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Protect Spring 2012

Magazine of the New Zealand Biosecurity Institute Contents

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NZBI news

From the Editor

t was a pleasure to talk to so many of you at NETS2012. Thank you all for your feedback on *Protect* magazine and for your suggestions and offers of story ideas. Please keep them coming in. As I work on the Archives Project I am aware that we need to record as much of the Institute and its members' activities as possible because the magazine forms an integral part of the history collection.

It was pleasing to see the Check, Clean, Dry sign displayed prominently at Taupo airport as I arrived. It was very relevant to the three days which were to follow.

Presently I am working with the Canterbury-Westland branch on planning next year's NETS on the West Coast. An update on NETS2013 is in this issue.

Best wishes Chris Macann Editor



News from the Executive

Kia ora and hello from the Executive.

'd like to begin by once again thanking the Central North Island branch and NETS2012 organising committee for hosting a memorable three days in Taupō. We can now look forward to a truly unique NETS experience that the Canterbury/Westland Branch is planning for us next year on the wild West Coast.

Returning from NETS back into the trenches of what seems like a never-ending battle to stem the tide of invasive species can often feel like treading water. But having witnessed the "never give up, no matter how hard it gets" attitude and determination that Didymo Dave inspired us with at NETS, it reminds me that every victory, no matter how small, is always worth the effort.

With that in mind, this year's AGM was evidence that despite the wide variety of disciplines, roles and organisations that our members represent, we speak as a single voice for the greater good of biosecurity. In a unanimous vote, it was decided that the NZBI would request a meeting with the Minister of Primary Industries to voice our collective concern for the loss of the Biosecurity NZ brand (as the former MAFBNZ was

... it reminds me that every victory, no matter how small, is always worth the effort



From left, Trevor James, Pedro Jensen, Minister for Primary Industries Hon David Carter, John Sanson and Bill Martyn.

merged into the new MPI). We can see the potential for the word "biosecurity" to fall out of the public consciousness, despite the fact that the Ministry had spent both time and money building awareness and brand recognition.

I am happy to report that a delegation from the NZBI had a productive meeting with the Minister on August 28.

Pedro Jensen President pedro.jensen@boprc.govt.nz

NZBI News

Canterbury/Westland Branch

he Canterbury/Westland branch is busy organising NETS2013 to be held at Shantytown. We are meeting this month to discuss among other matters the wide range of proposed field trips. A story on our progress appears in this issue. revegetation of a small piece of land on the Port Hills under the guidance of a very dedicated Keith Briden. Thank you to Canterbury members for their ongoing support of the project.

The branch also continues with its involvement in

Hugh Gourlay Canterbury/Westland Branch President

Central North Island Branch

he Central Branch has undergone a few changes with some very experienced people retiring. Walter Stahel and Des Pooley from the Bay of Plenty Regional Council have retired. The branch wishes you all the best for the future. Your participation and your knowledge that you have shared has been massive over the years. Thanks for all your help!

Also, Heidi Pene has stood down as Central Branch chair after three years, before which she was branch secretary for two years. Thanks for all your help Heidi!

The branch meetings are well worthwhile and a great opportunity to catch up, learn about each other's region and chew the fat, so to speak. I see these meetings as extremely valuable, they are a time to peer review the way we all do things, and get the opinions of knowledgeable people.

This year we co-hosted NETS2012 which went extremely well. It was great to have inspiring speakers who helped us all to leave better off than when we arrived. Taupo was the perfect place for people to catch up, talk about their projects and hear biosecurity stories from other parts of New Zealand. It was great to see people.

As part of the organising team it great to see 18 months of work come together. The highlight for me

was the first morning getting blasted out of my seat by the Taupo Nui A Tia College Kapa Haka group lead by Snow Rameka, followed by Llewellyn Foxcroft, Didymo Dave and Chris Jones, all encouraging us to keep the pressure on!

Now it is back to work, so here are a couple of things that are facing the Waikato at the moment. The Waikato Regional Pest Management Strategy is currently under review. We have just had feedback from the "discussion document". This document gave community leaders first opportunity to give feedback and make comment about the future of pest management in the Waikato before the proposed strategy/plan is formed, which should be sometime in November 2102.

Also, we have been involved in collaborative effort with Ministry of Primary Industries and Department of Conservation to manage the new sea spurge incursion off the Aotea Harbour. Survey work is currently under way with a couple of teams walking kilometres of beach searching for any sign of this nasty beach weed.

Despite agency changes, the pests keep coming and once again life in biosecurity is full of surprises. So keep looking, keep talking and keep smiling.

Darion Embling

Central Branch Biosecurity Institute Executive

NZBI News

Archives Project update

s well as responses to the NZBI Archives Working Group's request for material, information is also coming from tip-offs, in which case the working group is approaching individuals for information they may have.

It is most important to emphasise that nobody has to give up anything. All the information is for historical purposes and will contribute to the rich history of what has now become the New Zealand Biosecurity Institute.

In a separate stream to the collection of existing significant information and artefacts, Lynne Huggins has been working closely with archivist Pauline Porteous and oral historian Shona McCahon on an oral history archive and is seeking outside sources of funding for this part of the Archives Project.

For the first stage of the oral history project we are

From the Archives

... there has been some negative feedback from the South Island on the future of noxious plants control. Times are changing and will continue to change particularly with influences from [the] RMA, Biosecurity Act and a market economy. I urge you all to look for the possibilities in these changes ... Peter Ingram

President, Institute of Noxious Plants Officers *Protect*, Autumn 1994 keen to identify at least six people who we think should be interviewed. It will be important to get a good mixture from the past groups that have now formed the NZBI, as that background will help with the archiving project. It will also be good to get some representative coverage from parallel employment situations such as predecessors to DOC, regional councils and MPI, as well as independent contractors.

We need to target the most senior people first, as it's the early recollections that will be most valuable for the Archive Project as well as simply getting on the record. The more people on the list the better, as this will hopefully be an ongoing project – adding more interviews over the years.

Please let the working group know if you have information or items to contribute. Send any suggestions, thoughts or comments to: chrismacann@hotmail.com.

The more support we receive from members the greater the chance we will have of funding assistance from outside organisations. After all, the history of NZBI is very much part of the natural history of the country itself.

A timeline outlining key events in the development of the NZBI and its predecessors is available on the members section of the website.

The Archives Working Group is: Ray Clarey, Dave Galloway, Lynne Huggins, Pedro Jensen, Peter Russell. As well, we are working with a number of former members who we can call upon for advice.

Chris Macann NZBI Archives Project Co-ordinator

NZBI News

Concern over biosecurity branding

nstitute President Pedro Jensen, NPCA President Bill Martyn and Institute member Trevor James met Minister for Primary Industries David Carter on August 28 to discuss concerns about the future of biosecurity branding. The meeting was requested by Institute members at this year's annual general meeting at Wairakei. Pedro reports that the half-hour meeting was positive.

Here is the letter sent to the Minister outlining the Institute's concerns:



And the Minister for Primary Industries responds:

Actions speak louder than words Biosecurity has had its fair share of attention this year, from its key role in the merger of New Zealand's primary sector agencies, to being at the sharp end of a number of media stories. This highlights one thing - biosecurity is a very important issue. I often say it is my biggest priority as Minister, and it's why I want to talk about it in this issue of Protect. I particularly want to focus on my Ministry's vision of 'growing and protecting' New Zealand. I am aware of concerns raised by the Biosecurity Institute about the loss of the 'MAF Biosecurity New Zealand' brand as a result of the formation of the Ministry for Primary Industries. I want to allay these concerns. The loss of the biosecurity 'name' in the new Ministry's branding does not in any way lessen the Government's focus on biosecurity, or the role biosecurity has in protecting New Zealand's primary industries. New Zealand has a great biosecurity system, among the best in the world, and one that we can justifiably be proud of. The Government has a clear role in managing our biosecurity system, but every New Zealander has an important role, too. It's in all our interests to work together to protect the economic contribution of our primary industries, and to protect the unique environments and way of life that we all value. The importance of the whole primary sector to our economy was behind the decision to rename the Ministry of Agriculture and Forestry earlier this year. The merger of MAF, Biosecurity New Zealand, the Ministry of Fisheries and the New Zealand Food Safety Authority into one entity - the Ministry for Primary Industries - brought all government work across the agriculture, horticulture, fisheries and aquaculture, forestry and food sectors, animal welfare and, importantly, biosecurity, under one umbrella. To create a new name, specifically listing all these, was simply impossible. Instead, I believe Ministry for Primary Industries is logical. It recognises the broad role the Ministry has of growing and protecting the primary sector, the powerhouse of New Zealand's economy. It in no way lessens the important role of each area. While I can understand the concerns raised about the "loss" of Biosecurity New Zealand, this is about the important functions of the Ministry, not about its name. I want to reassure you all that biosecurity is, and will remain, my number one priority. And I expect the same of the Ministry's leadership. David Carter, Minister for Primary Industries September 11, 2012

News from the Ministry for Primary Industries

Caged carp show promise against weed

Ministry for Primary Industries-funded trial has shown grass carp in enclosures could be used to eradicate early infestations of aquatic weeds, doing away with the need to release large numbers of fish throughout a lake, and preventing damage to other plant species in the water.

Using grass carp to remove invasive weeds from waterways is an effective biological control, but it always comes at a cost – large numbers of fish are required, they remain in the waterway until they die and they indiscriminately remove all plants present, including desirable non-target species.

The study, carried out for MPI by National Institute of Water and Atmospheric Research (NIWA) scientists, found that if an unwanted aquatic weed species is detected at an early enough stage, there is potential to eradicate it using penned fish applied to the weed infestation. Once the target weed has been eradicated, the fish can be removed along with their enclosure.

MPI Senior Science Adviser Andrew Bell said the recent successful trial was carried out at Waikato's Lake Karapiro to treat the pest weed hornwort. The approach was so effective "that MPI now has it in the toolbox" for use should hornwort be found in South Island lakes, he said.

"Local iwi supported the project and are interested in the results and the potential to use grass carp as a biological control tool. They recognise that grass carp may have a role not only in biosecurity responses when hornwort occurs in new locations, but also as a potential invasive weed management tool in hydro dams and other sites in their areas."

Grass carp have been used successfully for the control of infestations of other invasive weeds in New Zealand lakes since their introduction from Malaysia in the 1960s. They are a natural aquatic weed controller and are unable to breed in the wild in New Zealand, unlike koi



The grass carp enclosure during construction.

carp, which breed and have become a pest species. NIWA principal scientist aquatic plants, Dr John Clayton said that as part of the study, the team built six large enclosures 2.5 metres deep and 6 metres wide, and placed them in hornwort beds in Lake Karapiro.

"The cages contained different numbers of fish in order to establish the most effective stocking rate required for rapid removal of nuisance weed within the enclosed area," he said. "Three to five fish per enclosure were found to be effective and very fast, with weed in the enclosed areas removed in nine weeks."

Designing escape-proof enclosures was challenging for the NIWA team, but Dr Clayton said the end result was an innovative design that had animal ethics committee approval.

The full technical report is at: <u>www.mpi.govt.nz/Default.aspx?TabId=126&id=1439</u>



Before: The enclosure with weed reaching the surface at the start of the trial.



After: Weed-free surface at the end of the trial. Photos: NIWA

News from the Ministry for Primary Industries

Ministry makes progress on kiwifruit

he Ministry for Primary Industries (MPI) is making good progress implementing the recommendations of the recent independent review of imports of kiwifruit plant material.

Director-General Wayne McNee said the Ministry had now completed the 10 actions set to be carried out by the end of August 2012.

In February 2012 Mr McNee commissioned the independent review of import requirements and border processes associated with imports of kiwifruit plant material in light of the outbreak of the bacterial vine disease PSA.

"In commissioning the report I wanted assurance that the Ministry is doing absolutely everything it can to manage biosecurity risk around products imported to New Zealand. If there were improvements to be made, I wanted to identify and implement them, " Mr McNee said.

The review report made six recommendations, five of which focused on improving systems at the Ministry. MPI accepted all six recommendations and identified 16 specific actions to implement these recommendations.

The recommendations, actions and progress is available at: <u>www.biosecurity.govt.nz/files/pests/psa/</u>progress-update-psa-management-action-plan.pdf.

"In addition to the 10 actions we have completed, four of the remaining tasks were to be started by today and I can confirm all have been initiated and partially completed. They are on track for delivery by the specified dates in 2012 and 2013," Mr McNee said.

The remaining two actions have longer time frames as they involve the creation of IT tools to establish information sharing with other agencies.

Five of the six recommendations by the independent reviewers proposed changes to processes and procedures to better identify, study and manage biosecurity risks around the border. The report's first recommendation is, however, different.

"This recommendation suggests the Ministry consider reprioritising its resources to better manage the risks to economically significant industries," Mr McNee said.

"MPI's decision-making and prioritisation processes include the consideration of a range of factors, including the costs and benefits of actions to protect primary industries, the natural environment and human, health and cultural values.

"As our existing assessments already recognise the scale of industries and their potential biosecurity risks, we believe the current MPI processes already deliver significant benefit to the higher value industries," Mr McNee said. "However, in line with Government priorities and the Ministry's Strategy 2030, the relative weighting of resourcing toward economic outcomes has been increased."

Nation-wide wilding conifer status report available

A report commissioned by the Ministry for Primary Industries on the status of wilding pine trees in New Zealand was released in July. The Ministry commissioned Pacific Eco-logic Limited to develop a current state report on wilding pine trees. The report assesses the wilding conifer situation across the country and identifies ways to improve wilding conifer management.

MPI worked with various stakeholders to complete the report including the Wilding Conifer Management Group (WCMG).

The report's recommendations have been endorsed by the broad range of parties represented at the WCMG.

MPI will lead further work to implement the key recommendations of the report through the development of a non-regulatory strategy. The report is now available on the WCMG website – <u>www.wildingconifers.org.nz</u>.



News from the Ministry for Primary Industries

Asian gypsy moth eggs intercepted

he interception of an Asian gypsy moth egg mass during border checks on an imported Japanese car recently shows New Zealand's biosecurity controls are working, says the Ministry for Primary Industries (MPI).

An MPI quarantine inspector located the egg mass on the wheel of an imported car at the Auckland Port, says Stu Rawnsley, Manager North Cargo.

Mr Rawnsley says border staff at the port have been on high alert for Asian gypsy moth egg masses following reports from Japan that this year's moth season is likely to be "heavy".

"We have also had reports from Canadian and United States authorities

that the number of egg masses on vessels arriving in their ports from Asia is increasing."

Mr Rawnsley says the ministry has staff based in Japan who verify MPI-approved industry systems for cleaning and inspecting used vehicles coming to New Zealand.

Border staff at the port have been on high alert for Asian gypsy moth egg masses following reports from Japan that this year's moth season is likely to be "heavy".

"This programme, combined with our own border inspections, provides a layered approach to combating biosecurity threats that has reduced the amount of egg mass finds we have had over the last few years."

He says inspectors pay particular attention to vessels that have visited high-risk ports.

"The moths are attracted to vessels at night and lay eggs behind light fittings and inside hatch covers where they are open for loading cargo."

Asian gypsy moths are considered internationally to be one of the most serious of all forest insect pests. They have caused widespread damage and severe economic impacts in the sphere

northern hemisphere.

In March 2003 a live adult gypsy moth was caught in an early warning trap in Hamilton. The find resulted in a large scale response by the then Ministry of Agriculture and Forestry. No more moths have been caught since then.

Seed importation reaps hefty fine

Chinese man was sentenced in Manukau District Court in August for attempting to bring a variety of unauthorised plant seeds into New Zealand.

Kwan Sang Cheng arrived at Auckland International Airport on a flight from Hong Kong. He filled out a Passenger Arrival Card and ticked "yes" to bringing in food but ticked "no" to possessing any plant material.

Mr Cheng was questioned by quarantine inspectors regarding his declaration of food and had his baggage inspected. The search revealed the plant seeds in his jacket. When asked what they were and if they were for consumption, Mr Cheng said they were not food and that he intended to plant them in a relative's garden in New Zealand.

He also stated that he knew the seeds could not be brought into New Zealand. He was convicted and fined \$2500 and ordered to pay court costs of \$132.89.

Ministry for Primary Industries Northern Region Compliance Manager, Greg Keys said there were biosecurity signs located around the airport, quarantine inspectors on duty, and amnesty bins clearly visible in the passenger arrival hall for the last-minute disposal of any items. So not knowing was not an excuse.

The maximum penalty for knowingly attempting to possess unauthorised goods is five years' imprisonment and/or a fine of \$100,000.

Call goes out to users to help keep Hunua kauri disease-free and healthy

Amanda Peart

ew Zealand is home to one of the largest and longest-living trees in the world: the New Zealand kauri (*Agathis australis*). These majestic conifers can grow more than 50m tall, with trunks greater than 16m in girth and live for more than 2000 years.

New Zealand may not have castles or pyramids as records of history but we do have these incredibly ancient and beautiful trees. Kauri are our castles; kauri are our taonga (treasures).

These giant trees support distinctive ecosystems high above the forest canopy. The branches of a large kauri (with epiphytes and nooks that collect water) provide a home to a range of native birds and many insects and native lizards live their entire lives in the branches of a kauri, never touching the ground.

Kauri forests once covered more than a million hectares from Kawhia/Tauranga in the south, to the far north of Northland. Sadly, logging and land clearance over the last 150 years has left less than 1 per cent of this original forest remaining – often in fragile fragments.

Some ecologically significant kauri stands still remain tucked away in the South Auckland region.

Unfortunately, these trees now face the further threat of kauri dieback disease, a soil-borne disease killing kauri trees in Auckland and Northland. Symptoms include bleeding gum at the base of the trunk, yellowing leaves, thinning canopy and dead branches.

Despite kauri dieback disease affecting many trees in Auckland and Northland forests, we still have some healthy kauri forests and one of these is the Hunua Ranges, including Hunua, Waharau and Whakatiwai regional parks.

The kauri in the Hunua Ranges have been confirmed as healthy after extensive aerial and ground surveys and their disease-free status makes them even more precious.

In the Hunua Ranges, cleaning stations for footwear and mountain bikes have been installed and large entrance signs remind visitors that they're entering a "healthy kauri area" and should make sure they clean their shoes before heading into the forest.

"This disease is spread by soil movement so could be brought into Hunua on visitors' dirty shoes and equipment," said Ali Thompson, Senior Ranger Conservation for Southern Parks.

"Everyone working in or visiting kauri forest should make sure their footwear and equipment, including bikes, are clean of soil when they arrive and clean it



Playing his part: a mountain biker cleans his bike to help prevent the transfer of kauri dieback to the Hunuas.

again when they leave.

"It doesn't take much effort to do this and it is the only way we are going to protect the kauri in Hunua from this disease.

"This is particularly important when people are going from a known disease zone like the Waitakere Ranges, to a healthy area such as Hunua," Ali said.

In Auckland, kauri dieback disease has been confirmed in the Waitakere Ranges Regional Park, council land in West Auckland and Awhitu Peninsula, Department of Conservation (DOC) reserves at Okura, Albany and Pakiri and Great Barrier Island and private land in many areas of Auckland. It is also in many areas in Northland.

Visitors to parks and reserves should also always keep to the tracks.

Visit <u>www.kauridieback.co.nz</u> for more information.

Long contribution to vertebrate pest management recognised

eith Broome is this year's recipient of the Peter Nelson Memorial Trophy. The trophy is awarded annually to individuals or organisations, for achievement in vertebrate pest management within New Zealand.

Keith began in the industry as a forest service ranger trainee more than 30 years ago. He transferred to the Department of Conservation when it was set up in 1987. He is currently a technical adviser for the Department of Conservation. He is part of a team maintaining DOC's quality management systems for pest management and provides advice on invasive species management.

Keith has been tireless in his quest to improve quality standards in pest control. The procedures he has developed include operational planning, safe pesticide handling practices, pest risk assessments and training courses which have ensured the benchmark standards for pest control within DOC are world-class.

He has also been involved in a string of eradication operations which lead to New Zealand being recognised as a world leader in this field.

His achievements include leading the goat eradiation team on Great Barrier Island in 1986, and being part of



The Peter Nelson Memorial trophy features a kokako among the bronze skulls of five invertebrate predators: rat, stoat, possum, cat and mouse. There is a false base inside which is a brief account of Peter Nelson's contribution to vertebrate pest management in New Zealand.

The kokako is carved from a kauri beam salvaged from an Auckland warehouse. The rings indicate the tree may have been 1800 years old when milled. The base is swamp Kauri from North Auckland aged about 38,000 years.



Keith Broome receives the 2012 Peter Nelson Memorial trophy from Peter Nelson's wife, Sheryl Gregory.

the rodent eradication scheme on the Mercury Islands in the 1980s.

In 1997 he was instrumental in setting up DOC's Island Eradication Advisory Group and is now its chairman. His group was set up to provide technical advice on eradication projects and island biosecurity.

This advice has helped ensure the successful eradication of a wide range of species from islands and sanctuaries in New Zealand and overseas.

Aside from this role he has also provided advice on a wide range of eradication projects including being DOC's key contact with the Pacific Invasives Initiative and advising it on island eradications.

He was on the Macquarie Island Steering Committee which oversaw the eradication of rabbits and mice from Macquarie Island. He is project manager for the Phoenix Islands Restoration Project, a MFATfunded project to eradicate invasive species in Kiribati. Among other projects he has also been involved in the Galapagos Islands, Alaska, Palau and Japan.

He has also been involved in developing DOC's Island Biosecurity Standard Operating Procedures to ensure pests do not invade New Zealand's offshore Islands.

Keith was presented with the trophy by Peter Nelson's wife, Sheryl Gregory.

Peter Joynt honoured posthumously

in pest posthumously

his year's Peter Ingram Award for enabling teaching and awareness of excellence management was awarded to Peter Joynt who died in



November last year. Colleague Don Mckenzie accepted Peter's Award from Paul Champion who summarised the qualities which earned Peter the honour. These qualities and Peter's career are celebrated in a tribute which featured in the Summer 2011 issue of Protect magazine. Among his gualities

Peter Joynt

was the value he placed on qualifications which would build the skills of plant pest officers.

The Peter Ingram Award is given to a member of the Biosecurity Institute who has successfully undertaken or enabled others to achieve, management.



relevant to pest plant education, control or Don Mckenzie, right, accepts The 2012 Peter Ingram Memorial Award from Paul Champion on behalf of the late Peter Joynt.



Presentation on conifer report earns stook

herman Smith from MPI was awarded the Rob McGuinness Stook Award for best presentation.

Sherman gave a presentation based on a report on the current state of wilding conifer management. The report combines existing knowledge, identifies issues and makes recommendations for improvements.

The "Stook" is awarded for the best paper presented by an NZBI member at NETS each year. The Stook is a cross between a sword, a stick, and a book - a record in wood. The stook is carved from Pacific Mahogany and was first presented in 1984 and is engraved with all the winners from past years, so it reads like a who's who of NZ biosecurity.

Sherman Smith, left, receives his award for Best Conference Presentation from NZBI President Pedro Jensen.



Taupo – there and back

David Brittain

R ather than fly to NETS2012, I took the opportunity to make the trip to the conference a bit of a photographic journey. Too much in recent times my work has kept me locked in the office and not experiencing my favourite thing to do – travelling around the most beautiful country on the planet; God's Own.

So rather than fly to Taupo or Rotorua from Christchurch, an expensive option, I took the ferry across Cook Strait and drove to Taupo, giving myself time to stop and take in some sights.

The drive and cruise across were spoiled by rain and flooding on the Monday. Tuesday started dull but just as I was travelling along the Desert Road, the clouds cleared, exposing the snow-covered peaks of Ruapehu and Tongariro. A sign pointing towards the mountains indicating the way to the skifield was irresistible.

Having dragged myself away from the mountains and driven through the on-going flooding from the previous day's rain, I arrived at the Wairakei Resort.

The conference was a great opportunity to renew acquaintances and catch up with what is new in biosecurity. I was pleased to see many new faces this year along with the same "old" crowd. I believe the number of registrations was up, encouraged by the full and interesting programme.

In the past I have spent most of my NETS conferences at animal and invertebrate pest talks, but this year, with Kiwicare's recent work on herbicide development, I took more interest in weed presentations. Consequently I learned much, including how much I still have to learn.

As is often the case, I was spoiled for choice on the field trips. I finally selected "Taupo – More than a Geothermal Wonderland". I had been to Taupo and surrounding areas many times before, but I had not previously had the time and opportunity to see any geothermal sights other than the puffs of steam emanating from geothermal vents in the cattle fields – at least I think the steam was from geothermal vents.

The trip gave me a chance to see some of the bubbling

activity, to learn more about these very different habitats and the threats posed by incursions of pest plants, animals and civilisation. Thanks go to Kevin Loe and Sarah Beadel for their guiding knowledge.

The first part of the field trip was to look at the Wairakei Golf Club which must be unique in having installed a pest-proof fence to keep unwanted mammals out, and, to Sarah's frustration, some exotic species in.

One of the issues with the fence was that it has a single automatic gate entry and it may not be fast enough to stop all pests entering. Ray Weaver of the Pohutukawa Trust managed to make it in just as the gate was closing.



Quick! Ray Weaver makes a dash to get through the gate in the Wairakei Golf Club's pest-proof fence while the club's manager Nigel Lloyd stands by.

The Craters of the Moon are a steaming cauldron of bubbling mud, fissures venting hissing steam and prostrate kanuka dripping with sulphurous dew. The restoration of these areas by removal of wilding conifers and pampas grass among other weeds was described by our guides. A difficult task carried out from helicopters or on foot, taking great care as no-one wants to be scalded by boiling mud. It is to the credit of our guides that no-one was lost during the walk around the area, as far as I know.

I was pleased to see that the workshops on Friday



Craters of the Moon: a difficult area in which to carry out weed control.

morning included one on GPS, Photos and Plant ID. As part of my work with Kiwicare I take inquiries from gardeners and others asking for identification of weeds and advice on control. My first choice of reference is always *An Illustrated Guide to Common Weeds of New Zealand* written by Ian Popay, Paul Champion and Trevor James. I had spent dinner the evening before with Ian. What a fascinating and dedicated man. Trevor gave the photographic portion of the workshop. Although I am a keen amateur photographer Trevor gave advice that I hadn't thought of for the best photographs of samples for identification. For example:

Take photos of as many parts of the plant as possible



Heidi Pene and Trevor James share the stage.

 leaves, flowers, fruit, bark, roots, whole plant – and the environment in where the plant is found.

• Avoid harsh sunlight and use a grey background such as a road, so that the camera's automatic light meter does not under or over exposed subject.

• For cameras with an adjustable aperture use a narrow aperture (high f-number) to give good depth of field.

Heidi Pene then advised on how to take, store, pack and send samples for identification and inclusion in a herbarium.

Trevor and Heidi's handouts have been added to the NZBI website.

The Annual General Meeting of the NZBI had some interesting discussion about what leadership the Institute should take in the light of the loss of the MAF Biosecurity branding. The Institute is a broad church and at times it has taken the position that it cannot represent all the opinions within the organisation, as some of them conflict. But there was unanimous support for an approach to the minister expressing the view of the Institute that the branding, and the effort that has gone into its development and recognition by the public should not be lost. I fervently hope that the Institute takes more such opportunities to identify consensus within the Institute and voice opinion to government, public and media.

After lunch it was time for the drive back south to catch the ferry to the mainland. Chris Macann, knowing of my photographic journey, suggested I go south via the wreck of the Hydrabad on Waitarere Beach, just north of Levin. I had a picture in my mind of the skeleton of a ship embedded in the sands of the beach with the waves lapping against it. I got to the beach just before sunset and quickly found the sign. But where was the wreck? Nothing in the water, nothing sticking out of the beach. A walk into the dunes and there in a hollow was a couple of beams marked by some kind soul with driftwood.

But the trip was not in vain, far from it – the sun was setting over the Tasman and I managed to add to my vast selection of sunset-on-a-beach photos with some of my favourites.

Latest News

What did I do? I go on a geothermal trip, drive up to overlook Tongariro and two weeks later the mountain awakes after slumbering for over 100 years. I promise, I didn't touch anything.

Strength borne of working together

Chris Macann gives a brief overview of three very busy days.

ore than 210 people attended the 62nd Annual National Education and Training Seminar (NETS) at Wairakei in July. This year's theme: Pests in out Dynamic Landscapes – the pressure is on.

Institute President Pedro Jenson and National Pest Control Agencies Chair Bill Martyn welcomed participants to the first combined training event for the two organisations.

"I think that we should celebrate the fact that, at the coal-face, we can all see the strength that is borne from working together," Pedro said.

Bill said the benefits of aligning both technology transfer events were evident in the programme.

"The conference is an opportunity to present on the latest research and best practice aspects of vertebrate pest control. At the same time the conference papers are of direct relevance to NPCA's target audience," he said.

A rise in pressure

Pedro noted the rising pressure within the biosecurity industry.

"Super-ministry mergers, local government reforms, and the ever-tightening of belts at all levels, means that now more than ever, we need collaborative vision. purpose, and effort to overcome these constraints and remain a world-leader in biosecurity innovation and implementation," he said.



New Zek

Biose

Lauri Burdett formally opened Keynote speaker the conference by highlighting Llewellyn Foxcroft talks some of the biosecurity gains about biosecurity chalin the host area, like keeping lenges in South Africa. didymo at bay, removing a

large number of wilding pines and substantially eradicating Tb from the Lake Taupo catchment.

Taupo Nui A Tia College Kapa Haka group lead by Snow Rameka performed a rousing welcome to the host region.

Keynote speaker Llewellyn Foxcroft (Invasion Ecology programme manager for South African National Parks) explained the challenges faced by biosecurity staff in South Africa.

"When you get up close to a hippo you realise you can't

run on water - it becomes a little bit uncomfortable," he said.

Dave (Didymo) Cade from DOC gave a passionate and memorable presentation on conservation intelligence. He said conservation intelligence was no different than academic intelligence. "Keep turning the seeds out, sooner or later you're going to get a harvest," he said. As for communicating the message: "Get a plan and a honk-honk brigade behind you," he said.

A recording of Dave's presentation is available on the NZBI website.

Chris Jones (Landcare Research) discussed how to monitor whether the pressure was working. He warned, beware of the words, "do I have a deal for you".

Institute President Pedro Jenson, left. and National Pest Control Agencies Chair Bill



Plenty on plants

Wilding conifers, horsetail, tutsan, old man's beard, termites and Japanese pine sawyer beetles were all addressed in break-out sessions. Peter Raal (DOC) spoke about success with aerial control of wilding conifers with a mix dubbed Lucifer. Ronny Groenteman (Landcare Research) spoke about the challenges of proving incontrovertibly the effectiveness of biological control using St John's wort. Craig Davey evoked images of dinosaurs as he spoke of controlling the spread along roadsides of the prehistoric plant pest horsetail.

Vertebrates

Effective monitoring, effective baits and traps, aerial control and non-target species were all discussed in connection with vertebrate control - possums, rabbits, stoats, wild deer and rats in particular. Alan Dicks (Animal Health Board) entertained on the topic of counteracting pseudoscience, scuttlebuck and scaremongering in the 1080 debate. An earlier account of Alan's presentation appeared in Protect magazine (Winter 2012).

Marine menaces

Marine pests and their control were covered including a hydro-generator's perspective by Cam Speedy from Genesis energy. Jenny Brunton (MPI) spoke of the unique challenges posed for the control in Fiordland and the audience to the fruit fly. imaginative solutions that were used.



of Undaria pinnatifida Rory MacLellan introduces his

Shaun Bennett explains the peril of

termites to Campbell Perrin, centre,

Insect invaders and diseases

Rory MacLellan (MPI) gave an overview of the

New Zealand fruit surveillance flv programme and Shaun Bennett (MPI) talked about the sleeping risk of termites. Nick Waipara (Auckland Council) spoke of the threat from kauri dieback to some of New Zealand's iconic forests.

For the ducks

The Southern

Lake field trip

took participants to Waimarino Reserve, an extensive wetland where DOC and Project Tongariro are controlling willows.

and Mel Galbraith.

The group heard from Garth Oakden, chair of the Blue Duck Charitable Trust, which manages many mustelid traps on the Tongariro, Manganuioteao and Whakapapa rivers to help protect blue duck hatchlings. The programme has been so successful that numbers of blue duck are rapidly increasing and to the extent that the trapped habitats are now at carrying capacity and pairs are migrating to new territories in other catchments.

Cam Speedy (Genesis Energy) spoke about managing hornwort in Lake

Rotoaira and the risks invasive freshwater pests pose to business.

Rohan Wells explains the natural history of Lake Taupo.



Paul Champion discusses aquatic pests with Ann Thompson



What lies beneath?

Aquatic weeds and the long history of Lake Taupo since it's eruption were the topics covered by Rohan Wells (NIWA) on the Cruising the Crater field trip. Rowan's underwater video, filmed the day before, made visitors feel they were seeing a real-time view of what lay beneath. Paul Champion (NIWA) assisted with identifying the friendly and unfriendly plants.

Geothermal challenges

Restoration work at Wairaki Golf and Wildlife Sanctuarv was part the "More than a Geothermal Wonderland" field trip which looked at some of the interesting biosecurity challenges posed in some of Taupo's hot spots like Craters of the Moon and Otumuheke Sream. See David Brittains story "There and back Again" for more Information on this field trip].

Rangitaiki Station

A visit to 9700 ha Rangitaiki Station which winters more than 81,000 stock units including deer, sheep, beef and dairy grazers revealed a history of intensive TB vector control since the 2000 as well as efforts to protect remaining areas with biodiversity values particularly from invasion by pinus contorta.

More than just trotting into the wilderness

There's more than simply grabbing a unit and trotting off into the wilderness was a key message of GPS, photography and sample

Trevor

workshop.

Heidi

James.

Pene and Kevin Loe led

kept dry or left in water, he

said. Kevin pointed out the

importance of practising

using new technology.



Heidi Pene demonstrates how to take a specimen photo in the field.

[See David Brittains story "There and back Again" for more Information on this workshop].

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Monitoring the effectiveness of vertebrate control, co-ordinating a national weeds database, community involvement and handling toxins were other wellsupported workshops.

Biosecurity Branding

A spirited Annual General Meeting saw healthy discussion on concerns over the possible loss of Biosecurity New Zealand branding and a resolve to discuss this with the Minister for Primary Industries.

Well deserved

Sherman Smith's talk on wilding pines won him the **McGuinness** Rob Stook Award for best presentation, Keith Broome is this year's recipient the Peter of Nelson Trophy for Excellence in Vertebrate and the Ingram Award for Sue. enabling teaching



Vertebrate Pest Last year's winner, Dean Management, Roughton, presents the clay and the Peter shooting trophy to winner Gary Ingram Award for Sue.

and awareness excellence in pest management was awarded posthumously to Peter Joynt. Gary Sue is this year's winner of the Clay Bird Shooting trophy. The awards were presented at the conference dinner and dance where biosecurity colleagues and friends caught up, swapped ideas and relaxed the night away.

Shared learnings

Keynote speaker Llewellyn Foxcroft summed up by saying that although the biosecurity problems are different in South Africa there is a lot both countries can learn from each other.



Iryll Findlay explains her poster.

President Jensen closed the conference reminding participants that we live in a country with a mature biosecurity system by world standards.

"It humbles me to our keynote hear Llewellyn speaker speak of the enormous physical scale of invasion they are up against in South Africa especially when the fight sits within a context where conservation has to take a back seat to

things we take for granted here in New Zealand."

He said the strength of the Institute was its collective will to continue fighting despite financial constraints and when the battle seemed unwinnable.

"I saw first hand ... the shared vision and purpose ... as we unanimously decided to stand up as an institute and collectively voice our concerns for the unexpected loss of biosecurity branding in the public consciousness. It encourages me that the walls between organisations broke down as we shared this common willingness," he said.

The conference handbook is archived on the Institute website with brief summaries of most of the presentations.

Shake It Up Next Year

The Canterbury/Westland branch will host next year's event. NETS2013 – Shake it Up will be held at Shantytown on the West Coast and aboard the Trans Alpine Train July 31 to August 3, 2013.

Images from NETS2012



Amidst the steam on the geothermal field trip.

'We unanimously decided to stand up as an institute and collectively voice our concerns for the unexpected loss of biosecurity branding in the public consciousness. It encouraged me that the walls between organisations broke down as we shared this common voice,' President Pedro Jensen



Lucy Roberts, Kiri Te Wano and Cam Speedy at Opotaka.



Dave Moverley and Richard Calvert.

'If we could bottle the passion burning within Didymo Dave and sneak it into the water supply ... the collective conservation intelligence would go through the roof,' President Pedro Jensen on Dave Cade's presentation about didymo and community empowerment.



Cam Speedy from Genesis Energy speaking at Opotaka Lake Rotoaira.



Unitec student Rose Graham makes her poster presentation.



Barry Green, Heidi Pene, and Laurie Burdett at Craters of the Moon.



Didymo Dave Cade's version of total defiance when all else fails.



Pet subject: Jaap Knegtmans talks about the pet trade.



Ben Elliot and Sheryl Gregory.



The challenging welcome performed by Te Awhiorangi from Taupo Nui A Tia College.



Wayne McClellan (Key Industries) talks to Nick Poutu (DOC) left and Grant Morriss (Landcare).



John Sanson, left and Kevin Sigglekow.





Bev and Ray Clarey.

'I can't bring myself to use it,'

Canterbury-born Peter Russell on Waikato's iconic cow bell as a time-keeping device



A study in rock: Ray Wilman, right, Matt Kavermann and Jillian Fulcher.



Sarah Beadel and Kevin Loe amidst the steam.



Garth Oakden talks about predator control to protect the blue duck.



From Left; Llewellyn Foxcroft, Michael Urlich, Tim Park and Dave Halliday.

'Get a plan and a honk honk honk brigade behind you,' Didymo Dave Cade



All aboard: Randall Milne and Wendy Mead.



Kevin Loe on the importance of practising using technology to process field samples, photos and videos.



Unitec Students: Jessica Devitt, Lisa Gardner, Iryll Findlay, Mel Galbraith (lecturer), Josie Galbraith and Cheryl Krull (both from University of Auckland), Lydia Tyrrell, Rose Grham and Trina Smith.



David Brittain and Ronny Groenteman.



Peter Russell, left and Chris Jones.

"If that ship was the Enterprise you'd need a worm factor three or something". Don McKenzie on marine biosecurity.



Pack-up time: From left Peter Visser, Frank Visser and Campbell Perrin.



Andrew Blayney, left and Rod Smillie.







Bryan Richie pays close attention to what lies beneath.

'When you get up close to a hippo you realise you can't run on water - it becomes a little bit uncomfortable,' Llewellyn Foxcroft on biosecurity hazards in South Africa.



Shooting stars: Busting clays winner Dave Paine and Mike Karl. Cary Sue and runner-up Craig Smith.





Darion Embling introduces the audience to the timekeeping cow bell.

'Unfortunately the more pristine the lake, the less nutrients you need to change it,' **Paul Champion**



Craig Davey explains the evils of horsetail.



Frank Visser left, and Wynne McClellan both from Key Industries.

'Once you start looking you come up with some uncomfortable truths,' Don MacKenzie on what lies beneath in marine biosecurity.



Kirsten Crawford, Kerry Bodmin, Heidi Pene and conference organiser Carolyn Lewis who all contributed to organising NETS2012.

NETS2013 Shantytown, West Coast



NETS2013 Organising Committee Chair Hugh Gourlay at this year's event inviting members to the West Coast next year.

The NETS2013 Organising Committee is presently working through a wide range of suggestions for field trips. We have been spoiled for choice thanks to the assistance of West Coast members Tom Belton and Mary Trayes. Affordable accommodation and transport are priorities for the organising committee.

As well we have a wide variety of Coast history and biosecurity-themed functions to consider at our next planning meeting.

A draft copy of the proposed programme is available on the NZBI website at:

http://biosecurity.org.nz/nets/next-nets/.

The committee comprises: Hugh Gourlay (chair), Tom Belton, Mary Trayes, Chris Macann, Ray Maw, Anna Paltridge, Richard Hill, Bill Martyn, Pieter Borcherds, Keith Briden, David Brittain, Graham Burnip, Hamish Maule, Kerry Thomas, Maurice Kennedy, Ronny Groenteman and Kevin Gallagher.

NETS2012 conference organiser Carolyn Lewis has accepted the challenge of organising the gathering once again next year.

The NETS2013 Organising Committee

Students showcase their research

our Unitec students got a taste of the world beyond their studies at NETS2012, with three presenting scientific posters and one giving an oral presentation.

The three Unitec posters on display at the conference showcased work done as part of the Auckland Council's summer student programme on Kawau Island to survey for Argentine ants and rainbow skinks.

The talk was done by fellow Unitec student Lydia Tyrrell, who presented her work undertaken during the summer for the Treasure Islands campaign. Lydia did a six-week survey programme of ferry passengers, commercial operators and boaties to determine the "pest-free" island and biosecurity awareness of people travelling to the islands in the Hauraki Gulf. In addition, the survey aimed to assess people's knowledge of invasive species impact and the biosecurity practices to prevent invasion.

"I loved meeting people and being outdoors for the summer, and feeling as though I'd helped in raising awareness of biosecurity issues," said Lydia, who was assisted by contractor Aran Naismith, who did surveys at wharves and airports on Great Barrier Island.

Lydia said the experience at NETS was very positive and motivating.

"I was able to hear talks from, and meet many experts working in the biosecurity field in New Zealand and become enthused by the excellent ideas of some of these experts."

"Together, Auckland Council and the Department of Conservation run the 'Treasure Islands' awareness campaign for pest-free islands and this survey work was really valuable for us as it showed us where the work needs to be done to better spread the word," said Jeff Cook, Hauraki Gulf Biosecurity specialist at Auckland Council.

The six-week field studies on Kawau were undertaken by students Lisa Gardner and Rose Graham who were looking into the presence and absence of Argentine ants, and Jacqui Wairepo who was looking for rainbow skinks. Both of these species are invasive pests that have an impact on our native ecosystem.

"I loved every minute of NETS2012 and I am already planning on going to next year's conference," Lisa said.

"We got to meet a lot of people already in the industry and make some contacts for when we go to look for a job at the end of our degree. We also got to learn a lot about what's going on in New Zealand's biosecurity sector."

"I was able to see what is currently considered important for research to professionals in the biosecurity field, gain ideas for my own potential future interests and gather contacts. NETS was insightful, informative,



Lisa Gardner explains her research project.

fascinating, and inspiring," Rose said.

Although unable to attend NETS2012, Jacqui Wairepo put together a poster on her work, and is inspired to continue with a Masters in Conservation Biology.

"I've always liked reptiles but this work has given me the opportunity to really study them in depth and I'm definitely interested in pursuing that direction," Jacqui said.

"The work by Rose, Lisa and Jacqui on Kawau was incredibly valuable for us and we're really lucky that that no new populations of ants were found and no rainbow skinks were found at all. We can now concentrate on the two known ant sites, and hopefully eradicate them and continue education on both species," Jeff Cook said.

All four Unitec students are in their final year of a Bachelor of Applied Science which has majors in Biodiversity Management and Animal Management and Welfare and are passionate about continuing in the biosecurity or related environmental fields, either in the workforce or through further study.

"These studies gave the students valuable applied field experience and data for the completion of their third-year negotiated study projects. It's a fantastic learning experience for our students both in the field and for them to present their work at NETS," said Dr Diane Fraser of Unitec.

"The partnership with Auckland Council started as a conversation at last year's NETS conference and has been a win-win for all parties. Considering the short time-frame that the students had for these projects, we are delighted that they have been successful in the presentation of their work this year," Dr Fraser said.

This story contributed by Unitec

Reporting back on Living Data – the Dataversity conference on biodata

James Lambie

Sunday 27 August 2012, Neil Armstrong, the pioneering spirit of space exploration passed away. On the same day, the participants of Living Data – Dataversity's conference for 2012 kicked off with a foray into the diversity of terrestrial life forms at Otari-Wilton's Bush native botanic garden and forest reserve.

There we remembered another pioneering spirit – Dr Leonard Cockayne. The work of these two explorers helped popularise science, they increased our access to knowledge of things our forebears could only imagine, and their endeavours continue to influence the way our society thinks about our place in space and on planet Earth. I doubt Living Data could have started more auspiciously.

Living Data was an opportunity for biodiversity and biosecurity data and information practitioners to get together for a couple of days and collectively do our bit to change the world – even just a little. The conference showcased current efforts to integrate data, highlighting the inter-agency collaboration toward data federation.

The day culminated in the launch of the New Zealand Organisms Register (NZOR) – the backbone of a

federated system.

The workshop was spent exploring further opportunities to collaborate and identify the next steps toward the holy grail of agreed data standards and database interoperability. Why – because we are coming to realise that management of biological data is too complex and expensive for us to continue to develop systems in isolation of each other. Working collaboratively on a network of federated biodata systems offers untapped gains in efficiency and effectiveness.

By employing common data collection and management practices and reducing data and database duplication, the cost of implementing data management systems can be shared. By increasing access to data, we increase the potential for re-use. By increasing collective awareness of the location, state and trend of biodiversity values and biosecurity threats to biodiversity and productive capacity, we have a more informed community.

By working collectively and federating biological data, we can make better decisions for better environmental outcomes locally, nationally and globally. Go to Dataversity.org.nz to join the movement.

Comment

A few minutes with Mike Joy

Mike Joy is a Senior Lecturer in Ecology and Environmental Science at Massey University, Palmerston North, researching and teaching freshwater ecology, especially freshwater fish ecology and distribution, ecological modelling bioassessment and environmental science.

He is a director of the Massey University Centre for Freshwater Ecosystem Modelling and Management. Mike has developed a number of bioassessment tools and associated software. He is an advocate for environmental protection in New Zealand and has received a number of awards. **Sara Moylan** had a few questions for him.

What do you see is the one most important thing we could do to improve the quality of our waterways?

Overall the two biggest impacts on the quality of our waterways are excess nutrient and sediment. Dependina on where you are in the country or along a river either one or both are the culprits. The sediment is mainly from native forest clearance but also plantation forestry, and engineering work like subdivisions, road making and flood control. The nutrients are mainly from intensive farming but also human waste. The industrv often farmina points the finger at human waste impacts, but to get



Mike Joy shares his passion.

a handle on the relative impacts of the cows and people, the human population is around 4 million and the human equivalent of waste from our 6 million cows is 70 million, so the answer is simple really.

Dairy farming is no longer a natural process where sunlight and rain are combined to grow pasture to be grazed by cows. Instead it is an industrial process much more like a factory where trucks bring in through the farm gate raw materials like imported palm kernel, phosphorous mined in Morocco and nitrogen derived from fossil gas at Kapuni. The land alone could only support a small proportion of the number of cows we now have and the impacts grow exponentially with each cow added. A relatively small proportion of this nutrient goes out the farm gate in milk tankers, the rest leaves the farm through the soil and into waterways to pollute lakes, rivers and soils. Of this a relatively small amount travels overland into waterways in rainfall, by far the majority, mainly nitrogen from urine, travels through the soils into aquifers and into lakes and rivers subsurface. When a cow urinates many tens of litres hit in one spot so the grass can't possibly take it up, so the solution is either less cows or put them in sheds so the waste can be collected and processed or spread over the land so that it can be used by grass.

Nutrients don't kill stream life directly, the effects are secondary by causing algal proliferation that smothers life in-stream and makes it not nice to swim or fish

in, but worse, nitrogen and phosphorous lead to huge fluctuations in dissolved oxygen. A good example is the Manawatu River at Hopelands Road where the majority of the catchment is dairy farming. Here in summer, dissolved oxygen fluctuates between 40% and 140% over a 24-hour period. This is disastrous for fish and stream life – most can't survive unless

'I keep reminding myself that academics are supposed to be the conscience of society, which is our job after all.'

> Mike Joy Ecology lecturer

Comment

they gulp oxygen from the surface like goldfish in a bowl. Bizarrely our water monitoring (Ministry for the Environment minimum from one-off sample is 85%) is a one-off snapshot in the middle of the day so that all that crucial variability is missed and the oxygen levels appear fine.

The main impact of sediment is what is deposited on the bed because it seals off the majority of the habitat for native fish and their food - the stream insects.

But guess what? Just like dissolved oxygen we don't measure that as part of water quality. So the two biggest impacts aren't measured - little wonder our politicians are so ignorant of the true state of our environment.

Can we ever have sustainable harvesting of both species of tuna (eel)?

If we hadn't destroyed much of the habitat of eels as I described above and cut off more than half of their habitat with dams and other barriers, both physical and chemical then we could indeed sustainably harvest them. The fishery is not sustainable, not because of harvest, but because we have ruined their habitat. Now that 90% of our lowland waterways Eels painted on Mike Joy's kitchen and 43% of our lakes are polluted, the eel and whitebait fisheries are

effectively the "nail in the coffin" for these species. Now four of the five whitebait and one of the two eel species are listed as threatened but bizarrely they are all commercial fisheries and have no protection but in a another weird twist introduced trout have complete protection - go figure!

floor.

How can farmers improve the quality of waterways on their property?

There are many small technological fixes farmers can employ but because of the massive intensification and expansion they lag behind and thus there is no net gain in water quality. The reality is that the only real solution is a massive reduction in the number of cows or getting them off the land and into sheds so that waste can be treated or spread over the land to allow plants to take up the nutrients. Fencing off and planting up stream banks will help reduce pathogens entering waterways and some of the nutrient and sediment, but we won't see any improvement until we stop the mad rush, yet another agricultural boom-bust cycle.

Do you believe that didymo is destined to appear in the North Island?

Yes, if it can cross the Pacific it can cross Cook Strait.

How can we best eliminate pest fish?

The reality is we can't unless we poison everything,

and this has been done in a few lakes and then put the native fish back again later. Poisoning with Rotenone works for small lakes but not for big rivers, because of all the tributaries they can hide in.

What impact are trout having on our native species?

Depending on the native species, trout have had major impacts, but, and this is a big BUT, if it wasn't for the lobbying power and resources of Fish and Game organisations and the tourism value of trout then our lakes and rivers would be in an even worse state than they are now.

What are your thoughts on farming our native galaxiid species or eel?

The whole country was a huge fish farm before we destroyed the

waterways, so farming is not a solution, cleaning up the waterways, fish habitat and removing barriers will produce more fish than any number of farms. The native fish are now limited by habitat rather than recruitment.

How did you become so passionate about protecting our waterways?

At some point in my scientific career I realised that if I carried on the usual way I would spend my life cataloguing the decline of our rivers and amazing endemic freshwater life. I decided that was not an option for me so I made a conscious decision to become an activist. I'm trying to be an academic, write the scientific papers but also write newspaper articles and be as vocal as I can about the issues. I keep reminding myself that academics are supposed to be the conscience of society, which is our job after all



The Tail

