

Winter – 2009

ISSN 1175-043X

Protect



Our mission: Working together to ensure New Zealand is protected from the adverse impacts of invasive species

NZBI thanks Horizons Regional Council for printing and posting the hard copy of *Protect*.



Protect

Winter 2009

Magazine of the New Zealand Biosecurity Institute

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Editor's Note

Hi everyone, how are things in your life? Winter seems to have hit with a vengeance, it's so cold and wet. It seems to have been wet for most of the last month's weekends. With two arces of garden its hard to keep on top of things while working fulltime and everything else in life and then nasty weather and short winter days.

The focus of this issue of *Protect* is what community groups are up to. There is an amazing diversity of groups involved in conservation work, controlling weeds and animal pests and restoration planting. These groups are an important asset as they often work in areas that government and local body agencies don't have the resources or time to work in. I believe that in these tough economic times community groups will become even more important.

Interested in furthering your education? Then read the article about the Auckland University Biosecurity course and read Andrew's comments about doing the course while working fulltime. As usual there are articles on other issues and

the regular contribution from MAF.

Thank you to everyone who has contributed: I really appreciate the work you have done. Next issue I would like to focus on biocontrol – please think about contributing. There is a lot of interesting work out there – tell people about what you are up to.

Interestingly no one commented on Randall's Burning Issue, does this mean you all agree with him? It is great to see a unanimous agreement about such an interesting issue. In addition no one has offered a Burning Issue for this edition of *Protect*. Does this mean you are happy with everything that you deal with in your work, or you can't be bothered airing your concerns?

With that thought in mind, grab a coffee or tea, sit by the fire and read this edition of *Protect* and think about what you can contribute to the next edition.

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New Zealand
Biosecurity Institute

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NZBI news

News from the Executive

Kia ora and welcome to another great edition of your quarterly institute magazine. The Executive had a teleconference on April 6 and the major points of discussion are examined below.

NETS2009

The change in the traditional timing for NETS has thrown the year out of kilter for a few of us used to having a mid-winter get-together. For those who work to a June 30 financial year the organising committee intends to have registrations open by mid-June. We are hoping that as many of you as possible will be able to make it to NETS this year, not only to participate in what will be a great learning event with excellent speakers and field trips but also to celebrate what has happened over the last 30 years of biosecurity in New Zealand.

MAFBNZ

MAFBNZ has a long-standing relationship with the NZBI and we also have a Memorandum of Understanding with the organisation that outlines the formal relationship. MAFBNZ is represented on the Executive and this role has been held by Andrew Harrison, Manager, Pest Management Group. Andrew's role has expanded to the extent that he is passing the representation onto John Sanson, Team Manager, National Coordination. John has represented Andrew at the last couple of Executive meetings and we look forward to his continued involvement in the Institute.

Website

Wow. If you haven't checked out the new NZBI website please drop everything and take five minutes to see what a little money and a lot of hard work can achieve – www.biosecurity.org.nz. It even has a cool symbol for the toolbar and favourites folders – very professional.

I think you'll agree that the website team of David Brittain, Louise Cook, Helen Braithwaite and Gemma Bradfield deserve congratulations, along with those that contributed images and copy for the wordy sections and E2 which developed the site – many thanks. Apparently we have already had a lot more traffic to the site from a wider audience.

If you spot any bugs or content/functions you miss

from the old site please don't hesitate to contact Louise Cook, CookL@ahb.org.nz. We have just updated the historical content and have *Protect* issues dating back to the year 2000; turn-of-the-century stuff so for the sepia-toned images and funny hairdos alone they are definitely worth a look.

The winner of our website competition was James Lambie from Horizons Regional Council. His name was randomly selected from the pool of participants. Well done. James will receive a year's membership to the Institute and a garden voucher. A big thanks to all the members who entered.

New members

The Executive would like to welcome the following new members to the Institute:

Jennie Brunton	Vivienne Lepper
Garrick McCarthy	Mary Stewart
Peter King	Duncan MacMorran
Rod Dickson	Peter McIntosh
Colin Pirie	Martyn Hall
Trevor Connolly	

We now have a total of 406 members, comprising seven life members, 14 overseas members, and 12 NETS2008 trial members.

GST

With the initial hurdles out of the way and our internal processes ready this will be our first NETS as a GST registered entity. You may notice a slight increase in the registration because of this.

Branch AGMs

Now is about the time that your branch will be having its AGM and as such it's a good time to consider your involvement with the NZBI. Do you want to try your hand at helping with branch responsibilities or even the national Executive? It's a great place to learn new things and operate in what may be a different sphere than your everyday life.

Craig Davey
President

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NZBI news

News from the branches

Lower North Island AGM and field trip, Hawke's Bay 2009

This year's host, Hawke's Bay Regional Council, (HBRC) certainly knew how to schedule the good weather. Most attendees left behind a forecast wintry blast but the weather in the bay remained sunny.

More than 30 NZBI members from the lower North Island participated in this year's event, with attendees coming from Horizons Regional Council, Hawke's Bay Regional Council, Wellington City Council, AgriChain Centre, Conservation Company, and Greater Wellington Regional Council which was well represented and arrived en masse, opting to reduce their carbon footprint by coming in a small bus driven by their manager, Richard Grimmet.

After a tasty lunch, proceedings kicked off with a warm welcome from HB Biosecurity Manager Campbell Leckie, which was followed by the four presentations.

First on was HBRC Animal Officer Rod Dickson who guided us through the Napier Hill Possum Control Project. Napier Hill is an urban area close to the Port of Napier with lots of vegetation over its 282ha. Home to 2000 people, more than 100 possum enquires (an alternative to possum complaint?) originate from the area each year.

Using the GWRC Miramar Peninsula Possum Project as a model, clear goals were set:

1. reduce possum and rat numbers;
2. ratepayer satisfaction; and
3. positive biodiversity outcomes

The job was contracted out to a firm which employed staff skilled in public relations, an area of expertise which proved to be a key element in the success of the project.

Good results were achieved with 500 possums killed using bait take data. The local community wants this project to continue. Monitoring the improvements in the biodiversity of the area is the next phase. HBRC is looking to repeat the project in the next biggest possum enquiry area, Havelock North.

Dean Roughton (HBRC Animal pest officer) outlined pest animal control in rural areas emphasising it was often "more about the people than the possums".

Viv Campbell and Kevin Sigglekow of Assure Quality made a presentation on an incursion of *Solenopsis invicta* also known as red imported fire ants (Rifa) in the Hawke's Bay. These ants are highly invasive and their

presence in our environment could potentially cause huge damage to our economy locally, nationally and internationally.

A Pan Pac employee identified a colony which was destroyed, with Assure Quality carrying out follow-up by conducting a survey over an area with a 2km radius from the nest. The survey involved 40 surveyors in teams of six who laid protein/sugar baits every five metres. Inaccessible areas were baited from the air. While many other species of ant were identified, no more Rifa were discovered. Soft-bristled paintbrushes were found to be very useful when collecting ants for identification: "Simply stab the ant in the abdomen and knock it off into the pottle," Kevin said. This simple technique does not damage the ant, making identification easier.

The third presentation was given by Neil Daykin, a design engineer from HBRC, who explained the use of grass carp (*Ctenopharyngodon idella*) as a biological agent against aquatic pest plant hydrilla. Grass carp cannot breed in New Zealand waters and were approved for use in 1996. Neil demonstrated the fish's use in a small fenced off area of Lake Opouahi with before and after photographs. Here they proved themselves useful, consuming all hydrilla in the fenced area. In fact, they ate everything before escaping into the rest of the lake. Their diet is by no means restricted to exotic species. The following day our field trip took us to a vantage point above Lake Turitea, here Neil was able to talk further on the use of grass carp. He explained that some of the species had been released into a smaller body of water close by the lake in the late 1970s and apparently some are still there, so they are long lived. They are also good eating but are not everyone's taste.

The use of fish such as grass carp and silver carp (the latter being filter feeders are useful against algae) is starting to get some notice as people search for more eco-friendly ways to keep our waterways free of unwanted organisms.

Last up, but certainly not least, field worker Travis Cullen of the Cape Kidnappers Restoration Project explained this amazing initiative by private landowners.

Land types on the cape include farmland, pine plantations, regenerating native bush, 17km of coastline, coastal cliffs, dune systems and wetlands, all of which is behind a predator-proof fence. But it is pretty much business as usual for the occupiers/

NZBI News from the Branches Continued

visitors in the 22,000ha area and there are no gates – you simply walk or drive right on through. In a sense the fence is designed to act as sieve. So how do they keep predators from accessing the cape? Those parts not blocked by the fence are covered intensively with traps, creating a buffer zone. This method works as three stoats/ferrets can be caught per month outside the fence compared to virtually nothing inside. Due to AHB activities, possums are not a problem but cats are. Numbers of cats caught in a month have been as high as 50 as recently as March this year. It is prime cat habitat and a large rabbit population provides plenty of food.

So far successful avian re-introductions include, rifleman, North Island robin, tomtit, whitehead, North Island kiwi, blue penguin, grey-faced petrel and fluffy shearwater. In years to come its hoped saddleback, red-crowned parakeet, weka and banded rail will be able to flourish in this managed area. Reptile reintroductions of skink, gecko and hopefully tuatara, are conducted in a smaller, completely enclosed predator-free area within the larger area.

If you want to read more about this amazing project visit www.oceanbeachnz.co.nz.

The day concluded with the branch AGM and updates from the different organisations represented.

The second day also dawned fine and everyone assembled at 7.30am for the drive north to Boundary Stream Mainland Island. DOC Team Leader Denise Fastier was waiting to greet us and took us for a walk on the Tumanako Loop Track (40mins). Once back at the car park we were farewelled by a pair of resident



Ruth Fleeson (HRC) and friend at the Pan Pac Kiwi Crèche.

kokako, a truly moving experience.

Then we moved on to Pan Pac Kiwi Crèche and Lake Opouahi where a predator-proof fence has been erected enclosing some 40ha of native vegetation and Lake Opouahi. Alister Bramley, of Eco-ed, explained the activities at this site. Kiwi chicks are collected from the wild (Kawekas) and kept at the crèche until they reach the weight required to be able to fend off mustelids at which point they are returned to their birth place. A highlight of this visit was the chance for everyone to get close up and personal with a three-month-old kiwi chick which was about to be released at Cape Kidnappers. This chick weighed 1.1kg.

While a \$700,000 Karori-style predator fence has been erected and all predators, including mice have been removed, they do not have a big handle on how things are improving biodiversity wise, unlike Boundary Stream. Of course native flora and fauna have bounced back and birds previously unknown here have arrived and are nesting successfully but little has been done in the way of monitoring. The combination of kiwi chicks, the lake and native vegetation lends itself to education



Blackboard Information: Tumanako Loop Track: Boundary Stream Mainland Island

NZBI News from the Branches Continued

so this site plays host to outdoor activities and educating young minds.

Next on the agenda was a visit to the Guthrie Smith Arboretum which began with a brisk walk across fields and up onto a windy knoll for a breath-taking view of Lake Tiritira. George Christensen of the arboretum led the way and directed our attentions to various points of interest that included a flax collection and an area of regenerating native bush called "The Hangar". Guthrie, way before his time, decided to fence off this area and see what happened. While the native species came away, most of the plants he grew in his garden migrated across there also, including old man's beard (*Clematis vitalba*), jasmine (*Jasminum polyanthum*), honeysuckle (*Lonicera japonica*), all the cherry species he grew and pine trees, to name a few. Staff and volunteers have spent the last 10 years recovering the native bush from the invasion of the exotic garden escapes and now it looks quite respectable.

With the arboretum visit over, we moved down to the shores of Lake Tiritira for lunch and a chance to see up close the crystal clear waters "free" of exotic weeds. Grass carp have been used here to control aquatic vegetation. The hills on the south-eastern side of the lake are owned by HBRC and managed with water quality in mind.

Next was a trip to Gwavas Station to view ivy control. Kay Griffith and Craig Single of the Conservation Company have been trialling different methods of eradication of ivy in this world-first attempt. A 125ha podocarp remnant native bush block had been badly infested by exotic weeds such as honeysuckle, hawthorn (*Crataegus monogyna*) with the most destructive pest being English ivy (*Hedera helix*). Ivy has allelopathic properties, poisoning the host tree it climbs and we saw several large podocarps that had succumbed. Plots in the Gwavas bush have shown that ivy is changing the regeneration of the forest by suppressing certain species or preventing them surviving into saplings.

Control work on this scale for ivy is unique to two sites in the world – here and one in the USA. The thick ground cover was sprayed with different chemicals and Vigilant has had patchy results. Sheep have been successful in initial control with contractors coming in and spraying. The mechanical damage aides in chemical uptake, as the owners are proving by keenly weed trimming the ivy in the garden before spraying. New chemical mixes have worked well after grazing and are having no impact on non-target species. Kay and Craig follow up with



A predator-proof fence entrance gate so good even the two legged variety can't get in! Pan Pac Kiwi Creche.

hand pulling of the stems and rhizomes the next season following transect lines through the bush to ensure no viable ivy is missed. They have worked out a rotational system for the best result in eradicating ivy.

"It's a slow-growing plant so regrowth will take many years, thus a five-year reinspection is appropriate after the three-season control rotation is finished," Kay said.

They showed the group the various data and methods they have trialled and researched so it was good to walk through the different stages of bush to see the fenced-off areas showing initial to complete control areas and to see the regeneration now ivy has been controlled.

I guess I was always of the opinion that the Hawke's Bay did not have a lot to offer biodiversity-wise but these two days certainly changed that what with saving New Zealand's icon, the kiwi, mainland islands, kilometres of predator-proof fences, pest-animal control, good public relations and dash of pest-plant control thrown in case we thought weeds were not an issue here, like they are everywhere else.

The general feeling was HBRC demonstrated a fresh new approach to biosecurity and its "spin off" for native biodiversity.

Congratulations to HBRC for its efforts in hosting this year's event. It's going to be a hard one to top.

Neil Gallagher

Secretary
Lower North Island Branch

NZBI News from the Branches Continued

Canterbury Branch: Whitewash Head to Godley Head Restoration Project

The Canterbury Branch of the Institute, in conjunction with Taylors Mistake Weedbusters has secured a grant of \$23,400 from DOC's Community Conservation Fund to help with the restoration of lowland coastal forest at sites in the Taylors Mistake area.

The grant is being used to help purchase 8000 native

eco-sourced plants for putting in at three sites in the area – Nicholson Park, Taylors Mistake Walkway, and Taylors Valley – over three years. Planting got under way in mid-June with about 16 people on site.

It is planned to invite the public to get involved in the project through organised work days.

More on all this, and Keith Briden's amazing weed control fishing line in the next issue of *Protect*.



Gemma Bradfield and Keith Briden (in the shade) spot weeding on Whitewash Head recently.

Top of the South Branch AGM

The branch held its AGM on Wednesday, June 24, meeting at the Brook Sanctuary at 10am for a presentation and tour with Rick Field. Lunch was to follow at noon before holding the AGM at the Nelson City Council buildings at 1pm. John Helstrom was to make a presentation on the swine flu at 1.15pm, with Dave Butler speaking on life as a consultant at 2pm. At 2.30pm, the topic was marine biosecurity.

Ben Minehan
Branch Secretary

NETS2009 — REMARKABLE CHANGES

This year's New Zealand Biosecurity Institute conference (NETS) will be held in Queenstown on October 14-16 at the Rydges Hotel.

The conference theme – 'Remarkable Changes' – recognises both Queenstown's remarkable location and the remarkable changes that have taken place in pest management and biosecurity over the past 30 past years.

The conference will also explore some of the changes we may see in biosecurity in the coming years.

If you intend to be involved in biosecurity in the future, you should be in Queenstown for NETS 2009.

Highlights include speakers such as John Hellstrom, one of New Zealand's forward thinkers in biosecurity, and Professor Phillip Hume from the Bio-Protection and Ecology Division at Lincoln University. There will also be the opportunity to learn about biosecurity issues from those at the coalface of pest management.

The landscape of Central Otago has also seen remarkable changes over time – some not necessarily for the better. The scheduled field trips for NETS 2009 will showcase this amazing part of the country and the pressures it has had to contend with – from both pests and people.



To register for NETS 2009 go to the New Zealand Biosecurity Institute's website at www.biosecurity.org.nz

NZBI news

Biosecurity personnel profile:

Kezia Barker

Role: Lecturer in Science and Environmental Studies, Birkbeck,
University of London
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Thank you for this opportunity to update everyone from the Biosecurity Institute about my current activities, given the incredible support I have always received from members while undertaking research into biosecurity in New Zealand.

I first joined NETS in 2005 while undertaking fieldwork for my PhD in geography, and I gave a presentation to the 2005 NETS conference in Christchurch. My PhD research focused on the public-policy interface in the context of pest plant management in New Zealand.

I spent six months interviewing people from MAFBNZ, regional councils and Department of Conservation, following plant biosecurity officers on their day-to-day duties, finding out about Weedbusters and volunteering with local groups, standing on weed awareness stalls at garden shows, and interviewing enthusiastic gardeners about their attitudes and behaviour towards biosecurity. After the inevitable writing-up struggle, I completed my PhD in late 2007, which was entitled *Cultivating Biosecurity: Governance, Citizenship and Gardening in Aotearoa New Zealand*.

After six months working as a lecturer in human geography at Southampton University, I joined Birkbeck in my current post as lecturer in science and environmental studies. Birkbeck is part of the University of London, and is a specialist provider of evening higher education. I am particularly proud of Birkbeck's long-standing ethos to enable adult students from diverse social and educational backgrounds to participate in higher education. I am currently developing two foundation degrees, in environmental management and environmental science, to allow students with non-traditional qualifications to train and progress on to higher education or employment



in this crucial sector.

My research remains very much involved with questions surrounding the socio-politics of biosecurity. This year I received funding to return to New Zealand for three weeks over Easter, to initiate research into public participation in passive surveillance. I had a very interesting, productive and enjoyable time interviewing people from the incursion investigation teams, investigation and diagnostic centres, and staff connected to surveillance, response and public communication in MAFBNZ. I intend to draw this into

a larger comparative research project considering the policies and practices of biosecurity surveillance in New Zealand, the UK and, I hope, the Galapagos Islands.

Over the next two years I will be co-organising a series of five seminars in the UK on "The Socio-Politics of Biosecurity: Science, Policy and Practice", funded by the UK's Social and Economic Research Council (ESRC). The aim of the series is to pull together and stimulate interdisciplinary research on the social, cultural and political aspects of biosecurity, and to encourage interaction between social scientists, scientists and policy-makers. Among other more traditional outputs we will increase the interactivity of the series with a dedicated website as a repository for data and discussions, utilising blogs, wiki technology and video-sharing. Details will be made available in future editions of *Protect* for interested members of the Biosecurity Institute.

I would again like to thank everyone who has generously given up their time and supported me in my research into biosecurity issues, which has always been challenging, exciting and intellectually rewarding.

Kezia Barker



New Zealand Plant Protection Society (Inc)

NZPPS Annual Conference 2009

The New Zealand Plant Protection Society's annual conference will be held from 11 to 13 August 2009 and will be preceded on Monday 10 August by the pre-conference symposium: "Microbial Products: Exploiting Microbial Diversity for Sustainable Plant Production".

Where: The conference and symposium will be held in the Hutton Theatre at the Otago Museum Conference Centre on Great King Street, Dunedin.

Annual Dinner: At the historic Larnach Castle on Wednesday 12 August (transport will be available from Dunedin city to the castle and return).

Microbial Products: Exploiting Microbial Diversity for Sustainable Plant Production:

An excellent programme has been developed for the New Zealand Plant Protection Society Pre-conference Symposium, which is being held on Monday 10 August 2009.

There are four international keynote speakers who are all actively involved in developing, producing or marketing microbial products. In addition, the industry specialists and New Zealand-based researchers who are presenting their work cover a range of sectors, including agriculture, horticulture and the natural environment. The topics discussed will cover identification of opportunities, production and formulation, delivery to the target organism, and commercialisation. A flier outlining the symposium and a draft programme are available from the New Zealand Plant Protection Society website (www.nzpps.org).

Posters will be displayed during the Symposium, although there is not enough time for a dedicated poster session. Abstracts for posters displayed during the Symposium will be printed in the Symposium Proceedings. If you would like to display a poster then please email your abstract to Sue Zydenbos (editor@nzpps.org) before 31 July. Note that we are happy for you to display posters that have been presented at other conferences, workshops or symposia, but you must obtain permission from the previous meeting if you want to publish the abstract in the Symposium Proceedings. Note that original posters will be eligible for presentation at both the Symposium and in the NZPPS conference poster session (the following afternoon), and the abstract will also be published in New Zealand Plant Protection. However, these abstracts must be sent to me by 15 May if they are to be included in the journal as well as the proceedings.

Note that the Symposium fee covers the attendance for the day, as well as a copy of the Symposium Proceedings, which will be published in November. A complementary drink and nibbles will be served at the end of the day.

Organising committee: Sue Zydenbos, Trevor Jackson, Alison Stewart, Mike Brownbridge and Craig Bunt. For further information on the symposium, visit www.nzpps.org or contact: Sue Zydenbos (zydenbos@xtra.co.nz) or Trevor Jackson (trevor.jackson@agresearch.co.nz)

For more information or to register visit www.nzpps.org or email secretary@nzpps.org

Career development

Postgraduate diploma providing important function for sector

Dr Imogen Bassett.

Senior Tutor
Biosecurity
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The University of Auckland's Postgraduate Diploma in Science (Biosecurity) is in its second year, providing candidates with advanced training in invasion biology, focusing on the natural environment. Students participating in the PGDipSci (Biosecurity) programme gain an understanding and a practical knowledge of the enormous role science has in managing the risks and uncertainties in biosecurity and ultimately in determining the effectiveness of biosecurity decisions.

The diploma programme is jointly presented by the School of Biological Sciences and the School of Geography, Geology and Environmental Science in partnership with Landcare Research. Students say they have particularly enjoyed the input of guest lecturers from a range of leading biosecurity agencies. The Tamaki Campus, where the diploma is held, is also home to the IUCN/SSC Invasive Species Specialist Group, Landcare Research and Biosecurity New Zealand's Investigation and Diagnostic Centre.

Course content is a mixture of seminar/lecture material and practical workshop exercises. These interactive exercises are proving particularly popular, with students getting together to nut out solutions to real biosecurity problems, and debating contentious issues such as whether every invasive species in a natural ecosystem has an impact. As well as traditional essays and tests, assessments within the diploma also see students doing tasks such as writing and critiquing invasive species management plans, modelling the potential distribution of an invasive ant, and reviewing the literature available on an emerging pest species. High-achieving students have been excited about the opportunity to have their invasive species reports distributed to relevant biosecurity agencies.

The PGDipSci (Biosecurity) is a one-year fulltime course, with the option to continue on to an MSc in Biosecurity. The diploma is designed to meet the needs of biosecurity practitioners in current employment by mostly consisting of intensive, week-long modular courses. Courses from within the diploma can also

A practitioner's view

I'd been looking for a biosecurity major since I left high school, though my undergraduate and previous postgrad studies have been in other areas. I've always had an interest in biosecurity: a desire to help protect the unique environment we have in New Zealand.

Until now I'd always had to try and mould courses to fit the biosecurity theme, and I must admit seeing a new postgraduate course in biosecurity I was a little sceptical whether this would be another few papers dressed up as a "biosecurity" course that was either very generalist or inherently specialist and not really covering topics relevant to practitioners. I am happy to say from my experience I've been pleasantly surprised.

For a lad based in Southland, it was a bit of a haul to get to Auckland for the course, but it is a logical location with the Tamaki campus-based new centre for biodiversity and biosecurity, along with Biosecurity New Zealand's Incursion and Investigation Diagnostic Centre. Auckland is a main staging point for many of New Zealand's biosecurity operations such as Biosecurity NZ's Quarantine Service at the airport, ports, mail centre and cargo border sites.

I have enrolled in two papers so far. Biosecurity and Invasion Biology (BIOSCI747) provides an overview of the biosecurity system, scientific principles and important considerations behind the decision-making process. It may be handy to have some undergraduate science papers under your belt for this or do some familiarisation before hand. Pest and Weed Management (BIOSCI748) shows how those scientific principles and important considerations are applied in the management of pests and weeds.

...continued



Andrew Kirk, a Southland AHB Tb programme contracts supervisor tells of his experience studying for Auckland University's biosecurity diploma

Career development

be taken individually as Certificates of Proficiency. While many of the students have come directly from undergraduate studies, the course is also attracting existing biosecurity practitioners looking for professional development. Students have really enjoyed this dynamic mix of people from different backgrounds.

Josie Galbraith, a participant in the course in 2008, said having classmates who were working in biosecurity-related jobs added a different level of experience and opinion to discussions and debates. Having completed an undergraduate degree at the University of Auckland, Josie began looking for a postgraduate course which would tie together her interests in ecology, conservation, invasion biology, and animal behaviour. "I found it in the new PGDipSci in Biosecurity. The programme had an excellent set of core papers, with enough flexibility to also choose a number of other papers to suit my specific interests."

Josie went on to enroll in an MSc in Biosecurity in 2009, and said the diploma course provided her with a solid theoretical foundation, and began the development of a set of practical skills which would be invaluable for a future in this field. Several other students from last year's cohort went straight into summer studentships with agencies such as ISSG and Landcare Research, and employers have been pleased with the students' skillsets.

Another student who started the diploma in 2008 was Don McKenzie, who completed a degree in forestry in 1984, and whose subsequent career has included pest management and species protection roles in forestry, the Department of Conservation and currently with a regional council.

"Returning to University after 25 years to undertake the PGDipSci (Biosecurity) has been personally very rewarding and the core modules have direct application to my work. Understanding invasion biology and having the opportunity to network with some of New Zealand's top scientists has been great.

"I'm doing the diploma over four years, managing two papers a year and I find having the interaction with other students has been very good.

"The issues of biosecurity span a wide range of agencies, and diversity of industries and cultures. I remember the first year we had six wine students turn up – they were great! I found a neat aspect of the course was meeting with course participants – they came from a wide background and course directors make an effort to encourage interactions and class discussions. We have had input from overseas students, as well as industry and those who have roles in MAF, other regional

Both papers were pretty well set up and resourced. I found the tutors open and available to answer all my questions and they encouraged feedback on how the course was going – if anything I probably should have made more use of their availability. BIOSCI747 and BIOSCI748 are being delivered like extramural block courses, which allowed a busy practitioner like myself to attend and do all my contact time at once, plus this is a good opportunity to meet your tutors, fellow students and other like-minded individuals.

Open discussion was offered and encouraged, often working together in groups to tackle some quite relevant and tricky questions – it certainly got me thinking outside the square.

Getting back into university education again after a quite few years hiatus has been a shock to the system. I found the first year tough and I've certainly learnt some lessons about working fulltime and trying to tackle study in the little spare time available.

If there's any advice I can give about doing a course like this it's that time management is the key. That aside, if you want to better understand New Zealand's biosecurity system, the science, policy development and practical operation the system is founded on (and hopefully empower you to help improve it) then this course is right for you.

These papers have helped me better understand my role as a contract supervisor for the Animal Health Board's Bovine Tuberculosis (Tb) programme. Particularly in terms of understanding the science behind the national Tb strategy, its goals, management techniques, why we target the pest species we do and the need to continually review and fine tune its objectives through research and innovation. These papers are also helping prepare me for becoming more involved in the ever-changing environment that exists in regional councils' Regional Pest Management Strategies (RPMS).

councils and environmental agencies like ERMA. I often think how many staff working in conservation fields would also benefit from this course.

"I can't rate the diploma highly enough – its relevancy to biosecurity work and the high quality of course tutors leads the way in my view. I encourage my own staff to try at least the invasion biology paper."

For more information on the Postgraduate Diploma and MSc in Science (Biosecurity), contact Dr Imogen Bassett (Senior tutor, Biosecurity) Email: i.bassett@auckland.ac.nz

Or look online: School of Biological Sciences, www.sbs.auckland.ac.nz

Rural communities

Responsibilities of group facilitators to rural community capability building

Terry Parminter.

Social Scientist in Policy Strategies
AgResearch

When we think about rural communities in New Zealand and Australia we usually associate them with the agricultural, forestry and mining industries that have brought them into being and that may still remain the predominant landuse around them (Blunden and Cocklin, 1995). In the past, primary industry has provided the main sources of income for rural communities. Over the last three decades however, there have been significant changes in such patterns (Epps, 2002). Rural communities have to cope with large-scale social disruptions, increasing external focus, decreased dependence on primary industry, decreased availability of volunteers, and decreased social capabilities. These changes have implications for the role of community group facilitators.

As farming restructured in the late 1980s in response to New Zealand's economic reforms and falling commodity prices, a lot of the semi-permanent staff on farms were made redundant. These were the labouring jobs associated with mustering, shearing, fencing, weed control, drainage, pasture renewal, cropping, and repairs and maintenance. Those jobs instead were contracted out to regional-scale companies with reduced costs associated with greater returns from scale. To find employment, the people living in rural communities instead turned to work in nearby towns and many moved there. This means that many rural communities are no longer truly sustainable on their own, but need external inputs to survive (Lidgard, Bedford, Joseph, 2000).

Macro-trends affecting rural communities

A number of conditions and trends are continuing to drive the processes of change in rural communities (Gallop, 2002):

- Population growth – Continued population growth is unavoidable for at least the next two or three decades, resulting from increased life expectancies as people in rural areas retire and are joined by younger people starting families in cheap rural housing areas able to provide outdoor wild spaces for their children.
- Economic growth – The global pattern of economic



Societal change: Traditional rural living now under threat as fewer children live on farms.

activity, now concentrated in industrial areas, is likely to change, and economic opportunities may become dispersed to areas where people choose to live because of lifestyle considerations.

- Technological change – The effects of new technology include significant impacts on industrial organisation and the structure of economic activity, so that people can work from home without having to commute daily into centralised offices.
- Decentralization of authority – An increase in businesses that have no formalised structure making use of the internet and cellular networks to find and stay in contact with new markets without having to have a local presence.
- Greater diversity – Rural communities are showing increased diversity between well-established families with conservative lifestyles and the capital resources to draw upon in times of need, and transient financially vulnerable families attracted by low-cost rentals and relative obscurity into areas where radical and even anti-social lifestyles may be largely tolerated.
- Resource depletion – Locally accessible and high-grade non-renewable resources are being depleted and as this occurs dispersed rural communities are having to become more reliant on attracting external resources for their survival.

Rural communities

Social adjustments in rural communities

Family members on farms have continued to commute to nearby towns for a range of work and social events. This has introduced values previously more associated with urban lifestyles, e.g. vegetarianism and the empowerment of women into leadership roles (Stayner, 2003). The industrialisation and rise of large-scale corporate agriculture has led to an increase in size of farms. The number of smaller farms has declined as they no longer maintain their viability due to decreased commodity returns. On the other hand, there has also been the colonisation of rural areas by “lifestylers” moving onto small uneconomic blocks seeking a rural lifestyle without the financial impediments of working in primary industry (Joseph, Lidgard, Bedford, 2001).

The relationship between the farming economy and rural communities has increasingly become decoupled (Joseph, Lidgard, Bedford, 2001). Rather than in their local communities, increased farm returns may be first noticed in metropolitan centres where farming families tend to shop and agricultural firms are based. The reverse also tends to apply when farm returns drop. The sense of interdependence and mutually supportive interactions between farming and local communities can no longer be asserted with confidence. As a cumulative consequence of these layers of change, agriculture and rural communities are more economically and socially differentiated than ever before, and at times the linkages between the two sectors have become obscured or even lost (Lidgard, Bedford, 2001).

When considering the changes in social activity patterns and rural life in general, it might also be expected that there will have been a weakening of local ties. Multiple-job holding may have reduced the ability of many farm families to contribute to local community organisations and activities and an external focus for employment reduced opportunities for social interaction (Joseph, 1999).

Traditionally, local schools have been the centre of rural communities and community events. Often people would gather there for a chat and to find out what was happening in the community. Local schools were thus not only centres for education but also for community events and as such were the cornerstone in rural community networks. With the closure of many rural schools, not only has the access to such a vital amenity suffered but also the whole sense of community interaction.

The voluntary sector in rural communities has often been overlooked by external agencies in their analyses of the rural economy (Shand and Loomis, 2002). Voluntarism has long been a tradition in rural communities, and the need for it certainly has not



Changing use: The Pohangina Village School closed in the 1990s and is now a community centre.

diminished, yet the number of volunteers available has. For example, volunteers are needed to serve in the local fire service and to help with school-related activities such as the coaching of sports teams, in addition to serving on organisations such as Federated Farmers (Lidgard, Bedford, Joseph, 2000). Voluntary service has been a great asset of rural communities and the need for it is ever increasing as a result of public service centralisation into city centres. However, the availability of volunteers is becoming problematic (Lidgard, Bedford, Joseph, 2000).

Capacity building for rural communities

Community lifestyles are considered to be a complex web of relationships involving employment, recreation and household circumstances (Epps, 2002). Therefore, one of the key tasks of anyone involved in community development is to find ways to increase people's abilities to pursue their goals, address community issues and improve their quality of life (Eversole, 2001). The management of community issues like weed and pest management, can offer an opportunity to “build” communities in ways that maintain strong links between town residents and their rural neighbours, as long as there is a common sense of purpose (Lidgard, Bedford, Joseph, 2000). Although community groups may be formed to address particular technical issues such as maintaining a public reserve, there should always be an explicit aim of empowerment and capacity building to improve the skills of the residents and to increase social capital, trust, co-operation, commitment and confidence within the community (Tabart, Fulton and Dark, 2001).

Conclusions

An understanding of the increasing brittleness and

Rural communities

vulnerability of rural communities has significance for all people from agencies that work with rural communities, particularly those facilitating community action groups. Quite often people are appointed to such roles because of their technical ability in subjects such as pest control, coastal erosion, drug rehabilitation or wetland ecology. They may have an interest in working with people but seldom do they have a capability in social dynamics and facilitation equal to their technical ability. That inequality of skills means that the facilitators of community groups have to go out of their way to develop community group skills. Possible skills to develop include a knowledge of:

- Learning styles and how these influence the rate at which people learn and interact with others in a group.
- Problem-solving steps and the types of personalities that best assist groups to address issues.
- Internal group dynamics and how people build relationships of trust with the others with whom they are working.
- Group governance processes to establish a vision and purpose within a group and provide for continuity over time, succession planning, and build relationships with external organisations.
- External group dynamics and accountability.
- Project management and reporting.



Changing landuse: Are windfarms, like these near Ashurst, a threat to rural landscapes or an opportunity for more sustainable living?

- Monitoring and evaluation of group dynamics and relationships.

These are all important skills for facilitators to demonstrate and share in community groups so that group members can build their own understanding and capabilities. With more of such skills communities will be increasingly resilient and able to prepare and respond to the social pressures on them.

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Coast care

Coast care group aims to bring about change in people's attitudes

Bream Bay Coastal Care Trust

The Bream Bay Coastal Care Trust was formed three years ago with the aim of assisting the Department of Conservation to care for 606ha of conservation estate along the Bream Bay coastline.

This land is badly compromised by weeds; wild ginger, pampas, wilding pines, gorse, wattle, and acacia abound. At some time in the past it was cleared of all its natural vegetation for pasture and then pine trees were planted to prevent the sand blowing around. It is also abused by trail bike and quad bike riders.

Rubbish gets dumped in it. The local rubbish recycling depot is located in coastal duneland, as are both the Ruakaka and Waipu wastewater treatment plants. The Crown Minerals Office has licensed sand mining on 78ha between Ruakaka and the campground at Uretiti. There are endless suggestions that the land should be sold to developers, hotels should be built here, the wastewater plants should be extended into it.

The trust aims to change people's attitudes. We believe the value of duneland and the kinds of vegetation that grow in it has been undervalued and neglected. In its natural state it can be very beautiful and its sequence of vegetation types are unique, interesting and worth preserving.

In some places the native vegetation is returning and we take from this clues about what the sequence of vegetation should be.

We have a number of projects along the shoreline:



Planting: *Spencer Cummings and David Lourie (in the background) planting at the Ruakaka Dune Lake.*



Weed control: *Trust members and supporters clearing acacia from dune land. From left they are: Greg Stump, Heather Stump, Bev Woods and Simon Ellison. Small plants are easy to pull out of the sand but the larger ones require lopping off and the remaining stumps painting with Vigilant.*

- We obtained funding from the Northland Regional Council and paid a contractor to fence the western edge of a dune lake at Ruakaka near the Ruakaka racecourse. Our contractor cut down two-metre high gorse that was growing here and we are currently working hard to replant the lakeside in natives and keep the gorse regrowth at bay by spraying with Escort. Seven of our members have Growsafe qualifications which we need to be eligible to use herbicides on DOC land.

- At Ruakaka Beach our volunteers look after the land adjacent to the Ruakaka estuary. We have cleared most of the gorse and acacia (although it keeps coming back) from this area and are now working on getting rid of an infestation of agapanthus in the back dune. We reformed tracks to lead pedestrians away from the shorebird nesting area in the foredunes. We fence off the nesting area each spring and some of our members spend the summer keeping dogs, horseriders and people away from nesting dotterel and oystercatchers. We carry out ongoing trapping for predators such as stoats, rats and hedgehogs and we have been lobbying the Department of Conservation to ban kite boarders from both the Ruakaka and Waipu estuaries as we believe these disturb nesting and roosting birds.

- We have been working to control the spread of acacia in south Ruakaka and have just been granted funding

Coast care

by the Department of Conservation's Community Conservation Fund to spray weeds and plant thousands of native plants in the back dunes here. We have invited students at Bream Bay College to work with us on this project.

- We look after the day visitor area alongside DOC's Uretiti camping ground. We have landscaped the parking area with native trees and shrubs and are planting further natives: totara, manuka, cabbage trees and flax amongst the gorse, hoping that these will overtake it at

some time in the future. We are also clearing wildling pines from the dunes.

- We have recently formed a Waipu Estuary Protection Team and have a permit from DOC to trap cats on the Waipu sandspit. The Waipu estuary is one of the few remaining nesting sites of the New Zealand fairy tern, which, with only eight breeding pairs remaining, is close to extinction. Last summer wild cats destroyed two fairy tern nests here. We hope to have any cats out of the way before the breeding season begins next spring.

Urban park restoration

An urban park – desecration and restoration

Peter Reimann

Chairman
Trelissick Park Group

Wellington is blessed with a topography of hills and valleys that allow tongues of bush to break up the urban sprawl. These form ecological corridors between the sea/harbour and outer green belt. They also allow people to take a break to enjoy the peaceful natural bush environment.

Trelissick Park is only 10 minutes from the Wellington city centre, in the western suburbs. It includes steep hillsides and the Ngaio Gorge, containing the lower Kaiwharawhara Stream and its tributary, the Korimako. The park is bounded by the Ngaio Gorge Road on one side of the gorge and the Johnsonville railway corridor on the other. Walking on its tracks, it seems larger than its 20ha because it is elongated.

A sad history

The park has suffered more than most from interference from urban development. This included:

- Milling and farming in the late nineteenth century,
- Building and subsequent alterations of the railway line (initially the main trunk line),
- Developing, realigning and on-going earthquake strengthening of the Ngaio Gorge Road,
- Excavations for sewage pipe installation and subsequent upgrades.

All these activities have resulted in destruction of native bush, major excavations, spoil tipped down hillsides into the park, and erosion into streams.

The Kaiwharawhara Stream has a catchment area of about 20km², stretching from Khandallah to Karori. It carries all of the stormwater from this area. After flooding from tunnel blockage in the lower Kaiwharawhara from a storm in 1976, a debris trap was built. Stormwater increases as more houses are built, due to fast run-off from hard surfaces and roads and removal of bush cover, resulting in:

- Sweeping away stream banks and depositing silt from the destructive flow during heavy rain;
- Creation of deep gullies, slips and bogs due to exit of stormwater pipes above the park.

Other problems include:

- Pollution and sewage leakage;



Positive growth: Restoration planting three years after gorse clearance and mulching took place.

- Excavated gravel spread over the valley floor in the lower Kaiwharawhara;
- Rubbish dumping and cars crashing into the park, or being abandoned there;
- Weed infestation from garden escapes and from the railway corridor.

As a result of these interferences for more than a century, weed species have flourished:

- Wandering Jew (*Tradescantia fluminensis*) carpeting the forest floors;
- Fields of blackberry, buddleia and gorse;
- Smothering convolvulus, Japanese honeysuckle (*Lonicera japonica*), German ivy (*Senecio mikanioides*) and climbing asparagus (*Asparagus scandens*);
- Streamside montbretia, (*Crococimia x crocosmiilora*), Himalayan balsam (*Impatiens glandulifera*) and willow (*Salix* sp) balsam and willow;
- Outbreaks of sycamore, Australian wattle (*Acacia* sp), Asiatic knotweed (*Reynoutria japonica*), pampas grass (*Cortaderia selloana*), pellitory (*Parietaria judaica*) and old man's beard;
- A broom population.

Possum damage to native vegetation was evident. Rats and mice suppressed the population of birds, insect life and skinks and hindered regeneration of

Urban park restoration

native seedlings. Waterfalls in the stream at culvert outlets blocked the lifecycle of freshwater fish between the sea and the headwaters.

A new beginning

After some initial restoration in the 1980s by the Wadestown Resident's Association, the Trelissick Park Group (TPG) was formed in 1991 from members of local community associations, to work in conjunction with Wellington City Council (WCC) to restore the park.

Restoration is an on-going struggle, the objective being to return the park to its once magnificent wilderness state, dominated by podocarps, tawa, rewarewa, titoki, nikau palms and ferns. The 1995 Park Management Plan lists aims for restoration. The implementation of the aims of biosecurity interest are covered below.

Conservation/landscape

There are still original forest remnants in some steeper areas. These are acting as a valuable source for spread of species. Trelissick Park has been designated as a Key Native Ecosystem (KNE).

Because of damage from stormwater run-off from the catchment, TPG is involved with new housing development resource consent submissions and appeals, also relevant changes to the WCC District Plan, Rules and Guidelines. For example, TPG wants mandatory stormwater slowing provisions to achieve neutral effect, such as detention provision in the stormwater infrastructure, soakage areas, planting, permeable surfaces or rainwater storage tankage. So far WCC has only recommended such provisions. It contends that making them mandatory would be impracticable and costly to monitor.

A joint initiative by Greater Wellington Regional Council (GW) and WCC called "Project Kaiwharawhara" has provided a useful forum for local restoration groups and community organisations to air such catchment-wide concerns with WCC and GW.

Pest weeds and restoration planting

Combined WCC/GW funding has eliminated much of the tradescantia, employing a contractor using a Grazon-based spray, with one follow-up. The sprayed areas are being planted by TPG with mainly ferns and bush rice grass and are allowing natural regeneration of seedlings. Smaller areas have been cleared manually, the most successful being in open valley patches where clearance of other weeds and debris has exposed any *tradescantia* re-growth to frost.

One of the railway corridor slopes is clothed in Japanese honeysuckle. The same WCC/GW funding is being used to deal with its invasion into the park. The cleared area will be planted by TPG shortly. Other parts



Improving diversity: Restoration plantings have done well in areas from which gorse was cleared just three years ago.

of the corridor contain stands of buddleia and Australian wattle, causing continual outbreaks in the park. One slope of buddleia was successfully sprayed by WCC in 2001, then planted by TPG. The Australian wattle migrates prolifically; most can be pulled out and the rest cut without spraying. The ultimate solution would be to include the whole of the railway corridor bordering the park below the line with the ongoing restoration of the park. Currently WCC is exploring how this could best be done.

In a joint operation by GW/WCC, a helicopter was used to spray four steep slopes of blackberry, using nozzles suspended clear of the rotor down-wash. This was followed by planting by WCC and TPG after a follow-up spray. Two flat blackberry areas on railway land leased to WCC were dealt with by cutting, then spraying the re-growth before restoration planting by TPG.

As an "exotic" in a KNE, all of the streamside willow had to be despatched. This was done by WCC using poison inserted in holes drilled in the trunks. The legacy of fallen or cut dead trees and limbs sprawled across the stream or on banks has caused some problems with weed growth under the debris and impeding stream flow. Each stream surge flushes more dead branches into the debris trap.

Gorse is being dealt with by TPG in two ways:

- Cutting tracks and planting within the gorse (as reappearance of natives is sparse). It takes about two decades for the natives to over-top and stifle the gorse.
- Clear felling, then spreading the cut branches and mulch over the area to suppress vigorous gorse

Urban park restoration

re-growth, before planting densely. This is much quicker, but requires a couple of follow-up gorse removal sessions.

Balsam has been overwhelming new streamside plantings, but nearly all was pulled out last summer by TPG, before it seeded. Some funding from GW is being used to spray the montbretia taking over some areas. This has deep corms, so will require follow-up.

The other weeds are being dealt with as resources allow by WCC or TPG. Three TPG volunteers have "Introductory" Growsafe certificates. Although this allows limited use of spraying, these volunteers can only use Vigilant gel.

TPG has been grateful for support and plants from WCC, funding from the GW "Take Care" fund, the Ministry for the Environment Sustainable Management Fund, the Honda Tree Fund, donations from community organisations and individuals. Since 1991, more than 60,000 trees have been planted in the park during regular working bees by volunteers, bolstered by the "Adopt-a-Spot" scheme, the Ngaio School, scouts, corporate volunteers and three home nurseries. The policy has been to plant densely with eco-sourced quick-growing species at 0.8 to 1m spacing, to suppress weed growth. The best results are achieved with mulching in conjunction with "releasing" of weeds for the first two to three years. Efforts are now turning to inter-planting with slower-growing canopy species and nikau palms.

Animal pests

A concerted drive to eradicate possums and rats in Wellington over the last decade has dramatically increased bird life. With the assistance of GW, TPG service 19 possum bait stations in the park, using Brodifacoum pellets and a peppermint-flavoured attractant powder applied up to the bait station. These are serviced every six weeks, but in late summer four to five bait stations had to be refilled fortnightly, most likely to satisfy hungry rats (there is no evidence now of possums in the park). Fourteen mustelid traps provided by WCC are also serviced by TPG, using eggs as bait. In the eight months since installation on a fortnightly round 12 rats, four weasels, two stoats and a hedgehog have been caught. It is heartening to notice so many seedlings emerging naturally within the forest areas. Rabbits eating just-planted karamu and kowhai are a new problem at the northern end of the park.

Water quality/habitat

Two fish passages have been installed along the Kaiwharawhara Stream by WCC/GW around culvert exits. Fish surveys and water quality monitoring by GW indicate reasonable health for an urban stream, due to its bush-clad course. Species include red-finned bully,



Impediment: A debris trap which catches dead willow branches but also is a barrier to in-stream fish migration. Tradescantia can be seen on the stream bank in the background.

inanga, banded kokopu, giant kokopu, koaro and eel. However, trout compete for food and eat young freshwater species. Sometimes sediment covers the stream bed, making invertebrate food for the fish difficult to find.

At the debris trap the large rocks below the trap have been swept downstream by the current during heavy rain, resulting in a waterfall at the trap. This is currently barring migration of some species.

Education

Interacting with the community is a vital part of restoration of an urban park, so that there is awareness of the "gem" in their midst and the need to protect it, and also as a source for volunteers. There are mapboards and holders for brochures and pamphlets at entrances and an information board about "Project Kaiwharawhara". TPG distributes a regular newsletter, has a website, puts displays at local events, has publicity in local newspapers and undertakes letter-drops about garden waste dumping.

However, stream pollution from car washing, cleaning paintbrushes and concrete-making machinery, sedimentation, and garden waste dumping still occur.

Pest weeds and animals will never be completely eliminated from the park. Constant work will be required to keep these at bay and to mitigate the effects on the park from urban and infrastructure developments.

However, with all the restoration work that has been done, what a place this has the potential to be when the canopy species and nikau palms have taken over again in a couple of centuries!

Aparima Pest Busters

Simple idea takes hold for Aparima Pest Busters and wider community

Sally Bullen

Aparima Pest Buster
& baitline operator
Riverton

The Return of the Birds Project

In 2002, three retired Riverton men decided to do something about the impact magpies were having on the native birds in the Riverton area.

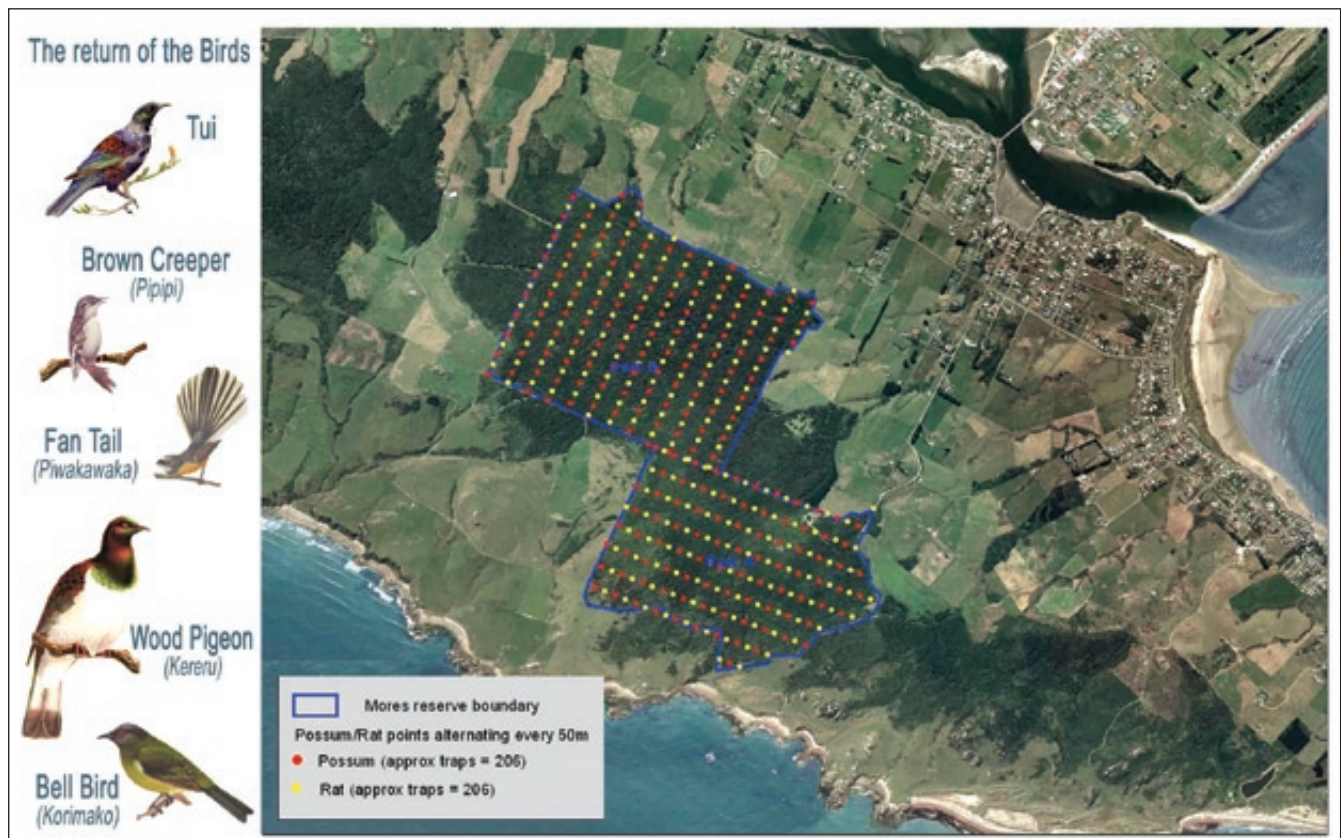
Their awareness and activity was activated by the experiences of Warrick McCallum and Jim Dixon throughout many years at the Riverton Golf Course, where they had noticed that it was a feeding ground for a large number of small native and introduced birds. This remained the case until magpies made inroads into Southland.

Along with friend Allan Broomfield, an action group calling itself the Aparima Pest Busters, was formed to carry out a programme to get rid of the magpie problem

and ensure the survival of the native birds (and the safety of the golfers!). This initiative has been hugely successful, with a total of 8514 magpies despatched to date. A number of these have made their way into pies at the Hokitika Wildfoods Festival.

The Pest Busters continue to carry out magpie control throughout Western Southland.

One thing lead to another. An Environment Southland biosecurity officer suggested to the group that for the operation to be more effective there was a need to eliminate the rat population in the bush to ensure the survival of the returned native birds. The Pest Busters decided to take up the challenge and targeted the forest area of Howell Hills above Riverton. Using a gridded approach, possum and rat bait stations were set up on



Aparima Pest Busters

gridlines every 50 metres throughout the reserve.

When they started, about 18 out of 20 bait stations would be regularly raided by pests. Now it is more like one in 20, which demonstrates the dramatic decline in pest animals. Members of the community now take responsibility for checking the bait stations about once a month.

The number of people involved with the Pest Busters now exceeds 30, and they target areas in Alexander Park, Marne Street Reserve and Mores Reserve.

Sadly, two of the three founding members of the group – Warrick and Allan – have passed away.

Pest Plants Out – Native Trees In Project

To quote Warrick: “you handle one problem and you get another”. In a classic example of cause and effect, as predator numbers dropped, native birdlife increased – leading to the need to replant native trees to provide more habitat and food. In addition, seeds of pest plants such as holly, Darwin’s barberry and cotoneaster were being spread more vigorously, not only in Mores Reserve but throughout Riverton gardens.

So, the “pest plants out – native trees in” project began. Plants were donated by the community and the Pest Busters potted up native seedlings. Then,



Pest Plants Out – Native Plants In Project operators on the job.

with the involvement of Aparima College students, the Pest Busters assisted householders with the removal of pest plants from their gardens and offered a native as a replacement.

The control of pest plants and restoration planting of native trees is an ongoing activity.

Next project? Hopefully, to reintroduce bird species which have disappeared from our reserves.

Control methods

Biofuel crops pose invasive pest risk

Chris Buddenhagen

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www.hawaiiinvasivespecies.org/hisc/

Researchers with the University of Hawaii Pacific Cooperative Studies Unit have examined the impact of unregulated planting of biofuel crops for their potential invasiveness and raised concerns about their impacts on Hawaii's environment. The findings, published as *Assessing Biofuel Crop Invasiveness*, in the open-access, peer-reviewed journal *PLoS ONE*, www.plosone.org/, conclude that biofuel crops proposed for use in the Hawaiian Islands are two to four times more likely to establish wild populations or be invasive in Hawaii and in other tropical areas when compared to a random sample of other introduced plants.

Recent spikes in energy costs and political instability in many oil-rich regions of the world are driving a search for homegrown alternatives to traditional fossil fuels, such as coal, oil and natural gas.

Biofuel crops are often touted as a "green" solution to US dependence on foreign oil and have been promoted for stimulus package "green jobs". Despite the potential benefits, researchers say biofuel crops actually might be aggressive invasive plants grown under the guise of beneficial crops.

The researchers used a weed-risk assessment that

examines a plant's biology, geographic origin, pest status elsewhere, and published information on its behaviour in Hawaii to identify plants with a high risk of becoming invasive pests in Hawaii or other Pacific islands.

Despite these findings, researchers say some high-risk biofuel crops could be grown if measures are implemented that reduce their risk of spreading out of control and causing unintended problems.

By identifying the species with the highest risk, and pushing for planting guidelines and precautionary measures prior to widespread planting, we hope to spare the Hawaiian Islands and similar tropical ecosystems from future economic and environmental costs of the worst invaders while encouraging and promoting the use of lower risk alternative crops.

The Hawaii Invasive Species Council provided funds through the Hawaii Department of Land and Natural Resources to carry out weed-risk assessments for introduced species. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

To see the full text of the case study go to <http://dx.plos.org/10.1371/journal.pone.0005261>.

Control methods

CONNOVATION

CONSERVATION BY INNOVATION

RatAbate[®] low residue highly palatable effective bait for rodent control for community and professional users

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Background

- Effective less persistent anticoagulants were sought when repeated use of brodifacoum led to bioaccumulation.

What is Diphacinone?

- It is an effective anticoagulant rodenticide.
- It inhibits the formation of vitamin K-dependent clotting factors
- RatAbate[®] is a cereal based paste bait containing diphacinone.

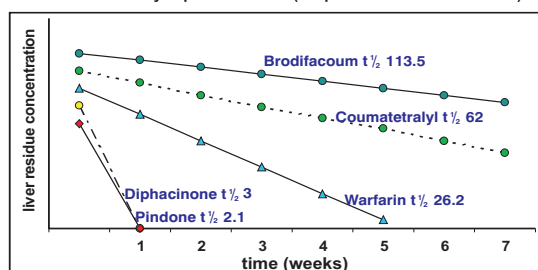
Key Criteria for Baits Containing Alternatives to Brodifacoum and Pindone

- Alternative must lack persistence in animals.
- Toxin must be more potent than pindone.
- Baits must be very palatable to rodents.

Comparative Persistence (See Figure 1)

- Diphacinone is not persistent and will not contaminate food-webs.

Figure 1 Persistence of diphacinone vs. other anticoagulants in liver of sub-lethally exposed animals (adapted from Fisher et al 2003)



Bibliography

Fisher, P., O'Connor, C.E., Wright, G., Eason, C.T. 2003 Persistence of four anticoagulant rodenticides in the livers of laboratory rats. DOC Science Internal Series 139 pp 19.

Comparative Effectiveness

- Diphacinone at 3 mg/kg will kill and rodents are susceptible to repeated lower doses.

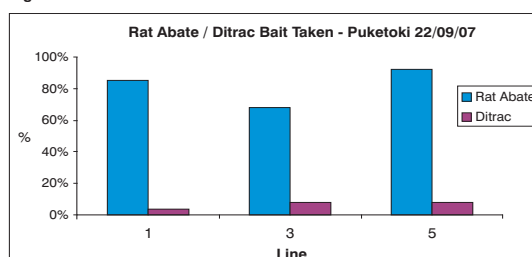
Table 1 LD 50 data in mg / kg

Compound	Rats
COUMARINS	
Brodifacoum	0.24
Coumatetralyl	0.3 over 5 days
Warfarin	1.0 over 5 days
INDANDIONES	
Pindone	5.0 x 5 days
Diphacinone	3 or 0.2 over 5 days

Comparative Palatability (See Figure 2)

- Volunteers protecting 40 hectare native bush were baiting with Ditrac[®].
- They were looking for more effective baits and measured comparative palatability of 2 baits.
- After 2 months of baiting with both bait types RatAbate[®] was 89% more palatable than Ditrac[®].

Figure 2



Conclusions

- RatAbate[®] contains diphacinone, an anticoagulant which is not persistent.
- Diphacinone is more potent than pindone and has similar potency to coumatetralyl.
- It is highly palatable and used alongside Feratox[®] and /or Feracol[®] will provide excellent cost effective control of possums as well as rodents with low risk of secondary poisoning and no residues.

Acknowledgement

The DoC support in clarifying low residue anticoagulants and FRST.

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Progress achieved on two invasive pests

MAF Biosecurity New Zealand (MAFBNZ) has successfully eliminated the southern salt marsh mosquito from the Coromandel area and eradicated red imported fire ants from Whirinaki.

Southern salt marsh mosquito

The elimination of southern salt marsh mosquito (SSM) ends some three years of treatment and surveillance activity.

The Australian mosquito can be a carrier of Ross River virus, which causes a severe flu-like illness in humans, and is also a vicious day-time biter.

The insect was first detected in New Zealand in Napier in 1998 and has been under treatment at several locations around the country since then. It has now been eliminated from all but one of these sites; Wairau in Marlborough, where excellent progress is being made on its elimination.

SSM was first detected in the Coromandel in May 2006. Activities undertaken since then to locally eliminate the insect have included helicopter and ground treatment operations, trapping of adults, and sampling for juvenile life stages.

During the eradication programme, several areas north of State Highway 25 were treated with S-methoprene insecticide granules and Bti (*Bacillus thuringiensis israelensis*) spray where live larvae were found.

MAFBNZ Incursion Response Manager David Yard says the successful elimination of the mosquito in

Coromandel is something to celebrate, now that two years have passed without any sign of the insect as adults, larvae or eggs. There has been intensive surveillance undertaken during those two years for both adults and larvae.

"MAFBNZ, and in the initial stages, the Ministry of Health, have undertaken a comprehensive work programme against this aggressive mosquito and to be able to declare this success is significant considering the vast areas of ideal habitat the Coromandel provides for the pest," Mr Yard says.

He adds that the co-operation of local landowners has contributed significantly to the success of the programme and that MAFBNZ is grateful for this.

Now elimination has been declared in Coromandel, the area comes under the control of the Ministry of Health which administers an active national surveillance programme. This programme covers all of New Zealand to provide early detection of any exotic salt marsh mosquito, and will ensure that a sound level of ongoing surveillance is carried out in Coromandel.

The active eradication programme for SSM is continuing in one remaining New Zealand location: Wairau (in Marlborough).

Red imported fire ants

Red imported fire ants were successfully eradicated from the Whirinaki area on 22 April 2009, MAFBNZ has declared.

The eradication programme began after a single red imported fire ant (Rifa) nest was discovered at the Pan Pac Forest Products site in Whirinaki in June 2006.

Rifa, considered one of the world's worst invasive species, has been increasing its worldwide distribution, with introduced populations in the United States, Australia, Hong Kong, China, Singapore and Taiwan. Its painful sting and aggressive nature means Rifa would have serious economic, health and cultural impacts should it establish here, in addition to serious ecological effects.

Sonya Bissmire, MAFBNZ Team Manager, Environment and Marine Response, says despite intensive surveillance no further red imported fire ants had been

detected during the three-year eradication programme carried out by MAFBNZ and its contractors.

"During the three-year eradication programme, surveillance teams carried out an extensive baiting programme designed to detect fire ant colonies and ensure eradication is complete. Over 900,000 samples were collected and checked for Rifa infestation. In addition six aerial treatments of fire ant bait were carried out in those areas that could not be covered effectively and safely on foot."

New Zealand is the only country that has successfully eradicated this ant, thanks largely to early detections and rapid responses.

She says with no further finds the eradication programme is complete and MAFBNZ will now lift all movement restrictions and declare Rifa eradicated from the Napier area.