well over 1,000 eggs in its lifetime. It can store sperm for months on end, so that each snail is able to lay fertilised eggs repeatedly from a single mating for over a year.

Because of its size (shell length at maturity is 5–20 cm) and dietary habits the snails can become a considerable nuisance. It eats over 500 species of plants as well as a wide range of other matter, including cardboard, animal faeces, concrete and stucco.

In high densities, *Achatina fulica* can cause significant and costly damage to crops and gardens. Native species and ecosystems are also at risk through direct damage to native plants, competition with native molluscs, introduction of diseases and habitat modification. The snail carries several plant and animal pathogens, including a parasite that causes meningitis in humans (*Angiostrongylus cantonensis*). It can be a nuisance – even a hazard – on paths and roads, causing pedestrians to slip and vehicles to skid. This is made worse as groups of snails then congregate to eat their dead fellows.

**Suitable environments**

GIS can help identify and display possible areas of establishment of a given invasive species – within limitations. To get reliable results we need an accurate understanding of the organism’s ecological requirements and the ability to match these against the characteristics of the area under study. GIS modelling can also assume that the species’ requirements are fixed, which may not be the case. *Achatina fulica*, for example, appears to be increasing its tolerance to lower temperatures.

With this in mind, a GIS analysis based on four particular factors that affect the distribution of *Achatina fulica* – land cover type, soil calcium levels, temperature and moisture levels – can provide an indication of locations suitable for the snail. By assessing how well New Zealand environments meet these ecological criteria, we can begin to identify areas that would favour the snail’s establishment.

**Land cover**

Type of land cover is important in terms of food, shade, moisture retention and protection from predators. Exposure to the sun can be lethal to *Achatina fulica*, which does best in areas of planted forestry, scrub, primary horticulture and urban environments. It will also do well in indigenous forests and inland wetlands, but has a low tolerance for pastoral and tussock lands.

GIS analysis using the New Zealand Land...
Cover Database reveals that New Zealand contains large areas of land cover that have low suitability for the snail’s establishment. East Cape, Bay of Plenty, Northland, Wairarapa, Nelson, Stewart Island and the South Island’s West Coast provide reasonable amounts of highly suitable habitat, as do our cities and towns.

**Calcium**

Calcium is required by the snail for shell formation, reproduction and egg production. Low levels of calcium cause shell fragility and retarded sexual maturation. The snail is more successful in areas that are rich in calcium carbonate or concrete, however, the exact requirements of the species are not known. A GIS analysis of soil calcium levels therefore cannot be used to specifically match against the snail’s requirements but can identify areas that are richest in calcium. New Zealand’s soil calcium levels are moderate to high overall, while Southland, the east coast of the North Island and the Waikato have high to very high levels.

**Temperature**

*Achatina fulica* originates from tropical areas, and is most active between 22–27°C. At temperatures below 9°C the snail is frequently forced into dormancy and below 2°C it struggles to survive. Between 9–15°C the snail is active but its eggs may not hatch.

Mean annual temperature data from the Land Environments New Zealand (LENZ) Database show that no area in New Zealand provides optimum temperatures year-round for this species, although parts of Northland are moderately suitable. (Further GIS analysis of New Zealand temperatures shows that this area is expected to expand beyond Northland with climate change.)

Analysis of the mean minimum temperature in the coldest month reveals that most parts of the South Island and a large area of inland North Island have winter temperatures reaching or exceeding the limits of the snail’s tolerance. Although the species can survive even snowy environments by aestivating for some months, ability to survive dormancy decreases over time.

**Humidity**

High humidity is an important requirement of the species, and to some extent can compensate for lower temperatures. A humidity range of 80–95 percent is considered optimum for *Achatina fulica*. The snail will enter dormancy at levels below 50–65 percent, depending on the temperature.

Mean monthly relative humidity data obtained from NIWA for 29 centres around the country indicate that New Zealand provides suitably moist conditions for the snail generally. Thirteen centres have annual mean humidity levels of over 80 percent. GIS analysis of LENZ vapour pressure data shows that Stewart Island and the west coast of the South Island are most suitable.

**Overall suitability**

Each of the four variables above can be classified into ranges ranked from most suitable to least suitable, with values allocated accordingly. By adding the values for each variable together, a composite map can be produced showing the suitability of New Zealand environments overall.

Map 1 shows the results of adding together suitability of temperature, moisture, calcium levels and land cover. The darker areas have the highest combined value, but even these reach only 68 percent of the achievable score – largely because of New Zealand’s relatively low temperatures.

This can be refined further by eliminating areas in which the snail is unlikely to survive if one or more variables exceed its tolerance. In other words, an area might achieve a high combined score for, say, calcium, moisture and land cover but may in fact be too cold for the snail. In Map 2, areas having unsuitable land cover types (bare ground, coastal sands, inland water) or temperatures below 2°C in the coldest month have been eliminated (shown in yellow). Calcium and humidity levels have not been used for elimination since absolute requirements of calcium are unknown and humidity is not considered to be a significant limiting factor in New Zealand.

**Where to from here?**

Map 2 identifies a number of areas that could allow the establishment of *Achatina fulica* based on four important ecological requirements. If we were to add in other factors that could affect the snail’s establishment, including ports of entry, pathways of spread (most likely by hitchhiking on vehicles and machinery) and the presence of predators and pathogens, we could further refine the picture. This information could help plan for, and deal with, any incursion of this unwanted snail within our borders.

- Vanessa Cooling, vanessacooling@yahoo.com.
- Mel Galbraith, School of Natural Sciences, Unitec New Zealand, phone 09 815 4321, fax 09 815 4346, mgalbraith@unitec.ac.nz.

**REFERENCES**


Monitoring biosecurity pathways

How well does MAF manage biosecurity risks arriving via different pathways, such as international mail or in sea containers? The Biosecurity Monitoring Group (BMG) was created in November 2004 to help find out.

The BMG’s work includes measuring the level and nature of risk goods entering New Zealand after MAF’s clearance activities have been carried out. This is known as ‘slippage’. The BMG carries out monitoring surveys, developing profiles to identify high-risk sea containers or passengers, pathway statistics analysis and analysis of border and post-border interceptions. The Auckland-based group has two teams, one responsible for data analysis and survey design, the other for carrying out survey field work.

Over the past 13 months, monitoring surveys have focused on a number of pathways, including international mail, used vehicles, cruise vessel passengers, household effects, and international air passengers. This article looks at monitoring work in the air passenger pathway.

Arrivals growing fast

Overall, the number of international air passengers arriving in New Zealand has grown by 30 percent in the past five years. Within this figure, overseas visitors have increased by 25 percent, while returning New Zealanders have increased by 38 percent and long-term migrants by 13 percent. The Tourism Research Council is forecasting visitor arrivals to increase by a further 38 percent over the next seven years. If the number of returning residents increases by a similar amount, total passenger arrivals will top 6 million by 2011.

The source of New Zealand’s visitor population is changing as well. While Australia is expected to continue as our largest source of visitors, the largest percentage increase is expected from north-east Asia (primarily China and South Korea), where visitor numbers to New Zealand have increased by 75–90 percent in the past five years. Within this figure, overseas visitors are expected to increase by 25 percent, while returning New Zealanders are expected to increase by 38 percent and long-term migrants by 13 percent.

Monitoring pathway risks

Changes in air passenger processing over the last decade have resulted in a substantial increase in the seizure of risk goods. MAF found over 30 seizures per 1,000 arriving passengers in 2005. This is nearly twice the rate of seizures in 1995. Since then, the introduction of x-ray machines, detector dogs, instant fines and passenger awareness campaigns have all increased MAF’s ability to manage biosecurity risks in the air passenger pathway. In 2005, MAF seized more than 28 tonnes of fresh fruit and vegetables, over 7 tonnes of meat products and 4,765 live plants at airports – nearly 140,000 seizures for the entire year.

Monitoring trends in seizures is only part of the story. Seizures represent risk averted by the MAF system. The risk goods not detected by MAF pose a risk to New Zealand’s biosecurity. Although MAF has one of the most effective biosecurity systems for air passenger clearance in the world, it is not possible to find absolutely everything. Passengers fail to declare numerous risk goods for a variety of reasons, and not all of these goods can be easily detected by x-ray machines or detector dogs. Similarly, risk passenger profiles are not able to identify every passenger who is likely to be carrying undeclared risk goods. To understand the full risk posed by air passengers, we have to know what types of risk goods are getting through the MAF system.

Estimating what we miss

So how do we quantify what we’re missing – the ‘slippage’? This is where the BMG survey team comes into action.

During an air passenger monitoring survey, the surveyors (who are warranted Inspectors under the Biosecurity Act) inspect baggage that would not normally be opened as part of routine clearance work. The surveyors record details of any undeclared risk goods or contamination present in the bags they inspect, as well as information about the passengers who were surveyed, such as age group, gender, occupation and nationality.

The BMG analysis team then analyses the information to determine what types of items are being missed, how frequently, and how to better target passengers with undeclared risk goods. The estimates of what is missed are compared with MAF’s seizures, to estimate MAF’s effectiveness at finding fruit, meat, seeds and other types of risk goods.

Some monitoring surveys look at parts of the system that MAF doesn’t routinely inspect. For example, MAF Enforcement Officers target and intercept passengers carrying concealed risk goods in their pockets or outer clothing. Yet passengers are not routinely x-rayed; nor are they required to remove their coats and jackets for x-ray examination. The BMG recently surveyed the contents of passengers’ pockets and outer clothing at Auckland airport. While the percentage of passengers with concealed items in their clothing was much less than the proportion with undetected items in baggage, the baggage and pocket surveys indicate that, at Auckland airport, about 82 percent of the biosecurity risk that is missed is carried in baggage and 18 percent in pockets. Overall, between 75–90 percent of the biosecurity risk arriving at Auckland, Wellington and Christchurch airports is detected by MAF systems.

Origins of risk – focus on Asia

The recent monitoring surveys at our major airports indicate that risk goods from Asia make up 38 percent of the risk missed in this pathway. In comparison, risk goods from the Pacific region, although arriving in similar quantities, only make up 10 percent of the risk missed. This is because risk goods from the Pacific are declared more frequently, and are generally easier to detect (risk goods from the Pacific are frequently fresh produce, which is easily detected with x-ray machines and by detector dogs).

Passengers from Asia should also be the focus of future biosecurity passenger awareness initiatives: passengers born in China are currently responsible for 23 percent of the biosecurity risk missed at Auckland airport, while passengers born in the rest of north or west Asia are responsible for another 30 percent. With a 71 percent increase in visitor numbers...
from this region expected in the next seven years, a plan for managing the growth in biosecurity risks from this region is critical.

Planning for growth
Other national border control agencies share New Zealand’s problems with the air passenger pathway. While the need for security screening is greater than ever, the number of passengers to process is outstripping growth in agency resources and airport infrastructure. In 2005, 500 million air passengers travelled internationally around the globe. In 15 years, this number is projected to be 1.5 billion. Clearly it is not possible to continue doing things the same way forever. MAF will soon require a quantum leap in innovative passenger processing in order to maintain a high level of biosecurity in the air passenger pathway.

The International Air Transport Association (IATA) has initiated the Simplifying Passenger Travel (SPT) programme. This is aimed at facilitating passenger travel and maintaining security by automatically processing ‘known’ passengers, leaving more resources available to process ‘unknown’ passengers. The SPT vision is to replace repetitive checks of passengers, documents and baggage with a new, globally integrated process, where information is captured once and then shared with subsequent users. MAF is represented on the SPT board by Neil Hyde, Group Manager of the Biosecurity Monitoring Group. Neil is also the leader of the Passenger Information and Environment group within SPT.

Pre-arrival screening
From a biosecurity perspective, passenger processing can be streamlined by risk assessing passengers before they arrive in New Zealand. The information used for this risk assessment would include the passenger’s basic details, automated biosecurity declaration and baggage x-ray images taken prior to departure.

Immigration, Customs and MAF will all be able to access the data and risk assess passengers before they land. Upon arrival, MAF’s risk practitioners will be directed to the biosecurity processing area, while non-risk passengers will be allowed to flow to the exit. Some random screening, such as the surveys undertaken by the BMG, may occur in the exit flow to monitor how well the system is performing.

MAF has already participated in a trial with the Australian Quarantine Inspection Service (AQIS), where security x-ray images taken of baggage on a flight from Sydney to Auckland were screened during the flight and potential risk goods identified. The results of the screening were then compared with what MAF found on arrival. Further trials with trans-Tasman flights are expected to take place in the next several years.

Full implementation of the SPT vision for passenger processing in New Zealand will depend on development of the necessary technology and infrastructure.

Through participation and leadership in the SPT programme, as well as other initiatives, MAF will continue to ensure that biosecurity risks in the air passenger pathway are managed for the betterment of New Zealand’s economy and environment.

Dr Carolyn Whyte, Team Manager, Data Analysis, Biosecurity Monitoring Group, Biosecurity New Zealand, phone 09 368 5145 or 027 680 5834, Carolyn.Whyte@maf.govt.nz

Ensuring our exports

While much of the focus for Biosecurity New Zealand (BNZ) is on protecting this country from unwanted pests and diseases, biosecurity is a two-way street. We must meet the plant and animal health requirements of our overseas customers, and the Exports Group in BNZ’s Pre-clearance Directorate is there to help New Zealand exporters ensure their products measure up.

The Exports Group, managed by Karen Sparrow, is made up of two teams: four people deal with live animal and animal germplasm exports, and six people deal with plant exports.

The plant exports team is divided into plant export operations and market access negotiations, and it is market access that is featured in this article.

Plants market access

‘Plants’ include everything from forest plants and sawn timber to seeds, nursery stock and fresh produce. Importing countries publish their plant health, or phytosanitary requirements (ICPRs) for many products and these are summarised in the ICPR register on the BNZ website at: www.biosecurity.govt.nz/commercial-exports/plant-exports/icpr-register

Sometimes the importing countries’ phytosanitary requirements may be excessive and not technically justified. In other cases, the requirements are not available because exports of the particular commodity to the selected country may never have been attempted before. The BNZ Plants Exports team is available to help exporters, on a cost-recovery basis, in both of these circumstances.

Where existing import requirements are considered to be not technically justified or where an exporter wishes to use equally effective, less trade-restrictive methods, then the plants export team is able to assemble data and prepare a technical case for submission to the importing country. Such a case will rely on information on the biology of the organism in question, its distribution and impact in New Zealand, the likelihood it will be exported on the commodity and the efficacy of alternative treatments. In preparing a case, the team works closely with the industry partner, New Zealand scientists and officials of the Ministry of Foreign Affairs and Trade both in New Zealand and in the importing country.

Often a case for a change in requirements can be presented by New Zealand embassy officials and sometimes by BNZ officials, depending on the complexity of the argument and the value of the trade.

Once the case has been made, the exports team acts as a conduit for any questions and answers that may be required, asks that importing country to process the request quickly and prepares and presents any technical challenges that may be necessary. Examples of recent successful interventions include changes in the Japanese import inspection regime to reduce the frequency of fumigations for non-quarantine pests, and the removal of the fumigation requirement for cherries imported into Japan.

Where a country has no existing import conditions for a particular product from New Zealand or where a country wishes to verify the technical justification of old regulations, the tendency today is to require a risk assessment for the commodity pathway. This process has become complex and time consuming, but it is required by the World Trade Organization Sanitary and Phytosanitary Agreement to ensure that phytosanitary measures are:

• only applied to the extent necessary to protect plant life or health
• no more trade restrictive than necessary
• scientifically justified.

If a risk assessment is required, the first step is generally the preparation of a list of the pests associated with the commodity being exported. Following this, countries often ask for more detailed information on these pests, on any field crop protection and post-harvest handling regimes being used, and on the biology of the smaller number of pests that might be quarantine pests. The delivery of this information is always on a government-to-government basis, but the collection of the data is done in close cooperation with the industry concerned and New Zealand scientists.

The delivery of this information is always on a government-to-government basis, but the collection of the data is done in close cooperation with the industry concerned and New Zealand scientists.

The Plants Exports team facilitates, on information on the biology of the smaller number of pests that might be quarantine pests. The delivery of this information is always on a government-to-government basis, but the collection of the data is done in close cooperation with the industry concerned and New Zealand scientists.

Facilitating animal exports

The export of live animals and animal germplasm is regulated by the Animal Products Act (APA) 1999 and the Animal Welfare Act 1999. The Exports Group (animals) helps exporters of live animals and animal germplasm to comply with these Acts and with importing country requirements through the drafting of export certificates and the development of Overseas Market Access Requirements (OMARs). The export of animal products such as meat, eggs and dairy products is dealt with by the New Zealand Food Safety Authority.

• OMARs (Overseas Market Access Requirements) are the documented access requirements that New Zealand has negotiated with an importing country. They are used to draft New Zealand’s export certificate for the importing country’s approval. OMARs are public documents, available under section 60 of the APA, on the BNZ website:

www.biosecurity.govt.nz/commercial-exports/animal-exports/export-requirements-omars/omars-list

• An export certificate is the form for an official assurance (pursuant to section 62 of the APA). These documents are not available to the public and can only be signed off by, and stamped with the seal of, an authorised person.

Development of OMARs and export certificates

Exporters are responsible for obtaining importing country requirements where these are not held by BNZ. Once obtained, the exporter supplies the importing requirements to the Exports Group, usually in the form of an import permit. An export certificate is drafted according to the importing requirements of the overseas competent authority, New Zealand’s animal health status and the recommendations of the OIE (World Organisation for Animal Health).

Equivalence measures may also be incorporated into the export certificate.
These are sometimes negotiated when importing requirements are unable to be met due to endemic diseases or differing government systems and an alternative, but equivalent, measure has to be agreed.

Upon completion of the draft export certificate it is usually sent to the relevant exporter(s) and the certifying veterinarian(s) for comment. The draft export certificate and a covering letter are then sent to the overseas competent authority for approval. In cases where BNZ considers the importing requirements to be technically unjustified, technical data supporting this will also be supplied to the importing country. Such overseas market access negotiations are carried out in accordance with OIE standards such as the OIE Terrestrial Animal Health Code and the OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (mammals, birds and bees).

In most instances, the Ministry of Foreign Affairs and Trade helps in communications with overseas-competent authorities. It is not uncommon for these authorities to request changes to a draft export certificate. In these cases, a revised draft export certificate and covering letter are sent back for approval. This can take anything from a couple of weeks to several years, depending on the authority’s priorities, and the complexity of negotiations. Once a formal approval is received, the export certificate is issued as an official assurance under the Animal Products Act 1999 and the final OMAR published and notified to the relevant exporter(s).

Bob Macfarlane, Senior Advisor Exports (Plants), Pre-clearance Directorate, Biosecurity New Zealand, phone 04 894 0517, bob.macfarlane@maf.govt.nz

Wendy Newsham, Technical Advisor Exports (Animals), Pre-clearance Directorate, Biosecurity New Zealand, phone 04 894 0513, wendy.newsham@maf.govt.nz
The 2006/07 import health standard development work programme and prioritised list of requests for import health standards are now available on the Biosecurity New Zealand (BNZ) website.

The work programme

The work programme lists the standards that will be progressed in the year from July 2006 to June 2007. It also shows when each standard is expected to be completed and how that standard’s development will be funded, either from the ongoing government funding for import health standard development or by additional funding provided by a third party.

In summary, the work programme comprises:

- fifty-five works in progress that will be under existing arrangements
- twenty requests for new or amended standards that will be started in 2006/07
- three similar requests resulting in one standard that will be funded privately under the new system, subject to agreement with the applicants being finalised.

Within the work programme, BNZ has made allowances for unplanned work such as managing non-conforming imports and responding to changes in the biosecurity status of a trading partner.

The prioritised list

The prioritised list of requests includes all the requests for import health standard development received for the year from July 2006 to June 2007. They are shown in the following order:

- requests for new work that were prioritised by the panel, in order of priority from one to 94
- work-in-progress grouped by technical category: non-biologicals, plants and animals
- requests for new work that were pre-screened out for 2006/07 on the basis that they clearly would not be resourced in 2006/07
- other, for example, duplicate or merged requests.

If an item on the prioritised list is included in the 2006/07 work programme, there will be an entry in the Who funds column.

New system for import health standard funding and management

The new system for import health standard funding and management is intended to:

- make clear the actual level of demand for import health standards
- direct government resources to the areas of highest priority for New Zealand
- over time, increase resources to deliver import health standards.

The 2006/07 work programme and prioritised list are the first steps in implementing the new system. They mark a number of firsts. This is the first time there has been a single list of requests covering all the technical categories. It is also the first time all requests have been prioritised using the criteria in the Biosecurity Integrated Risk Management Framework (see Biosecurity 52:9 15 June 2004). And by publishing both the work programme and list of prioritised requests, it will be the first time that stakeholders can see how many requests there are, how many requests the ongoing level of government resource can fund, and the relative priority of requests.

BNZ is hoping that, now that this information is available, private applicants for new or amended import health standards will consider whether they wish to continue with their request and, if so, whether they would prefer to fund development privately. (Government-to-government requests for import health standards will not be affected by the private funding option. BNZ is in discussions with the Ministry of Foreign Affairs and Trade about these requests.)

BNZ will continue improving the new funding and management system. Plans include:

- a series of roadshows in spring 2006 to outline to prospective private applicants the kind of information that is sought
- discussing with government departments possibilities for funding specific programmes
- reviewing the level of ongoing government funding for import health standard development
- seeking an alternative approach to import health standards that will improve throughput and long-term sustainability.

How were the prioritised list and work programme developed?

In December 2005, Biosecurity New Zealand called for requests for new and amended import health standards. The call resulted in 264 requests:

- 195 requests for new work, comprising 156 for new standards and 39 for reviews of existing standards
- 69 works in progress.

The requests for new work were prioritised using the Biosecurity Integrated Risk Management Framework. BNZ carried out a ‘pre-screen’ to identify those requests for new standards that clearly would not meet the criteria for being prioritised in 2006/07, and therefore would not be prioritised individually.

The remaining 94 requests for new standards were ranked by a panel that included BNZ and Ministry of Foreign Affairs and Trade officials as well as the chair of the Biosecurity Ministerial Advisory Committee, Professor Mick Clout.

Work-in-progress was also prioritised. Several existing projects were ‘parked’ for a year so that some requests for new work could be progressed.

Once BNZ had a prioritised list, resources were matched to the highest-priority items to generate the work programme.
The National Animal Welfare Emergency Management Group (NAWEMG) recently took advantage of the opportunity to discuss disaster management with internationally recognised expert, Dr Sebastian Heath.

Dr Heath was in New Zealand as the plenary speaker on disaster management at the New Zealand Veterinary Association – Federation of Asian Veterinary Associations conference in Auckland on 25–27 May 2006.

He is author of Animal Management in Disasters (1999) and serves as Senior Staff Officer with the USDA – APHIS Veterinary Services – Emergency Programs. In this capacity, he contributes to the development of national policy for emergency preparedness and response to all types of hazards affecting animals.

Dr Heath shared with NAWEMG his observations and lessons learned from Hurricane Katrina. He said Katrina was an overwhelming disaster, which created many animal-related problems such as the disposal of vast numbers of dead commercial poultry, abandonment of pets, or the reverse situation in which people refused to evacuate an area because they did not want to abandon their pets.

NAWEMG has established a good basis for future networking with Dr Heath, and has considered how the lessons from Hurricane Katrina could be applied to New Zealand’s preparedness for an adverse weather event.

Roger Poland, Senior Adviser, Animal Welfare, phone 04 819 0372, roger.poland@maf.govt.nz

What is NAWEMG?

NAWEMG advises, through individual and multi-agency action, on coordinating responses to animal welfare issues during emergencies. Its membership includes representatives from:

- Ministry of Agriculture and Forestry (MAF)
- Ministry of Civil Defence and Emergency Management (MCDEM)
- Federated Farmers of New Zealand Inc
- Society for the Prevention of Cruelty to Animals (SPCA) Inc
- World Society for the Protection of Animals (WSPA); and
- New Zealand Veterinary Association (NZVA).

PEOPLE

IN BIOSECURITY

Colin Johnston

recently joined the Pre-clearance Directorate of Biosecurity New Zealand (BNZ) as Senior Adviser, Risk Analysis (Animals).

Colin’s responsibilities include the identification of risks associated with the importation of animals and their products, their complete assessment and the recommendation of appropriate risk management measures.

Before joining BNZ, Colin worked in Australia as General Manager in the Aquaculture Division of the South Australian Government, having previously been the veterinarian for Marine Harvest, a multi-national aquaculture company, in the United Kingdom. He has post-graduate veterinary qualifications in aquatic animal health and is an examiner with the Australian College of Veterinary Scientists.

James Kemp

has joined the Pre-clearance Directorate of BNZ as a Technical Adviser in the Animal Imports Team. He is responsible for issuing permits, answering public enquiries and providing a key interface with MAF Quarantine Service and stakeholders. James is a former Quarantine Officer and was based in Auckland for two years. He has a BSc in Ecology and Conservation, and a Post-Graduate Diploma in Resource Management.

Chris Baring

has joined the Pre-clearance Directorate of BNZ on a six-month secondment as a Technical Adviser in the Animal Imports Team. He fills the position vacated by Sally Aitken while she is on maternity leave. Chris is responsible for issuing permits and answering public enquiries, and provides a key interface with MAF Quarantine Service and stakeholders. Chris has spent the last three years with MAF Quarantine Service as a Quarantine Officer based in Wellington. He has a BSc in Botany, and a GrDip in Ecology and Biodiversity focusing on invertebrates.
Animal Welfare discussion at 74th OIE General Session

Since its inclusion in the third and fourth OIE strategic plans, animal welfare has become very much a ‘core business’ activity for the OIE, in its role as the World Organisation for Animal Health.

At the 74th OIE General Session, held in Paris from 22 to 26 May 2006, David Bayvel, as chair of the OIE Permanent Animal Welfare Working Group, provided a report to the International Committee. This report covered the following topics and priorities:

- Development of aquatic animal welfare guidelines for the transport of fish by land or sea, the killing of fish and the slaughter of fish for human consumption.
- Supporting international animal welfare educational initiatives via regional coordination with the World Society for Protection of Animals (WSPA).
- Further progress with the following new areas of strategic priority agreed at the 2005 OIE General Session:
  - companion animal welfare – urban animal control (an ad hoc group has been established)
  - wildlife and zoo animal welfare – harvesting/culling (a scoping paper has been commissioned)
  - laboratory animal welfare – housing, animal use in regulatory testing and alternatives to animal use (October 2006 meeting will be held in conjunction with International Council for Laboratory Animal Science (ICLAS) and involve all major international stakeholders)
  - terrestrial animal welfare – housing/production (initially generic) (a scoping paper has been drafted).
  - Consolidating, and further developing, relationships with international stakeholders.

Dr Bayvel emphasised the progress made in relation to aquatic animal welfare guidelines, plans for engagement with the international laboratory animal science/welfare community and the establishment of an ad hoc Stray Dog Control Group.

The Working Group continues to see active involvement of all OIE member countries as being critical to the further development of OIE activities. This involvement requires close liaison and collaboration with academic and research institutions, non-governmental organisations and the private sector. The Group recommended active involvement of OIE Regional Commissions in promoting animal welfare educational initiatives, in particular.

The Working Group continues to see communication as a critical priority area, with the OIE website and the OIE Bulletin playing important roles. The Scientific and Technical Review Series publication, Animal Welfare: Global Issues, Trends and Challenges provides a unique international source of information, and has further emphasised the OIE leadership role.

David Bayvel, Director Animal Welfare, phone 04 894 0368, david.bayvel@maf.govt.nz
www.oie.int/delegatesite/sg/en_sg.htm

PEOPLE

IN BIOSECURITY

Stephen Cobb has joined the Pre-clearance Directorate of Biosecurity New Zealand (BNZ) as Senior Adviser, Risk Analysis (animals). Stephen has joined us from the Veterinary Laboratories Agency (VLA) in the United Kingdom, where he was the acting Senior Veterinary Investigation Officer at the Sutton Bonington Laboratory and a member of the VLA cattle species group. He had responsibilities for antimicrobial resistance surveillance and coordination of the scrapie-monitoring scheme. Before joining the VLA, Stephen spent six years in private veterinary practice as well as a short period researching bovine immunology at the Institute of Animal Health (Compton).

Rachelle Linwood has joined the Pre-clearance Directorate of BNZ as Senior Adviser in the Animal Imports Team. Her key portfolios are the importation of dogs and cats, and horses. Rachelle has spent seven years in veterinary clinical practice, both in New Zealand and overseas. She also has a postgraduate diploma in Environmental Studies. Before taking this position, Rachelle was contracted to the Department of Conservation in a range of roles, including developing a contingency plan for avian influenza. Rachelle is a keen outdoors person and particularly enjoys sailing on Wellington harbour.

To register your interest and to receive further information please contact deirdre.haines@maf.govt.nz or 04 819 0364.
### New plant import health standards

**Fresh fruit/vegetables, papaya (Carica papaya) from Vanuatu**

The import health standard (IHS) for papaya from Vanuatu has been issued and is dated 30 May 2006. It is available at:


### Animal import health standards reissued

**Cattle and buffalo from Australia (BOVANIC.AUS)**

This IHS has been amended to include a requirement to test the animals for Mycoplasma bovis as the organism is not present in New Zealand. It also clarifies that the import requirements for testing of faeces for eggs of resistant endoparasites include testing for the eggs of liver fluke, and it removed the option to use the complement fixation test for Q fever. The format, MAF websites and management responsibilities were updated as was the requirement for shipping containers to be constructed of timber that meets New Zealand’s wood packaging IHS.

This standard is now dated 7 June 2006 and replaces that dated 8 July 2005.

**Processed pig meat and pig meat products for human consumption from United States (MEACPORIC.USA)**

**Unprocessed pig meat and pig meat products for human consumption from United States (MEAPORIC.USA)**

These IHSs were amended as the USDA has had difficulty certifying certain requirements in the existing standards. The standards are now dated 7 June 2006 and replace those dated 26 November 2004.

**Dried bovine/porcine blood products from the United States and Canada (EDIBLOIC.NAM)**

This IHS has been amended to clarify certification requirements of dried bovine/porcine blood products where an official stamp cannot be obtained.

The revised standard is now dated 22 June 2006 and replaces that dated 12 January 2005.

**Zoo oriental small-clawed otters from Australia (ZOOTTIC.AUS)**

This IHS was amended to add synonymous scientific names for the oriental small-clawed species of otter following deemed approval from ERMA (PRE008/96). The IHS was also amended to incorporate current terminology, import procedure and certification format and is now dated 14 June 2006, replacing the standard dated 13 April 2000.

### New animal import health standards

**Bovine semen from Norway (BOVSEMIC.NOR)**

This is a new IHS and is based on the import conditions for bovine semen from the European Union, as Norway is a member of the European Economic Area and trades under EU legislation for the export of bovine semen. Semen collection and testing requirements are based on the OIE Terrestrial Animal Health Code, EU Directive 88/407 as last amended and the EU/NZ Veterinary Agreement. This IHS was notified for public consultation in April 2005.

This IHS is dated 28 June 2006.

The above-mentioned animal IHSs are available from:

- Animal Imports Team, Biosecurity New Zealand, imports@maf.govt.nz

### Import risk analysis – PRRS in pig meat

In September 2001, MAF imposed sanitary measures on imported pig meat to manage the risk of introduction of porcine reproductive and respiratory syndrome (PRRS) virus. This followed the publication of a report commissioned by the Australian Government demonstrating that, contrary to previous scientific opinion, PRRS virus could be present in meat of infected animals, and that transmission of the virus was possible by feeding such meat to susceptible pigs.

In late 2001, MAF completed a draft risk analysis assessment for PRRS in imported pig meat. This was subjected to international technical review in 2002, according to MAF’s risk analysis process. In mid 2002, a Canadian study was initiated to test the conclusions reached in the previous study. The results from the two studies were published in the scientific literature in 2003 and 2004 respectively, opening the way for MAF to complete the risk analysis on PRRS virus in imported pig meat. This is now complete and has been released for public consultation.

The conclusions of the risk analysis are:

1. There is a low likelihood that chilled or frozen pig meat from a country with endemic PRRS will harbour the virus when imported into New Zealand.
2. Since cooking inactivates PRRS virus, and since pigs are the only species susceptible to this organism, effective exposure would require the feeding of uncooked pig meat to pigs in New Zealand. Although scraps may be generated from imported pigmeat at several points during its preparation for human consumption, the feeding of raw meat to pigs is illegal under the 2005 garbage feeding regulations. It is concluded that an exposure pathway would exist only on pig farms that were not complying with the garbage feeding regulations.
3. If pig farms in this country became infected with PRRS through the illegal feeding of uncooked imported pigmeat, the likelihood of spread to other pig farms would be low as long as standard biosecurity practices were observed.
4. If PRRS virus was introduced into New Zealand, the consequences would be significant on affected farms, particularly in breeding units.

It is considered that the risk of PRRS in imported pigmeat is non-negligible, and the following sanitary measures are recommended to manage the identified risk:

- Pig meat must be:
  - either from a country free from PRRS or treated prior to import or on arrival, in an officially approved facility, by approved cooking or pH change or in the form of consumer-ready, high-value cuts or further processed on arrival, in an officially approved facility, into consumer-ready high-value cuts.

The full risk analysis is available on:


Public submissions are invited, and must be made in writing to:

- Martin Van Ginkel, MAF Biosecurity New Zealand, PO Box 2526, Wellington, fax 04 894 0733, Martin.van_Ginkel@maf.govt.nz

Submissions close on 15 September 2006.

### Codes of welfare – update on development, issue and consultation since the last issue of Biosecurity

**Codes of welfare issued:** Nil

**Consultation on codes of welfare:**

- Deer code: final code presented to Minister of Agriculture in July 2006
- Companion cat code: final code presented to Minister of Agriculture in July 2006
Pest watch: 06/05/2006 – 16/06/2006

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 06/05/2006 – 16/06/2006, and held in the Plant Pest Information Network (PPIN) database. Wherever possible, common names have been included.

### ANIMAL KINGDOM RECORDS 06/05/2006 – 16/06/2006

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopedella victorialis</td>
<td>(Australian huntsman spider)</td>
<td>House entranceway (outside)</td>
<td>Mid Canterbury</td>
<td>IDC (general surveillance)</td>
</tr>
</tbody>
</table>

### PLANT KINGDOM RECORDS 06/05/2006 – 16/06/2006

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fusicladium orchidis</td>
<td>(no common name)</td>
<td>Phalaenopsis sp. (moth orchid, phalaenopsis orchid)</td>
<td>Auckland</td>
</tr>
<tr>
<td>Mycosphaerella africana</td>
<td>(no common name)</td>
<td>Rhododendron sp. (Rhododendron)</td>
<td>South Canterbury</td>
</tr>
<tr>
<td>Phyllosticta abietis</td>
<td>(no common name)</td>
<td>Cedrus atlantica (atlas cedar)</td>
<td>Gisborne</td>
</tr>
<tr>
<td>Phytophthora fallax</td>
<td>(no common name)</td>
<td>Eucalyptus delegatensis (alpine ash, eucalyptus)</td>
<td>Southland</td>
</tr>
<tr>
<td>Phytophthora cactiosa</td>
<td>(no common name)</td>
<td>Eucalyptus saligna (eucalyptus, Sydney blue gum)</td>
<td>Bay of Plenty</td>
</tr>
</tbody>
</table>

### Significant find reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teia anartoides</td>
<td>(painted apple moth)</td>
<td>PAM trap</td>
<td>Auckland</td>
</tr>
</tbody>
</table>

### New host reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fusarium anthophilum</td>
<td>(fusarium)</td>
<td>Vitis vinifera (grape)</td>
<td>Marlborough</td>
</tr>
<tr>
<td>Brevipalpus essigi</td>
<td>(no common name)</td>
<td>Callicarpa sp. (beauty berry)</td>
<td>Gisborne</td>
</tr>
</tbody>
</table>
### New host reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phytophthora megasperma</strong> <em>(phytophthora root rot)</em></td>
<td><em>Annona</em> sp. <em>(cherimoya, custard apple)</em></td>
<td>Northland</td>
<td>IDC <em>(general surveillance)</em></td>
</tr>
<tr>
<td><strong>Phytophthora citricola</strong> <em>(phytophthora collar rot, phytophthora crown rot, phytophthora fruit rot, phytophthora root rot)</em></td>
<td><em>Phytophthora</em> citricola</td>
<td>Auckland</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Phytophthora cryptogea</strong> <em>(phytophthora root and collar rot, phytophthora root rot)</em></td>
<td><em>Phoma exigua var. exigua</em> <em>(blight, gangrene, leaf spot, mouldy core, stem spot)</em></td>
<td>Auckland</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Xyleborinus saxeseni</strong> <em>(keyhole ambrosia beetle)</em></td>
<td><em>Quercus robur</em> <em>(English oak, truffle oak)</em></td>
<td>Auckland</td>
<td>IDC <em>(general surveillance)</em></td>
</tr>
<tr>
<td><strong>Ctenopseustis obliquana</strong> <em>(brown headed leafflower)</em></td>
<td><em>Alberta magna</em> <em>(no common name)</em></td>
<td>Auckland</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Cephalocorys virescens</strong> <em>(algal leaf spot, red rust)</em></td>
<td><em>Griselinia littoralis</em> <em>(broadleaf)</em></td>
<td>Auckland</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Phytophthora capsioidea</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus botryoides</em> <em>(eucalyptus, southern mahogany)</em></td>
<td>Bay of Plenty</td>
<td>Ensis <em>(exotic forest survey)</em></td>
</tr>
<tr>
<td><strong>Phytophthora fallax</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus fastigata</em> <em>(brown barrel, cut tail, eucalyptus)</em></td>
<td>Taupo</td>
<td>Ensis <em>(ad hoc)</em></td>
</tr>
<tr>
<td><strong>Platybus apicalis</strong> <em>(pine hole borer)</em></td>
<td><em>Pinus devoniana</em> <em>(no common name)</em></td>
<td>Gisborne</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Hylurgus ligniperda</strong> <em>(golden haired bark beetle)</em></td>
<td><em>Pinus mugo</em> <em>(Mugo pine)</em></td>
<td>Nelson</td>
<td>Ensis <em>(exotic forest survey)</em></td>
</tr>
<tr>
<td><strong>Cryptospioriopsis edgertonii</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus</em> sp. <em>(eucalyptus, gum tree)</em></td>
<td>Otago Lakes</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Ceroplastes sinensis</strong> <em>(Chinese wax scale)</em></td>
<td><em>Euonymus japonica</em> <em>(evergreen euonymus, Japanese euonymus)</em></td>
<td>Gisborne</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
</tbody>
</table>

### Extension to distribution reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fusarium anthophilum</strong> <em>(fusarium)</em></td>
<td><em>Vitis vinifera</em> <em>(grape)</em></td>
<td>Marlborough</td>
<td>IDC <em>(general surveillance)</em></td>
</tr>
<tr>
<td><strong>Brevipalpus essigi</strong> <em>(no common name)</em></td>
<td><em>Callicarpa</em> sp. <em>(beauty berry)</em></td>
<td>Gisborne</td>
<td>IDC <em>(general surveillance)</em></td>
</tr>
<tr>
<td><strong>Phytophthora fallax</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus fastigata</em> <em>(brown barrel, cut tail, eucalyptus)</em></td>
<td>Taupo</td>
<td>Ensis <em>(ad hoc)</em></td>
</tr>
<tr>
<td><strong>Trachymela sloanei</strong> <em>(small eucalyptus tortoise beetle)</em></td>
<td><em>Eucalyptus viminalis</em> <em>(eucalyptus, manna gum, ribbon gum)</em></td>
<td>Mid Canterbury</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Nambouria xanthops</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus nicholii</em> <em>(eucalyptus, narrow-leaved black peppermint, Nichol's willow-leaved)</em></td>
<td>Mid Canterbury</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Steincomata sulphurata</strong> <em>(banksia leaf miner)</em></td>
<td><em>Banksia integrifolia</em> <em>(coastal banksia)</em></td>
<td>Mid Canterbury</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Coniothyrium ovatum</strong> <em>(no common name)</em></td>
<td><em>Eucalyptus</em> sp. <em>(eucalyptus, gum tree)</em></td>
<td>Otago Lakes</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
<tr>
<td><strong>Melampsora ricini</strong> <em>(Rust of castor oil plant)</em></td>
<td><em>Ricinus communis</em> <em>(castor oil plant)</em></td>
<td>Hawke’s Bay</td>
<td>Ensis <em>(high risk site surveillance)</em></td>
</tr>
</tbody>
</table>

---

**Eleanor Morrison, Technical Support Officer, Biosecurity New Zealand, phone 04 894 0551, eleanor.morrison@maf.govt.nz**