PROTECTING FIORDLAND’S MARINE ENVIRONMENT

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Weed eradication programmes
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Cover: Malaspina Reach, Doubtful Sound, Fiordland National Park.
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Feature Page 7.
A year ago, Biosecurity New Zealand, the division of MAF responsible for biosecurity matters, was established.

The creation of Biosecurity New Zealand was in direct response to the recommendations of the Biosecurity Council’s Biosecurity Strategy that was published in August 2004 and subsequently adopted by Government.

At MAF we were always mindful of the huge task that lay in front of us as the agency charged with implementing the strategy’s recommendations. But it was, and still is, a challenge we accept – with passion, commitment and pride.

The ‘biosecurity challenge’ is enormous. Particularly encouraging is the enthusiasm of all stakeholder organisations to discuss issues from the basis of partnership, accepting that there will be times when their priorities may be seen differently by others but understanding of the basis by which overall system decisions are made and priorities set.

As well as bedding in organisation changes over the past year, Biosecurity New Zealand has also made progress in other areas. Particularly notable are the agreements reached with the Biosecurity Central/Regional Forum on the strategic priorities for pest management and our work with the Invercargill, Nelson and Hawke’s Bay communities to better understand the values they associate with their rivers and streams.

Of course, MAF’s biosecurity activities also include the essential work undertaken, primarily at the border, by the MAF Quarantine Service. MAFQS has also seen major organisational change this year aimed at improving operational efficiency and effectiveness while also improving linkages with Biosecurity New Zealand. As part of this work, MAFQS is involved in several key projects, including: process improvement with regard to goods clearance at the border, contributions to lifting the operational efficiency and effectiveness of import health standards, integration of systems with Customs, and improved technology to assist Quarantine Officers in their work.

It is important to note these significant projects as they can sometimes be eclipsed by some of the noisier projects and issues that capture public interest, such as Operation Waiheke, genetically modified corn, Didymocephalgia alga or ‘sea squirt’. Effectively managing incursions – real or threatened – is important, but there is much more to MAF’s biosecurity efforts than incursion management.

MAF values highly the relationships it has with all of its biosecurity stakeholders. The annual Biosecurity Summit is a major opportunity to meet and discuss issues of mutual significance, but it is also part of an ongoing commitment by MAF to better understand the perceptions and priorities others may hold. Better understanding should lead to better biosecurity outcomes.

New Zealanders have the privilege of living in a very special and sometimes unique environment. The benefits of this are significant and worth defending for the benefit of future generations. We all have a vital role to play in this – both organisationally and individually.

Murray Sherwin, Director-General, MAF
Managing risk pathways key to marine biosecurity

It is a very long swim for exotic organisms making their way to settle in New Zealand’s marine environment. But since the first canoes pulled ashore around eight centuries ago, humans have been providing them with a convenient means of passage. In the case of marine biosecurity – transferred to Biosecurity New Zealand (BNZ) last November – it is the job of the Pre-clearance Directorate to make sure these passengers never get the chance to disembark. Ballast water and bio-fouling of vessel hulls are the most likely pathways for new organisms and potential pests into the waters surrounding New Zealand. Reducing the risks they pose is a key objective for BNZ.
One initiative has been the revision and reissuing of the Ballast Water Import Health Standard, first issued in 1998. The revised document requires vessels to submit their intentions in relation to ballast water at least 48 hours before they arrive in New Zealand. If MAF Quarantine officers are presented with documented evidence that ballast water tanks have been treated by exchange with mid-ocean water, they can give vessels permission to release ballast water in New Zealand waters before they arrive in port if they need to. The standard also gives the opportunity to direct non-complying vessels to exchange the tanks before they enter our Exclusive Economic Zone.

The standard now defines mid-ocean water, in line with the definition in the International Convention for the Control and Management of Ships’ Ballast Water and Sediments 2004, as ‘in waters 200 nautical miles from nearest land and 200m in depth’.

Compliance with the ballast water requirements is more likely if it can be verified by testing the water. To this end BNZ is jointly funding, with the United States through the Smithsonian Institute, research into a probe that can be dropped into a ballast tank to test whether it contains coastal or oceanic water. A prototype probe is being tested on trans-Tasman merchant vessels.

These voyages will also be used to obtain samples for testing, by the latest genetic techniques, for the presence of one or two of our listed unwanted organisms that are present in Australian ports. This research aims to show whether these organisms are picked up with ballast water, whether they survive the voyage, and the degree to which they are removed by mid-ocean exchange.

Bio-fouling still a challenge

The biosecurity risk from hull bio-fouling is a challenge to manage. Early research has shown that internationally travelling yachts may present a higher risk than merchant vessels. Although their hulls are much bigger, merchant vessels tend to move more quickly, spend less time in port, and maintain better hull antifouling coatings than many yachts.

BNZ has targeted an information campaign at New Zealand-bound yachts, recommending they are cleaned before starting out or when they arrive here. They are also asked that when they clean hulls they do so in facilities that do not allow viable fouling organisms to be discharged back into the sea. Work is underway towards developing standards for approving such facilities as transitional facilities under the Biosecurity Act.

A two-year study, sampling 10 percent of all arriving vessels, is underway to investigate what types of organisms make their way here as hull bio-fouling. The survey results will be used to build a risk profile, so that higher-risk vessels are easily identified. A typical example might be a vessel that has been laid up in an overseas port for some time, a slow moving craft, or a boat with a poor maintenance record. For yachts and small craft, this might involve a haul-out for cleaning. In other cases, the vessel might be required to leave New Zealand as quickly as possible within the bounds of safe practice.

Compliance information system

Another initiative that will eventually assist both ballast water and bio-fouling management measures succeed is the proposed Vessel Compliance Information System. Preliminary work is about to start on a system which will allow records of arriving vessels and their quarantine details – including marine biosecurity aspects – to be kept. The system could be used to target the vessels that require in-depth inspections. It will also allow a compliance history to be built up for repeat visitors and shipping companies so that incentives for good compliance (e.g. reduced inspection requirements) can be developed.

By bringing marine biosecurity on board with the core business of BNZ and MAF Quarantine Service, this important component of New Zealand’s total biosecurity effort is being aligned with well-proven methodologies and systems.

But at the same time, marine biosecurity brings its own unique challenges. Establishing successful measures to protect the marine environment will be a good test for established biosecurity systems. This could lead to innovations and possibly a need for greater flexibility in the way the legislation is applied.

(Not) Wanted: Bulbul bullies

They look as though they were designed by a committee, they’re noisy, they trash fruit and vegetable crops, they terrorise other birds and they’re definitely not wanted here.

The red-vented bulbul bird established a toe-hold in Auckland in the 1950s before being eradicated, but 50 years later a new pair has been spotted around central Auckland and the suburb of Devonport.

Biosecurity New Zealand (BNZ) is working with DOC and the Auckland Regional Council to track down and eradicate this latest brace of bulbul. Regularly listed among the world’s most invasive species (see Biosecurity 59:5), the red-vented bulbul is native to parts of Asia but has spread around the Pacific.

They’re especially troublesome in Fiji and suburban Sydney.

BNZ Senior Adviser Sonya Bissmire says the sooner the birds are dealt with the better, as the pair may be about to breed.

She says it has been illegal to import the birds since the late 1960s. “We don’t know how this latest pair got here, but they may have been released from a ship or yacht arriving in Auckland from elsewhere in the Pacific.”

The birds have a few distinctive features that can make them easier to spot. About 20 centimetres long, with a long tail, they are active, very noisy, dark brown with a lighter coloured abdomen and a black head with a small peaked crest.

The most distinctive feature is a bright crimson patch under their tails. To report a sighting, contact the MAF Exotic Disease and Pest Emergency Hotline: 0800 80 99 66

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Liz Jones, Senior Adviser (Marine), Operational Standards, Pre-clearance, Biosecurity New Zealand, liz.jones@maf.govt.nz

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Exotic sea squirt finds under investigation

The relatively young field of marine biosecurity is being put to the test with the confirmed incursion of a potentially threatening exotic sea squirt, the clubbed tunicate (*Styela clava*), in New Zealand waters.

Surveying is underway to determine the scale of the incursion, which has been found in two locations: the Viaduct Harbour in Auckland and the port at Lyttelton.

The Auckland find was made by a visiting UK marine biologist and its presence at Lyttelton detected as part of baseline research being undertaken around the country to assess the state of the country’s ports. (See *Knowing what’s down below* in this issue of Biosecurity.) The Lyttelton specimen was contained in a scraping of material from the wharf taken at the end of 2004 and only recently analysed and identified.

There has been a further, confirmed find of a small juvenile clubbed tunicate on the fouled hull of a vessel that had travelled to Picton from the Viaduct. This vessel had spent time in Lyttelton before spending some months berthed in the Viaduct Harbour.

On its arrival in Picton, the vessel was immediately removed from the water and inspected and thoroughly cleaned.

Since that confirmation divers have made a preliminary survey in Picton at the Waikawa Marina where the boat was briefly moored. Further samples were taken and these were found to be not clubbed tunicate.

While the area where the boat was berthed appears to free of the pest, the same cannot yet be said of the whole of Picton harbour. Planning is underway for a full survey of the harbour.

Senior Marine Advisor Brendan Gould says it is reassuring that the vessel was in the water for only a very short time and the organism found was a very juvenile specimen. The clubbed tunicate is a tough, leathery club-shaped organism that grows up to 160 mm long. It is a prolific breeder, spawning every 24 hours or so from maturity. The tunicate tends to settle in protected areas such as bays and harbours, out of wave action. It is frequently found on wharves, aquaculture structures and equipment, boat hulls, mooring lines and other man-made structures.

Brendan Gould says there are potentially significant impacts if the clubbed tunicate becomes established in New Zealand waters, particularly for the aquaculture industry.

“The clubbed tunicates can settle on lines and grow over shellfish cultures, including mussels and oysters. They compete for food and space and also predate on shellfish larvae.” Biosecurity New Zealand’s first task, on confirmation of the Auckland and Lyttelton finds was to set up an extensive survey of Viaduct Harbour and the neighbouring Freemans Bay to determine and map the distribution and density of the sea squirt in the port and on marine facilities and structures.

The work is currently being undertaken by scientists from the National Institute for Water and Atmospheric Research (NIWA).

The survey team has been using a range of techniques including shore-based and snorkel and scuba searches for the sea squirt.

Similar work is also being arranged for Lyttelton.

Brendan Gould says the delimiting surveys are a vital first step with this incursion. “We need to get as full a picture of the spread of the incursion as possible before any decisions are made about future action,” he explains.

“Potential treatment options will be investigated once it has been established just how widespread the pest is. If its distribution is limited, attempts will be made to control it while longer term options are investigated.”

Theclubbed tunicate has also been declared an unwanted organism, giving Biosecurity New Zealand the teeth to implement control measures under the Biosecurity Act if necessary.

The clubbed tunicate originated in Korea, but is now spread throughout much of the world, including parts of Australia. It can travel on the hulls of boats (hull-fouling) or in bilge water. Hull-fouling is the most likely source of its arrival into New Zealand.

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FRONTLINE NEWS
Biosecurity New Zealand is working in partnership with the other government agencies and the Fiordland Marine Guardians to protect Fiordland’s unique marine environment from invasions of plants or animals.  

Invasive species could be introduced into Fiordland’s waters on fouled boat hulls, fishing gear, dive gear, or other equipment. Efforts to improve Fiordland’s biosecurity are part of the new, community-initiated Fiordland Marine Area and management regime. This initiative recognises that invasive species could be detrimental to Fiordland’s special marine environment.

Fiordland’s unique marine environment is created by the combination of high mountains, heavy rainfall and rainforest. Rain washes through the leaf litter on the forest floors and into the fiords, staining the surface waters a dark tea colour. The stained fresh water floats on top of the heavier seawater, creating a layer about three metres deep across much of the fiords. The huge reduction in light caused by this layer enables deep sea species like red and black corals and seapens to live at much shallower depths than normal.

Remarkably, Fiordland’s rock wall communities are as diverse as coral reefs. Towards the fiord entrances, waves mix the fresh water with salt water and sea life begins to change. Here, seaweeds and a variety of organisms make up a diverse and productive coastal community.

Fiordland’s vast size and seemingly robust nature do not fully protect it from the impacts of increased human access. In 1995, some concerned locals, prompted by changes they saw occurring in Fiordland, formed a community group (the Guardians) with the following vision: “That the quality of Fiordland’s marine environment and fisheries… be maintained or improved for future generations to use and enjoy.”

Members of the Guardians included commercial and recreational fishers, environmentalists, charter boat and

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1 In 1995 a community group formed called the Guardians of Fiordland's Fisheries and Marine Environment. This group proposed an integrated approach to managing Fiordland's fisheries and marine environment. The Fiordland Marine Management Act 2005 renamed the group the “Fiordland Marine Guardians” and formally established the group as a statutory body.
tourism operators, scientists, community representatives and tangata whenua.

The Guardians consulted with a wide range of people who work and play in Fiordland about how management of Fiordland’s marine resources might be improved. The Guardians then proposed a package of management changes designed to ensure the sustainability of Fiordland fisheries and better care of the marine environment.

In April 2005, the Fiordland Marine Management Act established the Fiordland (Te Moana o Atawhenua) Marine Area and set out a management regime to bring the Guardians’ vision for Fiordland into reality. The management regime entails a collaborative approach to management involving the Guardians, the Department of Conservation, the Ministry for the Environment, Environment Southland, and Biosecurity New Zealand.

The new approach to managing Fiordland’s marine environment allows for both sustainable use and protection, with measures tailored to Fiordland’s different habitats and needs. The measures are the result of a “gifts and gains” style of negotiation between groups that resulted, for instance, in commercial, customary, and recreational fishers voluntarily agreeing to stop fishing in certain areas. The Guardians selected these areas for the value of their habitats and marine life. These areas now form eight new marine reserves.

To address the risk of invasive species being introduced and establishing in Fiordland, the Guardians called for the development and implementation of a biosecurity plan. Biosecurity New Zealand secured funds from the Government to develop a biosecurity plan in collaboration with the Guardians and other Government agencies. Further funding will be required to implement the plan once it has been agreed.

Everyone who visits Fiordland can help protect this special part of New Zealand by doing the following:

• Clean your vessel’s hull before entering the Fiordland Marine Area.

• Dispose of everything removed from the hull onto land.

• Clean fishing gear, dive gear, kayaks, and any other equipment that will enter the water before coming to Fiordland.

• If you suspect you have seen a plant or animal that is new to Fiordland, please phone 0800 80 99 66.

For more information about marine reserves in Fiordland, contact:

- DOC Visitor Centre,
  Lakefront Drive,
  Te Anau, 03 249 7921.

For copies of marine recreational fishing rules and other fishing information, contact:

- Ministry of Fisheries on 0800 4 RULES (0800 478 537).

The material for this article was adapted from a publication prepared by Biosecurity New Zealand, the Department of Conservation, Environment Southland, the Fiordland Marine Guardians, and the Ministry for the Environment.

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With enemies like these…

The campaign is intended to raise awareness of biosecurity and encourage New Zealanders, and visitors to the country, to get involved.

It concentrates on the four areas where newly arrived pests or diseases are most likely to make landfall: the main port cities of Auckland, Tauranga, Wellington, and Christchurch. Early detection of unwanted hitchhikers that have come here on imported goods is likely to be around the port and industrial areas in these cities.

Seven pests and diseases are highlighted in the campaign, including the Colorado potato beetle, bovine spongiform encephalopathy (BSE, or ‘mad cow’ disease), the Asian gypsy moth, and the Cape tulip.

“The seven pests and diseases chosen for this campaign reflect the variety of forms threats to our biosecurity can take,” says Carolyn Kildare, Marketing Manager for Biosecurity New Zealand. “Of the seven profiled, three – the Formosan subterranean termite, the Asian gypsy moth, and the Cape tulip – have previously been found in New Zealand. Others such as BSE have never been found here and must be kept out of New Zealand. They would have a devastating impact on our economy, environment and lifestyle.”

The advertising encourages New Zealanders and visitors to ‘Keep out, Look out, Help out’. ‘Keep out’ is about preventing the arrival of exotic pests and diseases in New Zealand, Carolyn explains. “Declare all food products to the Quarantine officers at the airport, put fresh foods into the amnesty bins, and clean your camping gear or boots before you pack.”

“We want people to ‘Look out’ for exotic pests and diseases around the home, at work, in the garden or when out and about. Exotic pests have also recently been found lurking in imported goods by eagle-eyed members of the public.

“And we are encouraging all New Zealanders and visitors to ‘Help out’ to protect our biosecurity. Whether it’s reporting a suspicious-looking insect pest around the home or following the quarantine rules when travelling, everyone can help.”

The campaign will include a direct mail flyer distributed to households in Auckland, Tauranga, Wellington and Christchurch, weekend radio advertising, and weekend newspaper advertising. In addition, activities with local radio stations are planned for each of the four centres.

Biosecurity New Zealand plans to run a further round of advertising activity in late summer.

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Victoria Lamb has joined the Post-clearance Directorate as a Senior Adviser, bringing a regional and local council perspective to the Pest Management Group. Returning to her roots in botanical ecology she worked in both the Parks and Gardens Business Unit and Open Space Planning to develop Wellington City Council’s pest management policy and operational strategy, as well as working on biodiversity and open space protection. Prior to working with the Council, she worked on protection and weed management planning for the Queen Elizabeth II National Trust-owned Taupo Swamp.

Previous roles included pastoral and Crown land management in the public sector and communications and marketing development with Landcorp Farming Ltd.

John Andrew has recently been seconded from the Department of Conservation to Biosecurity New Zealand’s Post-clearance Directorate as a Senior Adviser, Pest Management Group. He is with us for a year until mid-August 2006 and will have a particular focus on setting priorities for the national pest programmes that MAF will seek to deliver.

At DOC John is a Technical Support Officer (Animal Pests) in the Canterbury Conservancy, where he has been since 1987. He advises management on all animal pest matters, ranging from Himalayan thar control to the storage of hazardous substances. Prior to this he was an officer with the Wildlife Service for some 28 years and held positions all over New Zealand.
Biosecurity New Zealand coordinates a nation-wide eradication programme to rid New Zealand of some of the world’s most invasive weeds. This summer it is intensifying a long-term campaign to monitor and eradicate four weeds of special concern.

The target species are:
- Johnson grass (smothers crops)
- Salvinia (smothers waterways)
- Water hyacinth (smothers waterways)
- Cape tulip (fatal to humans and cattle).

Biosecurity New Zealand contracts AgriQuality to manage the programme.

John Randall, Senior Adviser, Surveillance and Incursion Response, says the species are Notifiable Organisms under the Biosecurity Act 1993. This means there is a legal requirement to report their presence or possible presence to Biosecurity New Zealand.

“These weeds could cause major damage to the environment and economy if they became widely established. With the arrival of warmer temperatures leading up to summer, the plants can be more easily detected and Biosecurity New Zealand wants New Zealanders to keep their eyes peeled for new affected sites,” John says.

**GOOD RESULTS SO FAR**

This long-term monitoring and eradication campaign has shown good results, with the total number of known active weed sites down from over 800 to just 71. Only one site of Johnson grass remains active, Cape tulip is down to 34 active sites from a peak of about 500, salvinia is down to 23, and water hyacinth to 13.

Many of the salvinia and water hyacinth sites have been associated with home ponds and are quickly controlled, but Biosecurity New Zealand is concerned that plants from these sites are readily distributed to other people who don’t
understand the impacts the plants can have if released into the natural environment.

The management programmes include site surveys, a trace-back system to see if wider dispersal may have occurred, removal of the plants by digging and burning, herbicides and regular follow up inspections.

**Johnson grass one of world’s 10 least wanted**

One of the world’s ten worst weeds, **Johnson grass** has been found between Canterbury, Waikato and the Bay of Plenty. This Mediterranean plant is a stout, erect summer growing grass that can reach heights of three metres. The leaves are flat and usually less than two centimetres wide. Seedlings look a lot like young maize and form dense patches which completely smother other plants. Plants produce extensive creeping rhizomes that develop below the soil surface. A single plant can produce up to 80,000 seeds in a season, and these can remain dormant for several years. Johnson grass can be poisonous to stock; it can also pose a fire risk and cause visibility problems near roads.

**Toxic tulip**

**Cape tulip** is a toxic native of South Africa that has been most active in Canterbury, though it is found elsewhere in the South and North islands, often in urban areas. Because it has mainly spread from gardens, sale and distribution of the plant has been banned in New Zealand since 1950. Cape tulip is part of the iris family (Iridaceae). Plants grow to 90 cm tall, consisting of a single strap-like leaf and a branched flower stalk.

It produces shoots annually in winter, and dies back to an underground corm (a bulblike stem) in early summer. Its seeds are produced in narrow, green capsules, up to 5 cm long. Up to 25 million corms have been found per hectare of infested land. Corms may remain dormant in the soil for at least 8 years, which makes control of Cape tulip extremely difficult. All parts of the Cape tulip are poisonous to both livestock and humans. Symptoms include; gastroenteritis, thirst, paralysis, blindness and heart and kidney failure. It has the potential to establish over wide farming areas and could have a serious economic impact on New Zealand agriculture if it gets better established.

Salvinia is a free floating fern with a branched horizontal stem which lies just below the water surface. The plant has no true roots. The foliage is green to golden brown and has water-repellent hairs that help it float. The leaves are generally rounded, 1-2 cm long, have an obvious midrib and lie flat on the water surface. Each plant can produce and shed daughter plants at the end of its horizontal axis, which in turn produce further plants until a dense mat is formed. These mats kill off native plants, attract breeding mosquitoes, cause flooding, block dams and irrigation systems, remove oxygen from the water and create a drowning risk for people and animals.

**Long-term water hyacinth control needed**

**Water hyacinth**, a native of South America, has mostly been found in Northland and Auckland, but with some sites as far south as Wellington. Like salvinia, this water plant is frost sensitive. Each plant consists of a free floating rosette of shiny, rounded leaves and a thick mass of feathery roots hanging in the water. The roots are often dark, and can grow up to 2.5 metres long. The rosette produces a single flowering stalk up to 30 cm above the leaf canopy. It is topped by a cluster of 5-15 mauve-blue flowers. Each plant can produce 3-4 daughter plants at the end of its stolons, which in turn produce further plants which can form a dense mat, which can break up and move to new areas.

The negative effects of mats of water hyacinth are similar to those of salvinia. The seed of water hyacinth may remain viable for up to 20 years and, in New Zealand, plants have been found at a site previously clear for seven years. It requires long-term programmes to prevent re-infestation of sites.

“Regional councils, contractors, boaters, farmers, gardeners and the public in general can play a big part by reporting new sites and supporting measures to contain and control the existing sites,” John says.

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Livestock saleyards – what’s the risk?

If you wanted to design the most efficient way to spread a highly infectious livestock disease – say, foot and mouth disease (FMD) – then the way we trade animals through saleyards would come pretty close. Of course that doesn’t mean we should do away with saleyards – livestock agriculture would grind to a halt very quickly without these marketplaces. But it does mean that if we are to respond effectively to a disease like FMD, we have to understand the nature of the risk posed by livestock saleyards, and how we can manage that risk. A survey carried out last year has started building a picture of the risk posed by saleyards.

Livestock saleyards are a critical, potentially devastating component in the transmission of exotic disease. Movements of stock through saleyards cultivate optimal conditions for rapid and widespread geographic dissemination. And because of the way FMD persists in the environment, saleyards could remain a threat, even after infected animals have been through.

If we needed any proof of this, we need look no further than the 2001 FMD outbreak in the UK. There, the outbreak was amplified many times by livestock markets which seeded the virus throughout the country before the clinical detection of the first case.

In 2004, MAF contracted a survey to characterise saleyards in New Zealand. Seventy-three active and major commercial livestock saleyards were identified, 27 in the South Island and 44 in the North Island. Frequency of sales was anything from weekly to annual.

Infectious outputs or ‘conveyors’ from saleyards include:
- live animals and their secretions/excretions including effluent
- aerosol within and near saleyards
- fomites (objects that can carry disease) such as people, vehicles, fodder or pens contaminated by secretions/excretions.

The size of the catchment and dispersion areas, volume of sales and mixing of lines of animals all contribute to risk of direct animal to animal disease spread. A detailed study at Feilding on 4 June 2004 illustrates the potential distances disease can spread linked to one sale (Figure 1).

The extent to which the FMD virus is spread in the air (aerosolisation) depends very much on the species. Pigs are by far the biggest amplifiers of FMD, spreading a large plume of virus that can be carried long distances on air currents to infect...
other animals. One pig may excrete as much virus as up to 3000 cattle, depending on virus strain.

Infected pigs at a saleyard could readily infect all animals within the sale, and the study showed that the virus wouldn’t have to travel far. At 15 saleyards, the distance from pigs to another species (cattle or sheep) is 10 metres or less.

In order to estimate the potential for FMD to persist between sales, the survey noted saleyard construction and surface types. Permeable materials such as wood are able to retain virus, even with cleaning.

Of the 73 saleyards, only 14 have a totally impermeable (concrete) surface. Another 35 saleyards have at least a portion of the surface of the yards covered in concrete. Loading ramps and pens are generally made of wood, totally or partially. One saleyard has concrete pens, 6 have only metal pens, 31 have entirely wooden pens and the remainder are a mixture of wood and some other material.

Retention of stock at the saleyard poses a risk, as does spraying of effluent onto pastures. Only 22 of the 73 saleyards had no paddocks for holding animals prior to or after sales.

Fomite transmission is difficult to estimate but presenting the highest risk are the stock agents and handlers in direct contact with live animals. In New Zealand, 79 percent of saleyard staff work at more than one saleyard. In addition, about 60 percent of staff also own livestock.

Most saleyards are owned outright by PGG Wrightson Ltd, the only nationwide company. Other saleyards are owned by partnerships of stock and station agents as well as a small number owned by local farm groups. Regional stock and station agents include Williams and Kettle Ltd, around Hawke’s Bay; Elders, around the Waikato and Northern North Island; and Farmlands Trading Society Ltd, active throughout the North Island. In addition there are smaller local farm group sales.

Acknowledgements: Robert Sanson, Andrea Murray, Richard Calvert, Murray Towler of AgriQuality Ltd; Scott Loeffler; Caleb King MAF-IDC.

Saleyard stats

Sixty-nine New Zealand saleyards trade in cattle. The estimated mean and median monthly sales for all cattle types (adults, weaners and calves) are 1476 and 1250 respectively, with a range from 80 to 6000 animals. The average number of cattle sold per sale is 606.

Fifty-eight saleyards have the capacity to trade in sheep or lambs.

Ten saleyards have the facilities to hold deer, with average and median monthly sales of 972 and 500, respectively.

Twelve saleyards trade in pigs with an average and median capacity monthly sale of 226 and 200 pigs, and an average of 65 pigs sold per sale.

Figure 1: Locations of vendors and purchasers for Feilding sale. If an infection was present at the saleyard, the potential is there to spread it through a wide geographical area.

Saleyard operators to meet with BNZ

Major saleyard operators will be meeting with Biosecurity New Zealand in mid December to contribute to specifications for a MAF-sponsored exotic disease response (EDR) programme for livestock saleyards.

One of the tasks for the meeting will be to assess the current information and identify what other information is required to establish an EDR programme for livestock saleyards.

The operators will also get the opportunity to comment on technical and practical suitability of potential risk mitigation measures, including costs, and the impact of their implementation as part of day-to-day operation and during an outbreak.
Public participation key to didymo management

Protect our waterways. Check. Clean. Dry. It’s hoped that this behaviour will become second nature to river and lake users as Biosecurity New Zealand rolls out a public awareness campaign explaining how to clean equipment and avoid spreading the invasive alga Didymosphenia geminata (Didymo).

Didymo was discovered in the lower Waiau and Mararoa rivers in Southland in October 2004. The microscopic algae can be spread in a single drop of water. It can affect stream habitat and sources of food for fish and make recreational activities unpleasant. It is not considered a significant human health risk.

When it was found, an extensive public awareness campaign was launched with Environment Southland and Fish and Game, to encourage river users to clean their equipment after use in the affected rivers. This campaign was highly successful, with reports of up to a 90 percent decrease in use of the affected rivers.

In late September 2005, further populations of Didymo were discovered in the Hawea, Buller, Oreti and upper Clutha rivers. Delimiting testing is being undertaken in North Island and other South Island river systems to find out if Didymo has spread further.

The objective of the public awareness campaign in the South Island is to minimise the risk of people spreading Didymo throughout New Zealand’s waterways. The slogan ‘Protect our waters – check, clean, dry’ makes it easy to remember how.

The public awareness campaign specifically targets outdoor recreation enthusiasts, including fishermen, hunters, trampers, boaters, kayakers and rafters. These people often don’t live near the river they are using, so the information on how to prevent the spread of Didymo must be readily available.

To help river users remember to ‘Protect our waters – check, clean, dry’ while they are near the water, Biosecurity New Zealand has produced plastic card wallets for fishing licences, waterproof key rings, and a flyer, with the ‘Check. Clean. Dry.’ message.

Signage, posters, and flyers are being distributed by regional councils, Fish and Game, information centres, fishing or hunting gear stores, and recreational groups. Newspaper, radio and internet advertising are also being used to raise awareness of the importance of cleaning gear that has been in a Didymo-affected river. Regional councils, Fish and Game, and the Department of Conservation are working closely with Biosecurity New Zealand to develop the campaign.

“Just because you can’t see it doesn’t mean you can’t spread it,” warns Peter Thomson, Biosecurity New Zealand’s Director, Post-clearance. “Personal responsibility has always been, and will continue to be, our best weapon to combat the spread of Didymo. We want every New Zealander to know how to reduce the risk of spreading this organism.”

To prevent the spread of Didymo:
Check: Before leaving the river, remove all obvious clumps of algae and look for hidden clumps. Leave them at the site. If you find any later, don’t wash them down the drain. Treat them with the approved cleaning methods below, dry them and put them in a rubbish bin.
Clean: Soak and scrub all items for at least one minute in either, hot (60°C) water, a two percent solution of household bleach or a five percent solution of salt, nappy cleaner, antiseptic hand cleaner or dishwashing detergent. A two percent solution is 200 ml, a five percent solution is 500 ml (two large cups), with water added to make 10 litres.
Dry: If cleaning is not practical (i.e. livestock), after the item is completely dry to touch, wait an additional 48 hours before contact or use in any other waterway.

Phillip Barclay, Senior Communications Adviser, Biosecurity New Zealand, phone 04 819 0432, mobile 027 229 9145, phil.barclay@maf.govt.nz
As is the case globally, biological invasions into New Zealand’s coastal marine waters are becoming increasingly apparent. There have been numerous local and regional evaluations which have provided a broad understanding of the current state of our marine biosecurity. Poor baseline information and a lack of consistency in approach, however, have prevented significant progress in identifying the underlying patterns of marine bioinvasions.

The best strategy for marine biosecurity to prevent or reduce the risk of new introductions. However, it is inevitable that introductions will occur, and there will always be a need for monitoring and surveillance.

New Zealand has developed a comprehensive marine biosecurity system incorporating pre-border, border, post-border and pest management activities. These marine biosecurity interventions are underpinned by a multi-tiered system for identifying what species exist at high risk entry points: ports and marinas.

The key purposes of this system are to:
- improve our knowledge of biodiversity and pest status
- provide baseline information against which the effectiveness of border control or other management practices can be measured
- provide a mechanism for early detection of marine pests to facilitate decisions about control or eradication; and
- allow for the detection of population distribution changes of existing pests.

This system comprises a range of information gathering activities, including:
- port baseline surveys using standardised protocols
- long term monitoring or resurveys using identical methods as the port baseline surveys
- active targeted monitoring for a suite of “unwanted organisms” identified under legislation
- passive surveillance through public awareness and reporting; and
- targeted delimitation surveys for individual incursions.

Baseline surveys

The port baseline surveys focus on high-risk points of entry into New Zealand, improving knowledge of biodiversity and providing a baseline assessment of the pest status at these locations. These also provide a consistent approach through the use of internationally recognised port survey protocols (Hewitt and Martin, 1996, 2001). Ports surveyed were selected based on the volume of ballast water received, the number of international vessel visits and the number of source countries represented.

Long-term monitoring

Long-term monitoring consists of a series of resurveys using the same methods as the baseline port surveys. These provide a measure of the rate of invasion, a measure of the success of border controls, vector and pest management actions. They also provide a variety of environmental performance indicators, i.e., habitat and community indicators, and species indicators.

The port baseline surveys and ressurveys have been conducted at 13 commercial ports and three marinas throughout New Zealand (Map 1). During the port baseline surveys over 1300 species were identified; 125 of these are known or suspected to be introduced. About 19 species were identified as new to New Zealand, while nearly 100 species detected were new to science.

Targeted surveillance

A targeted surveillance programme was implemented primarily to develop and evaluate a suite of monitoring techniques that could be widely implemented across New Zealand to provide a national active surveillance network. This programme has also provided regular scientific monitoring of eight major ports throughout New Zealand (Map 2).

Locations for targeted surveillance were selected based on habitat availability, restricted water exchange, a history of incursions, and the locations being high-risk points of entry into New Zealand.

Seven unwanted organisms identified

This surveillance programme targets marine species that have been registered as unwanted organisms under the Biosecurity Act 1993. New Zealand has so far identified seven species based on their global history of invasiveness; their likelihood of arrival in New Zealand, their potential to cause significant impact, and the suitability of New Zealand’s marine environment for their survival.

New Zealand’s unwanted marine organisms include:
- Chinese mitten crab, *Eriocheir sinensis*

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Pest management handover

Biosecurity New Zealand (BNZ) recently assumed accountability for five national-scale pest management programmes from the Department of Conservation (DOC): white bryony, pyp grass, rainbow lorikeets, hydrilla, and hornwort (South Island).

Under the Biosecurity Strategy, it was agreed that MAF would be accountable for these programmes from the 1st of July 2005. The hand-over from DOC to MAF was completed on time, and arrangements for managing the programmes have been agreed between DOC, MAF and regional councils. The first year is a period of transition, the aim being to maintain the management gains already made, while allowing breathing space to review the programmes. The reviews are part of a broader process to identify the priority national pest management programmes that MAF will manage after 1 July 2006. The transition year also allows time to develop the inter-agency systems and processes needed for effective and efficient national control of these pests. The implementation of the programmes will continue relatively unchanged over the current year. DOC will continue to do the operational work on the pyp grass, white bryony and the rainbow lorikeet programmes.

Tasman District Council will lead the operational work on the hornwort programme. Arrangements for continuation of the hydrilla programme are being considered, with continuance of survey and monitoring, along with some research, planned for this year. Regional councils also undertake pest management work on some of these five species, and have indicated that they will continue to do so over the coming year.

All four plant pests are unwanted organisms under the Biosecurity Act 1993 and cannot be sold, propagated or distributed within New Zealand. Rainbow lorikeets are also an unwanted organism. However, there is an exemption in place that allows for rainbow lorikeets to be kept within a secure cage, and bred and traded as a pet.

So, what are these pests, and why are they a problem?

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<th>White Bryony</th>
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- Mediterranean fanworm, *Sabella spallanzani*
- Northern Pacific seastar, *Asterias amurensis*
- European shore crab, *Carcinus maenas*
- Asian clam, *Potamocorbula amurensis*
- *Caulerpa taxifolia* (a marine aquarium weed)
- *Undaria pinnatifida* (a Japanese seaweed).

Of these seven unwanted organisms, only *Undaria pinnatifida* has been detected during these monitoring activities. This species was first reported from Wellington Harbour in 1987, and has since become widely established in ports and marinas throughout New Zealand.

**Passive surveillance**

Passive surveillance has also been conducted through increased public awareness and reporting allowing broader geographic coverage. To facilitate this, Biosecurity New Zealand has provided awareness information to the public, a toll free number dedicated to marine biosecurity issues (0800 INVADERS or 0800 468 233), as well as specimen identification where samples have been collected.

**Delimitation surveys**

Targeted delimitation surveys are undertaken for individual incursions to establish the extent of distribution and abundance of the target organism. These can also be used as a means to tentatively identify the source of the introduction and possible translocation vectors and risks. These provide valuable information that inform management decisions with regards to response or pest management. Biosecurity New Zealand is currently undertaking several projects that will contribute to the marine pest monitoring programme:

- continuation of the long term monitoring programme (port resurveys)
- development of a generic monitoring manual for targeted monitoring in collaboration with Australia’s Department of Agriculture, Forestry and Fisheries
- vessel biofouling research and risk assessment; and
- vessel movements patterns within New Zealand.

It is intended to expand the number of ports surveyed as part of this programme, to include high-value locations and sentinel sites; other government agencies will be included to allow the development of a national surveillance network. Ongoing risk analysis will be used to review the target species, and the range targeted will be adjusted accordingly.

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**References:**


**Hornwort**

**What is it?**
Hornwort is a submerged freshwater perennial weed growing in still or flowing waters to depths of up to 16m. It lacks roots and is often free-floating, although it can become anchored into sediment through its base leaves.

**Where is it?**
In the North Island it is present from Northland to Wellington. It is abundant in the Rotorua lakes and Waikato River system. In the South Island it has only been found at few sites in the Tasman district.

**Why is it a problem?**
Hornwort forms very dense masses of aquatic vegetation, crowding out native species and contributing to flooding and blockages. Rotting vegetation makes the water stagnant, killing flora and fauna. It has also caused serious problem in hydroelectric lakes in the North Island by clogging water intakes.

**How does it spread?**
It is very easily transported and spread by stem fragments.

**What action is planned?**
The objective is to prevent hornwort from establishing in the South Island. Control has been undertaken at all known sites in the South Island. Ongoing monitoring is determining the success of this control.

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**Pyp grass**

**What is it?**
Pyp grass is a perennial grass growing up to 1.5m tall.

**Where is it?**
It is currently present only in a few locations in the Hawke’s Bay and Wanganui regions.

**Why is it a problem?**
This weed spreads into native sand dune ecosystems and can adversely affect the biodiversity of these places.

**How does it spread?**
It grows from shallow rhizomes that enable rapid local spread.

**What action is planned?**
Continuation of the eradication programmes that are underway.

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**Hydrilla**

**What is it?**
Hydrilla is a submerged perennial aquatic weed that can grow to 9m tall in still or slow moving freshwater.

**Where is it?**
It is only present in four lakes in Hawke’s Bay, but it could spread to lakes, rivers and drains throughout New Zealand.

**Why is it a problem?**
Hydrilla forms a dense canopy across the water surface, excluding native aquatic plants. Wind can drive it against the shorelines where it smothers and shades other plants. It can also cause serious problems in hydroelectric lakes by clogging water intakes.

**How does it spread?**
It is primarily spread by stem fragmentation and is easily transported to other waterways. It also produces turions (small buds) and tubers that can sprout to form new plants. It is very difficult to eradicate.

**What action is planned?**
Currently no effective control method exists. Research will continue in this area. In the interim, a containment programme, including signage and rules around boat/net usage, will continue to help prevent its spread.

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**Rainbow lorikeets**

**What are they?**
Rainbow lorikeets are brightly coloured gregarious parrots. They feed primarily on pollen, nectar, and fruits, but will feed on grains. They nest in hollow limbs or trunks of dead or living trees, and are prolific breeders.

**Where are they?**
They currently can be found in the wild in the Auckland region. Reports suggest that the largest numbers are on the North Shore with smaller concentrations in Mt Albert/Remuera, Glendowie and Whangaparaoa. There have also been possible sightings of pairs in other locations, including Clevedon, Howick, Henderson Valley, and Waiheke Island.

**Why are they a problem?**
Rainbow lorikeets pose a threat to native species through direct competition for food with tui, bellbird and hihi (stitchbird), and through direct competition for nesting sites with kaka, hihi and kakariki. They pose a particular threat to those species whose survival is only possible on predator-free Hauraki Gulf island sanctuaries. They could also have an economic impact on New Zealand’s horticulture industry through the damage they can cause when feeding on fruit in orchards.

**How do they spread?**
No surprises here – they fly! In Australia they have been recorded travelling over 20km to offshore islands.

**What action is planned?**
Efforts are continuing to eradicate this species from the wild.

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### Photo acknowledgements:

Rainbow lorikeets: Graeme Taylor

White Bryony: used with permission from INRA, Malherbologie & Agronomie, Dijon.


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World-leading marine biosecurity research at Cawthron

By Katherine Edmond

Research and development is a challenging arena. New Zealand’s prosperity relies on an international reputation for innovation and world-leading expertise in niche areas and R&D is a crucial component of both. But, as no one knows better than the Foundation for Research, Science and Technology (FRST), it takes money and time – sometimes decades – for R&D to deliver the pay back. When it comes, however, it’s worth the wait as this profile of long-term FRST investment in marine biosecurity research at the Cawthron Institute demonstrates.

Despite being an island nation with a historical reliance on sea trade, marine biosecurity was not a priority research area when Mike Taylor started his investigations at the Cawthron Institute back in 1998.

“Very little was being done around the world, including New Zealand, and testing for marine threats was largely overlooked. The beauty of what we’ve been able to achieve is that the right messages have gone to government agencies and industry and this area is now receiving the focus it deserves,” says Dr Taylor, Biosecurity Research Manager at Cawthron.

FRST has invested $230,000 in the work led by Dr Taylor in each of the past seven years. Under a larger package of marine biosecurity and biodiversity research awarded to NIWA by the Foundation in July of this year, Cawthron will receive $630,000 a year for the next 12 years to continue its research.

The leading edge investigations by Dr Taylor’s team have made Cawthron scientists world leaders in marine biosecurity research with their input frequently sought in international forums, particularly on solutions to the spread of marine organisms by shipping.

“Our approach has been to do the science alongside government agencies and key players in the industry so that the results can be applied,” says Dr Taylor.

And that, according to Dr Marie Bradley, a Senior Business Manager with FRST, is behind the success of the Foundation’s investment in Cawthron’s marine biosecurity research.

“They have worked in partnership with industry players and stakeholders to develop practical solutions. With R&D the results don’t come overnight but, as this project clearly shows, the benefits are many and varied further down the track.”

Seachests harbour unwelcome passengers

One strand of the work by Cawthron’s Biosecurity Group has focused on investigating the contents of ships’ sea chests, the recesses on the inside of ships hulls that house seawater intake pipes. The group sampled 40 ships’ sea chests, discovering eight foreign species not previously found in New Zealand, 18 foreign species already established here, 57 natives and a wide range of other species yet to be identified.

As a result of its findings, Cawthron is working in partnership with Pacifica Shipping to trial ways to reduce the significant biosecurity threat posed by sea chests. This includes developing a system to allow easy underwater access to ships’ seachests, trialling the use of nets to trap sea chest organisms and a range of methods for treating sea chests, including steam sterilisation.

The Cawthron scientists have also undertaken New Zealand’s only work on finding practical methods of treating ballast water. They have developed a means of detecting the presence of high risk organisms in ballast water and pioneered a treatment that uses heat from a ship’s engine. They were also world starters on testing the efficiency of the traditional solution – mid ocean ballast water exchange.

Gene probe

Other outcomes from the research projects are just as impressive. The team has developed a molecular gene probe for detecting larvae of the unwanted northern Pacific seastar in ballast water. The probe is being trialled by Biosecurity New Zealand using ballast water samples collected from ships visiting New Zealand from Melbourne, Australia, where the seastar is present.

Ways of responding to new incursions and coping with marine pests already established in New Zealand have also been researched. For example, the programme has delivered a cost effective method of wrapping wharf piles to smother biofouling.

“We are very proud of our achievements in this area,” says Dr Taylor. “One of our staff, Ashley Coutts, has become an international expert in this field and is currently advising government agencies in the United States.”

Aquaculture biosecurity measures

Cawthron is also working closely with the aquaculture industry on management tools for the treatment of marine pests on aquaculture equipment. This includes environmentally friendly methods of removing biofouling pests from marine farm equipment and seed stock, such as airdrying, using fresh water, heat or water blasting. Fresh water treatment for ropes has been adopted by one mussel farming company.
Lab-based research into a biofouling treatment method for mussel farm seed-stock has been completed and the technology tested in hatchery sterilisation of shellfish and in moving mussel seed stock to a new deepwater growing region.

Dr Taylor says there is growing interest in many aspects of Cawthron’s work from the marine industry and regulatory authorities around New Zealand. For example a marine biosecurity risk management framework and risk assessment tools, such as the software package SHIPPING EXPLORER, have been developed and are being used in biosecurity management plans. This includes a plan being developed for the Nelson-Tasman Bay region which could become a blueprint for other regions.

The management framework also has applications in industry with, for example, Cawthron scientists working with a group hoping to establish a large oyster farm in the Kaipara Harbour and looking to use the framework as the basis for an industry code of practice.

“Our focus is on applying our research to practical problems and this has been a hallmark of this project,” says Dr Taylor, “and that will continue.”

For information about FRST and the range of investment schemes and criteria details:

- www.frst.govt.nz

FRST strategy managers who look after particular fields of research:

- Dr Fraser Broom
  Primary Industries, phone 03 963 2075
- Ruth Berry
  Ecosystems/Infrastructure, phone 04 917 7832
- John Kape
  Māori, phone 04 917 7831
- Ian Turney
  Global/Infrastructure, phone 03 963 2674
- Craig Holmes
  New Materials, Technologies and Services
  phone 09 915 4476
- Shane Stuart, Social, phone 04 917 7806

Unfriendly feathers?

Negligible risk from Asian countries with highly pathogenic avian influenza

Concerns have been raised that manufactured goods such as pillows, sleeping bags and duvets containing feathers from Asian countries may pose a risk of introducing avian influenza. Howard Pharo, Biosecurity New Zealand’s Team Manager Risk Analysis (Animal Kingdom) with Biosecurity New Zealand’s Pre-clearance Directorate, analyses the risk.

The commodities of concern include anything made from processed feather and down, such as pillows, jackets, sleeping bags or duvets. The hazard in this case is highly pathogenic avian influenza (HPAI) viruses of all types.

Survival of the virus

Because avian influenza infections affect the intestines, large quantities of virus are excreted in faeces of infected birds. Ducks have been shown to excrete the virus for as long as 30 days (Easterday et al, 1997).

Type A influenza viruses are relatively easily inactivated under a range of environmental conditions and routine cleaning. Influenza A viruses are very prone to physical and chemical change, and because of the lipid (i.e. composed of fats or oils) envelope, detergents and most disinfectants quickly destroy infectivity (Slemons and Brugh, 1994).

Under normal environmental conditions infectivity is lost relatively quickly – for example after 7 days at 20°C (Manville et al, 1996), and after 2 days at 25°C in the case of the 1997 Hong Kong H5N1 virus (Shortridge et al, 1998).

However, survival of HPAI viruses in the environment is increased in cool and moist conditions. For example, the viruses have been found up to 105 days after depopulation following an outbreak of HPAI (Easterday et al, 1997), and infectivity in faecal material has been retained for 30-35 days at 4°C (Manville et al, 1996).

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What makes a successful insect bioinvader?

Why do some insect species successfully establish in a new environment while others fail to take hold? This question is not always easy to answer.

While the reproductive potential of the species and its ability to survive particular environmental conditions in a new area are important for its survival, there are many other factors to consider. For example, for some species it takes large numbers of individuals and many opportunities to do so before they are successfully established while other species can establish a viable population with only a few individuals arriving in the new area. The numbers of individuals required to establish a viable population is often referred to as “propagule pressure”.

Research was carried out at Lincoln University to investigate establishment patterns of phytophagous (plant eating) insect species that have been intercepted at New Zealand’s border. This research involved the comparison of the climatic preferences and biological attributes of two groups of randomly selected insect species often intercepted at the border between 1993 – 1999. One group of 15 species have already established in New Zealand and therefore were considered to be successful invaders. The other group comprising 21 species have not established and were considered unsuccessful invaders.

Host plant range and development threshold

Results from this study show firstly, that the successful invaders had a significantly wider host plant range than species that have not established (Figure 1).

Secondly, the lower developmental threshold temperature (the temperature at which an insect will stop development) was on average, 4°C lower for established species compared with non-established species. Both results suggest that those species that have a wide host range and have a relatively low developmental threshold are more likely to establish viable populations in New Zealand.

Doing without males an advantage

No firm conclusions could be drawn about the importance of propagule pressure (for this study, the number of individuals arriving at the border) on establishment success. While the

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Effect of processing

Pasteurisation temperatures (i.e. 63°C) can significantly reduce the concentration of viable influenza virus. The final level depends on how much virus was present before treatment and how long heating was applied (Swayne, unpublished data, 2004).

Since most transmission is by the faecal-oral route, transmission of avian influenza between poultry farms via objects such as feathers is highly likely (Pirtle & Beran, 1991). Thus, since avian influenza virus have been reported in a wide range of avian species, and since transmission of influenza viruses is predominantly by the faecal-oral route, it is possible that feathers of various avian species could harbour avian influenza viruses. Indeed, the draft OIE code recommends specific safeguards (treatment for destruction of the virus) where feather meal is to be used in animal feeds.

Standard processes used in the feather and down industry would ensure that the likelihood of any viable avian influenza virus being present on these products prior to their use in manufacturing is negligible.

Feathers contaminated grossly by faeces are unsuitable for manufacturing because of their smell and their tendency to decompose. Such feathers would probably either be discarded or washed and dried prior to use. Washing the feathers in warm water using a non-ionic detergent would quickly destroy the infectivity of any avian influenza virus present. While production processes used in the feather and down industry vary, typical procedures for washing, drying and separating feathers and down would effectively kill any virus that was present.

Therefore, the likelihood of viable avian influenza virus being present in feathers and down prepared for manufacturing products such as pillows, jackets, sleeping bags or duvets would be negligible.

Risk of exposure

It is very unlikely that susceptible avian species in New Zealand would be directly exposed to feathers and down in products such as pillows, jackets, sleeping bags or duvets.

Conclusion

The likelihood of viable avian influenza virus being present in these commodities is negligible, and the likelihood of the feathers in these products coming into contact with susceptible avian species in New Zealand is also negligible. Therefore the risk of introduction of avian influenza viruses via this pathway is assessed as negligible.

References


reproductive rate or fecundity rate was similar between the two groups of species, the mode of reproduction appeared significant. The interception data indicated that insect species that have some means of parthenogenetic reproduction (ability to reproduce without fertilisation) are more likely to establish. Among the group of established species, 86 percent have a parthenogenetic phase in their life cycle compared with 29 percent of non-established species.

This study clearly showed how important it is that biological and physiological data for potential invasive species should be readily available. Unfortunately, for the species in this study such data was too sparse to draw definitive conclusions, reflecting the need for more extensive studies on individual insect species and more integrated data management to increase the exchange of information both nationally and internationally.

**Pinpointing climates similar to New Zealand’s**

A further aspect to this study was to identify, global areas that were climatically analogous or similar to sites in New Zealand to more clearly identify and rank possible sources of insect pest invasion. An eco-climatic assessment model, CLIMEX, was used to match the climate of global locations with the climate at New Zealand locations.

It was found that 15 regions were climatically very similar to New Zealand. Furthermore, New Zealand shared 90 percent of its insect pest species with the South East Australian region. South East Australia has close trade and tourism links with New Zealand and because of its proximity a new incursion in that analogous climate should alert biosecurity authorities in New Zealand.

Other regions in Western Europe and the East coast of the United States also share a high proportion of insect pest species with New Zealand (78 percent and 68 percent respectively – Figure 2).

Principal component analysis was used to investigate patterns in insect global distributions of the two groups of species in relation to climate. Climate variables were reduced to temperature and moisture-based principal components defining four climate regions, that were identified in the present study as:

- warm/dry (Mediterranean climates)
- warm/wet (tropical climates)
- cool/dry (continental climates); and
- cool/moist (temperate climates).

Most of the insect species established in New Zealand had a wide distribution in all four climate regions defined by the principal components and their global distributions overlapped into the cool/moist, temperate climate where all the New Zealand sites belong. The insect species that have not established in New Zealand had narrow distributions within the warm/wet, tropical climates.

Finally in the study, the predictive capacity of a new tool that has potential for eco-climatic assessment, the artificial neural network (ANN), was compared with other well-used models. Using climate variables as predictors, artificial neural network predictions were compared with binary logistic regression and CLIMEX.

Both CLIMEX and artificial neural networks showed potential to give insights into invasive species distributions.

This work was presented at the New Zealand Biosecurity Institute Conference held in Christchurch 27-29 July.

**Correction**

In *Biosecurity* 61:21 we reported on find made by MAF Quarantine Officer Anir Lal. In the item, Anir was referred to as “she”. We have since been informed that there was an error in our information source – Anir is in fact a “he”. Our apologies, Anir!
Integrated approach to welfare measurement sought

Animal welfare was the focus when Australian and New Zealand scientists joined forces in Sydney earlier this year at a workshop on the development of enhanced objective measurements of welfare.

The June workshop was hosted by Meat and Livestock Australia and Australian Wool Innovation, and included invited scientists from the EU and North America. The New Zealand farming industry sector was represented through Meat and Wool New Zealand. Groups interested in animal welfare, such as regulatory officials, veterinary representatives, RSPCA, other industry funding groups and government also participated, in a cooperative effort to facilitate increased research collaborations.

The aim was to develop a framework to progress an integrated approach to welfare measurement research including the best behavioural, physiological and animal health approaches for objective welfare assessment.

Two newer approaches were identified at the workshop as offering exciting possibilities: an enhanced understanding of animal emotive states, and the utilisation of the genomics revolution to identify key genes and gene expression profiles that are activated under various welfare conditions.

Initiatives such as the OIE development of animal welfare standards highlight the need for measures of animal welfare that can be used and accepted internationally. As animal welfare represents a complex synthesis of biological states, the workshop included scientists from a broad range of fields, in order to achieve a multidisciplinary approach. Veterinarians, physiologists, cognitive scientists, behaviourists, immunologists and molecular biologists interacted throughout the two days, with many animated discussions continuing at coffee breaks, lunch and even breakfast.

Each session included an invited presentation from a recognised leader in the field, designed to highlight the current state of the art, pose key challenges for the group and to stimulate debate.

New Zealand and Australia have many similarities in their farm animal production systems, and the attendance of welfare scientists from AgResearch, Massey University and HortResearch, provided an additional example of the cross-Tasman cooperation that is occurring in animal welfare research in a number of areas.

The workshop identified an integrated approach for combining the differing scientific disciplines in animal welfare assessment. This plan will enable scientists to develop and validate enhanced animal welfare measures relevant to the key challenges that occur for Australasian livestock, and will contribute to the production of science-based animal welfare standards in Australia and New Zealand, as well as internationally.

Methyl bromide and the Montreal Protocol

About 360 delegates representing over 128 governments, UN agencies, NGOs, industry and agricultural interests, and academia attended the 25th Meeting of the Open Ended Working Group and the 2nd Extraordinary Meeting of the Montreal Protocol on Substances that Deplete the Ozone Layer. This was held in Montreal, Canada on 27-30 June 2005.

The New Zealand delegation consisted of Nick Kiddle (Ministry of Foreign Affairs and Trade, head of delegation), Robyn Washbourne (Ministry of Economic Development), Alison Watson (MAF Policy), Sally Griffin and Ken Glassey (Biosecurity New Zealand). This level of representation ensured effective coverage of key issues and in-depth engagement on specific technical subjects.

Delegates discussed a range of issues in preparation for the seventeenth Meeting of the Parties to the Montreal Protocol (MOP-17), to be held in Dakar, Senegal, from 12-16 December 2005.

Topical issues discussed included:

**Non-quarantine and preshipment (QPS)**

**Methyl bromide phase-out difficulties**

Many countries are finding it difficult to phase out the use of methyl bromide for non-quarantine purposes. From 1 January 2005, all non-quarantine and preshipment use needs to be approved by the parties to the Protocol for developed countries. New Zealand has a critical use exemption of 40.5 tonnes for 2005 and 30.5 for 2006 specifically for the strawberry industry only.

**QPS methyl bromide use**

Concern continues to be expressed over the lack of data on QPS use, examples of very loose interpretation of the QPS definition and potential significant increases of methyl bromide use around the world through the introduction of the wood packaging standard ISPM 15 (see Biosecurity 59:12).

**European Commission proposal for faster processes**

The European Commission continues to put forward a proposal to amend the treaty to speed up listing ozone-depleting substances and introduction of new control measures.

Illegal trade of ozone-depleting substances

Many countries are stepping up efforts to help control illegal trade in ozone-depleting substances. New Zealand supports these efforts.

**Destruction technologies**

The New Zealand delegation presented a draft decision for starting the process of getting methyl bromide destruction methods approved by the Technical and Economic Assessment Panel. This will be presented at the 17th Meeting of the Parties (MOP) in December.

For a summary of the meeting:

- [www.iisd.ca/vol19/enb1941e.html](http://www.iisd.ca/vol19/enb1941e.html)

After the meeting, New Zealand’s nomination of Ken Glassey (Biosecurity New Zealand) to the QPS Taskforce was accepted by the Ozone Secretariat. This taskforce will look at the use of methyl bromide for quarantine and preshipment purposes and the feasibility of potential alternatives. The taskforce will report back to future Meetings of the Parties.

- Ken Glassey, Technical Adviser, Operational Standards, Pre-clearance, Biosecurity New Zealand, Phone 027 249 2318, ken.glassey@maf.govt.nz
The Animal Welfare Chapter of the Australian College of Veterinary Scientists held its 5th conference in July 2005, in association with the College Science Week. Dr Virginia Williams, from Biosecurity New Zealand’s Animal Welfare Group and the newly elected President of the Chapter, reports on this year’s scientific programme.

The College provides for postgraduate study for veterinarians who are not able to embark on an extensive programme of committed study, but who wish to extend their professional skills and knowledge. The College has over 1690 members and veterinarians are able to participate in examinations in a number of areas (Chapters).

The Animal Welfare Chapter is relatively new, but already ten New Zealand veterinarians hold membership, eight of them by examination. This year’s programme included presentations from five New Zealand speakers.

This year’s programme covered:

- production animals (welfare of livestock during export, mulesing, pig housing and welfare, auditing of poultry and dairy cattle welfare, shade and shelter for farm animals, pain perception in foetuses)
- companion animals (welfare issues, early desexing)
- research (neurophysiological techniques as tools in animal welfare research); and
- national and international updates in terms of research and regulation.

Some highlights included:

Are we speciesist in our approach to pain?

This workshop engendered lively discussion. Points raised by panel members covered the following:

- While there may be doubt about whether they feel pain in particular circumstances and about the character, intensity and/or duration of their pain, there is no doubt that animals do feel pain.
- If an animal avoids pain, chooses painkillers if available and shows behavioural changes to noxious stimuli, it can be assumed it suffers pain.
- Distinctions between farm and companion animal pain are spurious.
- Animal pain is down-played when remedies appear to be problematical for whatever reason.
- Doubters should prove that animals do not feel pain rather than require proof that they do. Neurophysiological techniques as tools in animal welfare research.

Dr Craig Johnson, from Massey University, spoke on his work using EEG measurements to quantify pain perception. He cited evidence that the cerebral cortex is the primary seat of conscious pain perception and that changes in the median frequency of the EEG are well correlated with pain-related events. This makes it a good candidate as a specific marker for nociception (describing a pain stimulus) and a useful means of investigating analgesia for painful manipulations in applied veterinary research.

Dr Johnson described the minimal anaesthesia model, which has been developed and used to look at the EEG effects of a variety of analgesic agents and noxious stimuli in several species of animals including deer, sheep, marsupials, rats and horses. Compared to more traditional approaches to studies of potentially painful manipulations, this model has the advantage that a negative control group can be included without compromising the welfare of the animals used in the study.

Mulesing

Dr Michael Paton, of the Department of Agriculture in Western Australia, spoke about the goals that have been set so that Australian wool industry can phase out mulesing by 2010, as they agreed in response to the PETA protests in 2004. (Mulesing is the practice of cutting away skin around the sheep’s backside to prevent flystrike.)

These goals include:

- Short term: ensuring that mulesing that is done is done well through competency-based national accreditation for operators supported by National Mulesing Guidelines.
- Medium term: ensuring that best use is made of technology.
- Long term: assessing the role of genetics in producing sheep with low flystrike risk, e.g. sheep without breech wool.

Virginia Williams, phone/fax 09 630 1197, vwilliams@xtra.co.nz

PEOPLE

Grace Clarke recently joined the Pre-clearance Directorate as Executive Coordinator. Grace is responsible for providing support to the management team and implementing business systems and processes within the Directorate. Prior to this, Grace was working in a similar role within the Investigation and Diagnostic Centres Directorate, also part of Biosecurity New Zealand. Before joining Biosecurity New Zealand, Grace was living in Melbourne and worked as a consultant for Fairfax Australia. She has a Bachelor of Arts Degree in Political Science from Victoria University, Wellington.

Paul Burridge has recently joined the Pre-clearance Directorate of Biosecurity New Zealand as Technical Adviser, Exports. He will primarily be working on forest exports and wooden packaging. Paul joins MAF from Jukon New Zealand Ltd in Gisborne, where he was working as a silvicultural supervisor overseeing various forest operations. While with Jukon New Zealand, Paul has had experience with various forestry activities, timber processing and producing manufactured board products.
Management team goes bush

Most Biosecurity New Zealand Executive Management Team (EMT) meetings take place within the four walls of offices but in June this year the EMT went offshore and outdoors. A two-day retreat was hosted by the Department of Conservation on Kapiti Island Nature Reserve and was an opportunity to spend time on one of New Zealand’s most important sites for bird recovery and see first hand the results of many years of pest management.

This was no holiday from biosecurity issues. Before stepping off the mainland the team was doing rodent searches through their belongings and checking for weed seeds under instruction from resident Kapiti ranger Dave Wilkinson. This is normal procedure for all visitors to the island, as is having rodent traps on the vessel that takes visitors there.

The island was first protected in 1897 because even then the potential of island sanctuaries was recognised. However there had already been successive introductions of exotic animals: kiore (Polynesian rats), Norway rats, sheep, cattle, deer, goats and possums, as well as major fires and extensive forest clearance for farming. These introduced animals were progressively eradicated from the reserve, with the last possums removed in 1986 and rats in 1996. Since the eradication of the rats, numbers of kakariki (red-crowned parakeets), robins, weka. The little spotted kiwi thrives on Kapiti but is now extinct on the mainland. A walk along the coast and another up to the highest point of the island brought the team close to rare plants, different forest types and some of the wildlife. An early morning outing was rewarded with the rare sight of four little spotted kiwi. The visit demonstrated first hand the practical problems and scale of the pest management task even on a small island, but equally showed the rewards gained when these programmes are successful.

12th International European Association of Fish Pathologists (EAFP)

Jennie Brunton (Technical Adviser, Animal Imports) recently attended the 12th EAFP International Conference on Fish and Shellfish diseases in Copenhagen.

This biannual conference is an opportunity to provide an overview of, and recent advances in, fish and shellfish diseases from a large number of experts from around the world.

Sessions covered a wide range of topics from fish pathology, epidemiology, ethics and welfare, infectious and non-infectious diseases, testing methods and health certification, diagnostics, vaccines and diseases of ornamental fish. Contributions came from various perspectives including the veterinary profession, government agencies, fish disease researchers, aquatic animal health industries and ornamental fish industries.

This conference was an excellent opportunity to learn about contemporary aquatic animal disease research. It was also a great opportunity to make key international contacts who will be able to provide assistance on Biosecurity New Zealand standards. Jennie’s attendance at the conference will directly benefit her involvement in setting and reviewing import conditions to prevent the introduction of aquatic animal diseases. The contacts and experience will also enable Jennie to provide more in-depth technical advice on aquatic disease issues.

Jennie Brunton, Technical Adviser, Animal Imports, jennie.brunton@maf.govt.nz

New import health standard

Import health standard for New Zealand-born domestic cats (Felis catus) returning with staff from the New Zealand Embassy in Beijing, the People’s Republic of China, dated 26 August 2005.

This new import health standard was initiated by Embassy staff returning from Beijing who wanted to bring their cat back to New Zealand directly. Risk mitigation measures consistent with those in place for cats from South Africa in conjunction with a diplomatic official’s declaration of pre-export isolation, reduced the risk of exotic disease incursion associated with these importations to an acceptable level.

Animal imports, Biosecurity New Zealand, phone 04 498 9809, fax 04 474 4132, imports@maf.govt.nz

Draft import health standard for consultation

As part of the consultative process in the development of the import health standard (IHS) for Carniolan honey bee semen, MAF has distributed the following draft documents for public consultation and comment:

Don’t bite the hand that protects you! A Kapiti Island weka getting to know MAF Assistant Director-General Barry O’Neil. (Photo: Hugh Davies.)

www.biosecurity.govt.nz

UPDATES

New IHS for the importation of Carniolan honey bee (Apis mellifera carnica) semen into New Zealand from specified countries, dated 6 October 2005

This draft IHS is based on the Disease Risk Assessment: Honey Bee Genetic Material 2003. This standard will replace the import health standard for the importation of Carniolan honey bee (Apis mellifera carnica) semen into New Zealand from Austria and Germany when it is issued.

Submissions on these draft documents should be forwarded to MAF by close of business on 18 November 2005. Depending on the results of consultation, it is anticipated that the new requirements will be in place by January 2006. MAF encourages respondents to forward comments electronically to the email address below. However, should you wish to forward submissions in writing, please send them to the address that follows:

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

www.biosecurity.govt.nz
For a copy of the disease risk assessment:

For additional information on making a submission:
- www.biosecurity.govt.nz/consultation.html#submission

A note about submissions
Submissions received by the closure date will be considered for the final issue of this import health standard. Submissions received after the closure date may be held on file for consideration when the issued standard is next revised/reviewed.

Please note that your submission is public information. Submissions may be the subject of requests for information under the Official Information Act 1992 (OIA). The OIA specifies that information is to be made available to requesters unless there are sufficient grounds for withholding it, as set out in the OIA. Submitters may wish to indicate grounds for withholding specific information contained in their submission, such as commercial sensitivity or a wish to withhold personal information. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

Amended import health standards

Import health standard for the importation of tropical butterfly and moth pupae into New Zealand
The following changes have been made:
- ERMA has approved an additional 60 new species and the revised ERMA containment controls have been incorporated
- Editorial changes have also been made
This standard is dated 24 August 2005 and replaces that dated 14 March 2000.

Import health standard for the importation of frozen canine semen into New Zealand from Norway, Sweden, Hawaii, the United Kingdom and the Republic of Ireland dated 1 September 2005

Import Health Standard for the importation of frozen canine semen into New Zealand from Belgium, Denmark, Hungary, The Netherlands, Canada, United States and the Republic of South Africa dated 1 September 2005

Import health standard for the importation of frozen canine semen into New Zealand from Australia dated 1 September 2005

All current canine semen import health standards have been edited and combined according to the congruent safeguards.
There are no changes to the current health conditions, testing or treatments required but the requirement for a permit to import has been removed.
These standards amalgamate and combine the following import health standards:
- Import health standard for the importation of frozen canine semen into New Zealand from the United Kingdom and the Republic of Ireland, dated 12 May 2003
- Import health standard for the importation of frozen canine semen into New Zealand from Hawaii, Norway and Sweden dated 12 May 2003
- Import health standard for the importation of frozen canine semen into New Zealand from Belgium, the Netherlands and Hungary dated 12 May 2003
- Import health standard for the importation of frozen canine semen into New Zealand from Denmark dated 12 May 2003
- Import health standard for the importation of frozen canine semen into New Zealand from Canada and the United States (excluding Hawaii) dated 12 May 2003

Import health standard for the importation of frozen canine semen into New Zealand from the Republic of South Africa dated 17 June 2004

Import health standard for the importation of frozen canine semen into New Zealand from Australia dated 6 July 2004

Import health standard for the importation specific pathogen-free chicken (Gallus gallus) eggs for laboratory use into New Zealand from Australia, dated 8 March 2005

Import health standard for the importation of chicken hatching eggs into New Zealand from Australia, dated 4 October 2005

Import health standard for the importation of chicken hatching eggs into New Zealand from Great Britain, dated 4 October 2005

Import health standard for the importation of turkey hatching eggs into New Zealand from Canada and the United States of America, dated 4 October 2005

Import health standard for the importation of turkey hatching eggs into New Zealand from the United Kingdom, dated 4 October 2005

The clause regarding avian influenza test protocols in the event of two positive/inconclusive ELISA results has been amended to require virus isolation by cloacal swabs.
The standards listed above replace those dated 14 July 2005.

Import health standard for the importation of poultry semen into New Zealand

Import health standard for the importation of nursery stock
Biosecurity New Zealand has revised the above standard, which describes the requirements for the importation of nursery stock.
The following revisions have been made:
- The import schedule for Ficus spp has been amended.
- Hosts (Cycas, Dioon, Encephalartos, Macrozamia, Stangeria, and Zamia) of Cycad scale (Aulacaspis yasumatsui) have been prohibited from Costa Rica and Vietnam, due to the suspected presence of this pest in those countries.
- The status of the following organisms have been changed from regulated to non-regulated as they have been removed from the unwanted organism register since they are present in New Zealand: Lily mottle virus, Iris severe mosaic virus, Iris mild mosaic virus, Nerine virus X, Lily virus X, Ornithogalum mosaic virus, and Erwinia rhapontici.
- French Polynesia has been added to the list of countries in which Xylella fastidiosa is present and, as such, hosts are prohibited.
- Rhizoctonia tuliparum has been removed from the Hippostrrum schedule as there is no clear evidence that Hippostrrum is a host.

Import health standard 155.02.05 Importation of seed for sowing
On the 26 September 2005, Biosecurity New Zealand revised the above standard, which describes the requirements for the importation of seed for sowing. The following changes were made:
- A new import schedule for Cannabis sativa seeds was added.
- Approval of imports of Avena, Hordeum, Triticum and Vicia seed from the Czech Republic; Pisum seed from the Czech Republic and Hungary; and Zea seed from Greece and South Africa.
- Erwinia rhapontici was removed from the Pisum and Triticum schedule due to the confirmed presence of this bacterium in New Zealand.

A note about submissions
Submissions received by the closure date will be considered for the final issue of this import health standard. Submissions received after the closure date may be held on file for consideration when the issued standard is next revised/reviewed.

Please note that your submission is public information. Submissions may be the subject of requests for information under the Official Information Act 1992 (OIA). The OIA specifies that information is to be made available to requesters unless there are sufficient grounds for withholding it, as set out in the OIA. Submitters may wish to indicate grounds for withholding specific information contained in their submission, such as commercial sensitivity or a wish to withhold personal information. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

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 09/08/2005 – 17/09/2005, and held in the Plant Pest Information Network (PPIN) database. Wherever possible, common names have been included.

### Animal Kingdom Records 09/08/2005 – 17/09/2005

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ycaploca sp. (Scolebythid wasp)</td>
<td>Unknown</td>
<td>Taupo</td>
<td>Landcare Research</td>
<td>This specimen was identified from a historical sample taken in the 1980s by Landcare Research (formerly, DSIR). Environmental impacts are thought to be low, given the lack of reports and noticed impacts in the 25+ years it has been here.</td>
</tr>
</tbody>
</table>

### New Host Reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No new host records during this period.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Extension to Distribution Reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ycaploca sp. (Scolebythid wasp)</td>
<td>Unknown</td>
<td>Hawke’s Bay</td>
<td>Landcare Research</td>
<td></td>
</tr>
</tbody>
</table>

Nasser Ahmed, Technical Adviser, Biosecurity New Zealand, phone 04 498 9809, fax 04 474 4132, nasser.ahmed@maf.govt.nz

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**UPDATES**

- The fungicide Wakil was included as an approved treatment to the *Pisum* schedule of special conditions.
- Removal of a duplicated declaration in the *Zea* schedule of special conditions and an amendment to the fungicide treatment rate for the active ingredient mfenoxam.

**Import Health Standard 152.02 Importation and clearance of fresh fruit and vegetables into New Zealand**
- Minor editorial changes have been made.
- Plant Imports, Biosecurity New Zealand, phone 04 819 0504, martin.van_ginkel@maf.govt.nz

**Import Risk Analysis for Sheep and Goat Genetic Material**

Comments are invited on a risk analysis for sheep and goat genetic material. The analysis concludes that, with appropriate safeguards, trade can be safely permitted.

The risk analysis can be obtained from MAF’s website or from the contact below. Submissions close on 15 December 2005 and should be forwarded to:

- Technical Support Officer, Risk Analysis, Biosecurity New Zealand, Ministry of Agriculture and Forestry, PO Box 2526, Wellington, New Zealand, phone 04 819 0370, wayne.ricketts@maf.govt.nz

**Codes of Ethical Conduct – Approvals, Notifications and Revocations since the Last Issue of Biosecurity**

All organisations involved in the use of live animals for research, testing or teaching are required to adhere to an approved code of ethical conduct.

- Codes of Ethical Conduct Approved: Nil
- Transfers of Code of Ethical Conduct Approved: Nil
- Code Holder Name Changes: Nil
- Amendments to Codes of Ethical Conduct Approved: Nil
- Notifications to MAF of Minor Amendments to Codes of Ethical Conduct: Nil

**Notifications to MAF of Arrangements to Use an Existing Code of Ethical Conduct**

- Deer Improvement Ltd (to use AgResearch Ltd’s code and the Invermay AEC)

**Codes of Ethical Conduct Revoked or Expired or Arrangements Terminated**

- Venous Supplies 1990 Ltd

**Approvals by the Director-General of MAF for the Use of Non-Human Hominids**

- Linda Carsons, Senior Policy Adviser, Animal Welfare, phone 04 819 0370, fax 04 819 0728, linda.carsons@maf.govt.nz

**Codes of Welfare – Update on Development, Issue, Implementation and Consultation since the Last Issue of Biosecurity**

**Codes of Welfare Issued:**
- Nil

**Codes of Welfare Coming into Force/Implemented:**
- Nil

**Consultation on Codes of Welfare:**
- Painful husbandry procedures (including castration, tail docking and dehorning of livestock): Final code anticipated to be presented to Minister of Agriculture fourth quarter 2005.
- Deer Code: Final code anticipated to be presented to Minister of Agriculture fourth quarter 2005.
- Cat Code: Final code anticipated to be presented to Minister of Agriculture fourth quarter 2005.
- Commercial slaughter code: Final code to be presented to Minister of Agriculture first quarter 2006.

**Codes of Welfare Under Development:**
- Dogs
- Dairy cattle
- Transport of animals by sea
- Horses

Wayne Ricketts, Programme Manager Animal Welfare, phone 04 819 0371, fax 04 819 0728, wayne.ricketts@maf.govt.nz

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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 09/08/2005 – 17/09/2005, and held in the Plant Pest Information Network (PPIN) database. Wherever possible, common names have been included.
## Validated new to New Zealand reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabavirus Broad bean wilt virus 1 (BBWV-1, Broad bean wilt virus 1)</td>
<td>Tropaeolum majus (Garden nasturtium)</td>
<td>Auckland</td>
<td>IDC (General Surveillance)</td>
<td>Biosecurity New Zealand is currently investigating this detection in a common weed.</td>
</tr>
<tr>
<td>Botryotinia sphaerosperma (No Common Name)</td>
<td>Allium triquetrum (Three-cornered garlic, three-cornered leek)</td>
<td>Auckland</td>
<td>IDC (General Surveillance)</td>
<td>This fungus was detected on a common weed, and is known from at least two sites in Auckland. DOC has been informed of the detection.</td>
</tr>
</tbody>
</table>

## Significant find reports

<table>
<thead>
<tr>
<th>Organism (Painted apple moth)</th>
<th>Host</th>
<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tela anartoides</td>
<td>PAM trap</td>
<td>Auckland</td>
<td>IDC</td>
<td>(Painted Apple Moth Surveillance Programme)</td>
</tr>
</tbody>
</table>

## New host reports

<table>
<thead>
<tr>
<th>Organism</th>
<th>Host</th>
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<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seiridium cardinale (No common name)</td>
<td>Calocedrus decurrens (Incense cedar)</td>
<td>Marlborough</td>
<td>Ensis* (Exotic Forest Survey)</td>
<td></td>
</tr>
<tr>
<td>Glomerella cingulata (Anthracnose, bitter rot)</td>
<td>Dypsis baronis (Sugar cane palm)</td>
<td>Northland</td>
<td>IDC</td>
<td>(Directed General Surveillance)</td>
</tr>
<tr>
<td>Cochliobolus cynodontis (No common name)</td>
<td>Dypsis baronis (Sugar cane palm)</td>
<td>Northland</td>
<td>IDC</td>
<td>(Directed General Surveillance)</td>
</tr>
<tr>
<td>Phoma sp. (Phoma leaf spot, phoma rot)</td>
<td>Agave attenuata (Agave)</td>
<td>Northland</td>
<td>IDC</td>
<td>(Directed General Surveillance)</td>
</tr>
<tr>
<td>Phomopsis sp. (No common name)</td>
<td>Agave attenuata (Agave)</td>
<td>Northland</td>
<td>IDC</td>
<td>(Directed General Surveillance)</td>
</tr>
<tr>
<td>Fusarium tricinctum (Fusarium rot)</td>
<td>Agave attenuata (Agave)</td>
<td>Northland</td>
<td>IDC</td>
<td>(Directed General Surveillance)</td>
</tr>
<tr>
<td>Colletotrichum truncatum (No common name)</td>
<td>Eryngium amethystinum (Amethyst eryngo)</td>
<td>Central Otago</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
<tr>
<td>Botryotinia fuckeliana (Botrytis blight, bunch rot, dry eye rot, grey mould, stem blight)</td>
<td>Foeniculum vulgare (Fennel)</td>
<td>Mid Canterbury</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
<tr>
<td>Pleospora tarda (Sooty mould)</td>
<td>Plantago lanceolata (Narrow leaved plantain)</td>
<td>Mid Canterbury</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
<tr>
<td>Pseudomonas fluorescens (No common name)</td>
<td>Brassica oleracea ssp. botrytis subgroup cymosa (broccoli)</td>
<td>Mid Canterbury</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
</tbody>
</table>

## Extension to distribution reports

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<tr>
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<th>Location</th>
<th>Submitted by</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colletotrichum truncatum (No common name)</td>
<td>Eryngium amethystinum (Amethyst eryngo)</td>
<td>Central Otago</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
<tr>
<td>Botrytis paeoniae (Paeonia grey mould)</td>
<td>Paeonia sp. cv. Coral Sunset (Peony)</td>
<td>Dunedin</td>
<td>IDC</td>
<td>(General Surveillance)</td>
</tr>
</tbody>
</table>

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* Ensis is the joint venture between Scion (formerly Forest Research) and CSIRO in Australia.
Exotic disease and pest emergency hotline: 0800 809 966
Animal welfare complaint hotline: 0800 327 027
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