



New Zealand  
Biosecurity Institute

the magazine of the NZBI Spring 2014

# Protect

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New Zealand  
Biosecurity Institute

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





## Counting possums without spilling your tea

■ EDITOR'S NOTE

Amongst the 250 people present at NETS2014 the names HG Wells and Jules Verne didn't appear but their century-old dreams made an appearance.

The imaginings they wrote of more than a hundred years ago were quite normal topics of discussion at this year's gathering.

Stories of robots capable of flying and climbing trees among other operations were impossible to miss amidst this year's presentations. Unmanned remote controlled vehicles have been around for a long time but now that they are more nimble and accurate they are very much featuring in the world of biosecurity and mentions of 'robot' and 'drone' no longer raise an eyebrow. Technology is offering new avenues for affordable pest control and monitoring while also increasing safety of those in the field. As Richard Parker from Scion said in his presentation "You can count possums and look at kokako without spilling a drop of tea."



Although Richard's tree clinging robots looked as if they had sprung from the pages of the *War of the Worlds* it was clear they could be a power for good.

As drone-advocate Hamish Kendal said "The technology is ahead of our imagination. Let's start using it."

As well as hearing about the ride that miniaturising technology was taking us on into the future, it was appropriate too that the conference heard a little about the past in an address about the oral history project by Shona McCahon. I wonder what the old-timers interviewed so far for this project would have to say about the future of biosecurity. On one thing they agreed—they all said how much they enjoyed their jobs. This issue focuses on the real people on the ground as it acknowledges the achievers who were recognised at NETS this year for their contribution to biosecurity and the Institute.

Chris Macann, Editor

## A great showcase for biosecurity

■ FROM THE EXECUTIVE

The Executive would like to extend a huge congratulations to the NETS2104 Organising Committee for such a fantastic event, what a great showcase for biosecurity.

We would also like to thank Wendy Mead for her service on the Executive for a number of years as Secretary, and a warm welcome to our team to Alice McNatty as our new Secretary. A farewell also to Lynn Huggins from the Southland/Otago Branch and Don McKenzie from the Auckland/Northland Branch, taking up these roles are Richard Bowman and Mary Stewart respectively.

We would like to thank those of you who attended the AGM and extended your support to the Committee and contributed to the AGM discussions in particular where to from here for promoting Biosecurity and the Institute.

Further discussions will be held at our next Executive meeting in early November. Well summer feels like it may be on its way, the weeds are certainly making a show in the Northland/Auckland area and the silly season

seems to be just around the corner. Please take care this summer and enjoy a well earned break with family and friends.

Rebecca Kemp,  
President



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# NZBI Contacts



**Rebecca Kemp**  
President



**Sara Moylan**  
Vice-President &  
Lower North Island



**Alice McNatty**  
Secretary



**Randall Milne**  
Treasurer & New  
Members Officer



**Pedro Jensen**  
Immediate Past  
President



**Darion Embling**  
Vice-President &  
Central North Island



**Lindsay Vaughan**  
Top of the South



**Ronny Groenteman**  
Canterbury/Westland



**Richard Bowman**  
Otago/Southland



**Alastair Fairweather**  
Travel/Study Awards  
Co-ordinator



**David Brittain**  
Web Manager



**John Sanson**  
Biosecurity  
New Zealand

<b>Rebecca Kemp</b>	President	(09) 366 2000	rebecca.kemp@aucklandcouncil.govt.nz
<b>Darion Embling</b>	Vice-President & Central North Island	(07) 859 0790	Darion.Embling@waikatoregion.govt.nz
<b>Sara Moylan</b>	Vice-President & Lower North Island		Sara.Moylan@gw.govt.nz
<b>Alice McNatty</b>	Secretary		mcnatty@hbrc.govt.nz
<b>Randall Milne</b>	Treasurer & New Members Officer	(03) 211 5115	randall.milne@es.govt.nz
<b>Pedro Jensen</b>	Immediate Past President		pedro@kaitiaki restoration.co.nz
<b>Mary Stewart</b>	Auckland/Northland		mary.stewart@aucklandcouncil.nz
<b>Lindsay Vaughan</b>	Top of the South	(03) 543 8432	lindsay.vaughan@tdc.govt.nz
<b>Ronny Groenteman</b>	Canterbury/Westland		groentemanr@landcareresearch.co.nz
<b>Richard Bowman</b>	Otago/Southland		richard.bowman@es.govt.nz

## Other Officers

<b>Chris Macann</b>	Protect Editor & Archives Co-ordinator	03 349 9660	chrismacann@hotmail.com
<b>David Brittain</b>	Web Manager		david.brittain@kiwicare.co.nz

## Seconded Members

<b>John Sanson</b>	Ministry for Primary Industries	(04) 894 0836	John.Sanson@mpi.govt.nz
<b>Alastair Fairweather</b>	Travel/Study Awards Co-ordinator & Vertebrate Pests secondment	(07) 858 0013	afairweather@doc.govt.nz

The New Zealand Biosecurity Institute can be found on the web at [www.biosecurity.org.nz](http://www.biosecurity.org.nz)



## Down-to-earth pragmatism: John Simmons wins the Peter Nelson Memorial Award

John Simmons won the Peter Nelson Memorial Award for excellence in Vertebrate Pest Management. Here is the citation prepared by Kevin Christie about John's contribution to vertebrate pest management.

John Simmons has made a significant and lasting difference to Biosecurity in the Waikato and central North Island region over nearly three decades.

John's involvement in biosecurity began back in the late 1980's with the formation of regional councils from a disparate group of local authorities.

*" John had the foresight and vision to drive through major changes within and outside his region, while achieving significant pest control outcomes."*

He oversaw the evolution from parochial pest destruction, and noxious plant boards through to large-scale work units, followed by the promotion of professional pest control companies with a strong alignment to core Council values.

He was one of the few drivers in councils throughout New Zealand to move from having plant pest officers to external contract management basis with plant pest contractors, a model that has seen Waikato Regional Council at the forefront of plant pest control in New Zealand.

He has been the key representative for the biosecurity working group and a number of technological and advisory groups over many years. He is a former chair of the National Possum Control Agencies, and has been instrumental in developing national standards for pest control operators and regulators. An example of this was John's role as a key



John Simmons (centre) with Kevin Christie and Award supporter Frank Visser from Key Industries

advocate and leader in the development of standard operating procedures for the aerial application of 1080, which introduced much higher standards for the wider New Zealand pest control industry.

*" John has always had strategic vision coupled with a down-to-earth pragmatism not usually found in senior executives."*

John has also implemented the initiative of undertaking of large-scale key ecological site surveys and reports, with subsequent implementation of on-ground killing of pests in areas with high biodiversity values. Under his direction the Waikato went from being one of the largest contributors of Tb reactors in cattle herds in New Zealand to a virtual Tb eradication zone, while achieving huge parallel biodiversity outcomes over hundreds of thousands of hectares.

"From my perspective, having worked with many regional councils throughout New Zealand, John Simmons stands out amongst many of the managers as a leader with strong values around biodiversity and a clear sense of purpose. John has always had strategic vision coupled with a down-to-earth pragmatism not usually found in senior executives within regional councils," Kevin said.





## Peter Ingram Memorial Award for Ronny Groenteman

Ronny Groenteman was this year's recipient of the Peter Ingram Memorial Award. The award recognises exceptional contributions to education or support of others in the area of weed control and management.

In his presentation announcement Simon Fowler described Ronny as an up and coming researcher in the weed biocontrol group at Landcare Research at Lincoln.

Ronny began at Landcare Research as a PhD student with the University of Canterbury. She completed her PhD in 2008, then became a post-doctoral fellow, and later a full-time scientist with the group.



*Ronny Groenteman and Simon Fowler with the Peter Ingram Memorial Award*

Since arriving Ronny has played considerable roles with various societies involved with biosecurity. Among those contributions are: a member of the executive of NZBI, Chair of the Canterbury Branch of The Entomological Society, Treasurer of the Asia Pacific section of The International Organisation for Biological Control.

Ronny has helped with the training of numerous students and interns. As well she has pursued her own training in data analysis and modelling.

Most recently she has taken a lead role in forming a stakeholder group to pursue possible biocontrol of *Vespula* wasp and was successful in securing a Sustainable Farming Fund grant for this work.

Ronny said she was surprised and humbled to receive the award.

"I consider myself extremely fortunate to have been given the opportunity to work in the area that is my passion – biological control, and to be part of a high-achieving team that supports me all along.

"It's all about team work and my accomplishments are due to this ongoing support. By being well mentored by my team, I can become a better mentor to others. After all, isn't that the essence? Always learn, Always teach." she said.

"Serving on the NZBI Executive keeps providing me more opportunities to get involved and contribute. It is wonderful to be part of yet another fantastic team working towards a shared public-good goal. Thank you for the award; it carries a message that guides me."

The Peter Ingram Memorial Award is given to a member of the NZ Biosecurity Institute who has successfully undertaken or enabled others to achieve, relevant to pest plant education, control or management.

## NETS2014 Taranaki: Like No Other

More than 250 attended NETS2014 at New Plymouth's Devon Hotel from 30th July to 1st August 2014. It was the 64th National Education and Training Seminar (NETS) and the third shared with the National Pest Control Agencies (NPCA). The theme was 'Like no other'.

NZBI President Rebecca Kemp welcomed delegates, inviting them to discuss "where to from here for biosecurity" and to look for dynamic solutions for the future. NPCA Chair Brent Rohloff in his welcome noted that technology transfer and best practice hold more relevance than ever and that getting it right the first time was critical.

*continues page 6 »*



*Illona Keenan & Sarah Beadel*



*In control - Wendy Mead, Rebecca Kemp & Randall Milne*



*Craig Davey, Ray Maw & Randall Milne*



*Alby Osborne & Lynley Hayes.*



*NPCA chair Brent Rohloff & NZBI president Rebecca Kemp*



*Jono Walter looks-out from a tree hut*



*A wander through Puketi gardens*



*Kevin Allan & Campbell Perrin*



*Mary de Winton, Paul Champion & Kerry Bodmin*



*Mary Stewart & Andrea Rule*



*Kaye Seymour & Kevin Siggelkow*





# NETS2014



Murray Hudson, Peter Visser & Christopher Cole



True colours  
Barry Green & Stephen Brown



Robyn Smith & Murray Clark



Noel Crump, left & Al Glen



Sara Moylan takes charge



Shona McCahon, Maurice Kennedy & Rosemary Balantyne Scott

## Face to face

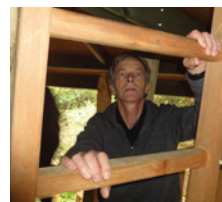
A Powhiri from local Iwi encouraged members to continue to meet face to face in the age of the internet.

Taranaki Regional Council chief executive Basil Chamberlain, welcomed visitors to his region and shared his thoughts on the future of biosecurity locally and nationwide.

A look at the Institute's past as well as what was in store for the future featured early-on with samplings from the oral history project presented by Shona McCahon followed later by presentations on new technology particularly robots and drones. "You can count possums and look at kokako without spilling a drop of tea," said Scion's Richard Parker in his presentation. Robotic and drone technology featured heavily including a practical demonstration of the technology's future biosecurity possibilities.



Lake Rotokare field trip. Simon Collins, sanctuary manager at front right



Tree hut - Noel Crump seeks a better view



Rebecca Kemp, left, thanks & farewells outgoing secretary Wendy Mead



Organising Committee chair Steve Ellis



Lyndon Dynes, left receives the shooting trophy from event organiser Kerry Matthews



Coenraad Blunt fine-tunes a valuable assistant

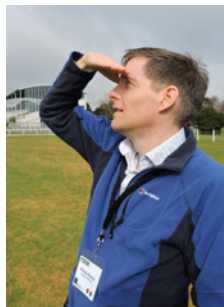


Erin Patterson & Sharon Leatham





*Coastal Taranaki field trip*



*Drone-watcher  
Philip Hulme*

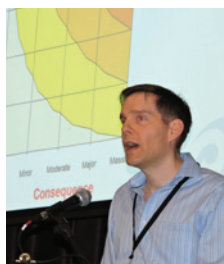
## Citizen science

Philip Hulme from Lincoln University spoke about ambiguity in invasive species risk assessments, and Heidy Kikillus and Jon Sullivan spoke on the emergence and usefulness of citizen science.

Taranaki biosecurity projects were spotlighted including the citizen initiated Taranaki Biosecurity Accord as well as citizen, Council and Department of Conservation biosecurity and biodiversity initiatives.

## Funding partnerships

Dr Geoff Hartley Chairman of NEXT Foundation and director of Project Janszoon Trust and Rotorua Island Trust spoke along with Project Janszon Trustee Devon McLean about the strict criteria for funding projects in order to achieve real results. Dr Hartley emphasised that maximum value for the dollar and leadership were two key factors in attracting funding partnerships.



*Philip Hulme  
addresses the  
conference  
about invasive  
species risk  
assessments*



*Shona McCahon  
speaks about  
the Institute's  
valuable  
heritage*

**Peppering the plenary presentations was plenty on pest plants, vertebrates, marine menaces, insect invaders and pathways and responses.**

Quick gem sessions featured the work of Unitec students among others, on matters involving rainbow skinks and Argentine ants, maximising herbicide control of aquatic weeds, wallaby baits, pest control devices, and community groups collecting pest data.

Field trips offered opportunities to see coastal and inland Taranaki or to shoot clays. As well, an incursion simulation exercised the minds of those who took part.



*"You can count possums and look at kokako without spilling a drop of tea,"*



*Darion Embling presents Mary Stewart with the Stook, awarded for best presentation*

## Achievers

During the formal stages the Institute recognised achievements by its members: Dave Galloway was awarded with a life membership, Ronny Groenteman won the Peter Ingram Memorial Award for excellence plant pest awareness and education, John Simmons won the Peter Nelson Award for excellence in Vertebrate Pest Management, Mary Stewart Won the Stook Award for best presentation for her talk on Chinese knotweed, and Lyndon Dynes won the Clay Bird Shooting Plate.

The Annual General Meeting farewelled Secretary Wendy Mead, and welcomed Alice McNatty into the role.

Among other items, the AGM discussed how better to promote Biosecurity and the Institute to a nationwide audience.

The conference handbook is on the website with summaries of all the papers presented. Also on the website are more photographs from the conference.

NETS2015: 'The Learning Never Stops' will be hosted by the Otago/Southland Branch in Dunedin 26 -28 August 2015.



## Emergency responses – when training resembles real life

BY PETER RUSSELL - BASED ON SEVERAL EYE WITNESS ACCOUNTS

An unplanned consequence shows just how real a simulation can be. This was certainly the case during the biosecurity incursion simulation exercise which was part of NETS2014. Read on ...

The 2014 Biosecurity Institute's national conference was held in New Plymouth. Titled "Like No Other", one of the field trips on offer to delegates was a biosecurity incursion simulation. The simulation was based at the Taranaki Emergency Management Office nearby the venue. Attendees were split into teams and given simulated surveillance tasks to complete. The day was run byASUREQuality who are contracted to the Ministry for Primary Industries (MPI) to manage a National Biosecurity Capability Network (NBCN).

The NBCN is a joint programme between MPI and ASUREQuality. It is "New Zealand's field team" in the event of a biosecurity outbreak, such as Queensland Fruit Fly, right through to an outbreak of Foot and Mouth Disease (FMD), which would paralyse, then cripple New Zealand if it was ever discovered. So, a worthwhile activity to promote.

The keen as mustard group, treated like they were a first response team, met at the field HQ and were provided with a rapid assessment report by ASUREQuality's Richard Calvert. The briefing included a run down on response logistics and the hierarchy of control in emergencies.

They were told that a fictitious, unwanted organism *Responsum exercitationem* (common name - preposterous purple people peril) had been reported by the public and they were to 'conduct a delimiting survey around the initial find to establish the extent of the incursion'. "Find 'em but dont touch 'em", said Calvert.



▲ Can you see it? Looking for a purple monster

It soon became clear that 25 small blue/purple critters (similar to those that starred in the movie 'Monsters Inc') had been surreptitiously placed around the local reserve, hidden in trees, long grass and any available cover. Further information was supplied about the critters in question.



*Responsum exercitationem*

◀ Male ▶ Female



### Biology

- Prefers native food sources – substituted when unavailable by agapanthas, pines and pohutukawa
- Females are aggressive feeders and avidly defend their territory
- Females reproduce asexually, resulting in numerous genetically identical copies
- Males, on the other hand, will eat whatever is available, and
- Males are capable of maintaining more than one reproductive partner, but in reality barely manage to achieve one (interesting parallels with another male species – *Homo sapiens*).

### Impacts

- Destructive to native plants
- Human exposure to organism results in regression to childhood, and
- Teenage males are often seen to be collecting and distributing them to teenage females as part of their mating ritual.

The group was then split into 3 groups of 8-10 each and allocated quadrants to search. What resulted was such a real life scenario facing the response team that it looked like it had been staged...except it wasn't.

Near the start of the exercise a group of furtive looking youths (both sexes) were spotted lurking among the low shrubbery across the park. Suddenly they emerged running, clutching three of the critters, taking off into nearby trees for a smoke. Richard yelled at them but to no avail, they were gone. A little later an 'act of God' occurred for the response team. A random dog was seen snatching another hapless critter and 'legging it' in the opposite direction.

So, what were the lessons learned? When attending a biosecurity response it pays to be adaptive and to expect the unexpected. All the processes and risk assessments in the world may not allow for real life. Although, it would seem that the species' "impact assessment" included in the response briefing regarding hormonal teenagers was 'bang on'.



# A more important defence role than our armed forces

Taranaki Regional Council Chief Executive Basil Chamberlain welcomed NETS2014 conference-goers to his region and shared his thoughts on biosecurity. He noted early that his region is unique in that it is home to New Zealand's oil and gas industry as well as a dairy industry. "We have white gold and black gold," he said.

Here is a substantial extract from Basil's speech:

*"Kia ora tatou and welcome to New Plymouth and to the Taranaki Region.*

It is really good to welcome so many of our front line biosecurity forces. In my view you have in many ways, a more relevant and important defence role than our armed forces, because we are at biological war all of the time and some of the invasion battles are very serious matters."

[Basil mentioned the current positive state of Taranaki's economy, environment, general vibrancy and good lifestyles]

... "It is for all of these outcomes that we engage in biosecurity. Biosecurity is a means to good health, lifestyle, environmental and economic outcomes. It is a contributor to all of our national goals, and a very important contributor.

Biosecurity is more important for New Zealand and we are more reliant on effective biosecurity, than any other developed country that I can think of. This is essentially because of our huge reliance on international trade from our biological land based industries, and the special and unique biodiversity assets that we are stewards of. Our overseas visitors also come here, in part because we are a relatively safe place to visit, which includes being safe from nasty pests and diseases. This tourism is also a big contributor to our economy.

But because it is a means rather than an outcome of itself, we must all be clear that in considering whether to engage in biosecurity



*Taranaki Regional Council Chief Executive Basil Chamberlain shares his thoughts on biosecurity*

activities such as pest management, the key questions are not about capability, the 'can we do this?' questions. Rather, the key questions are about purpose – the 'should we do this?' questions, and how does what we are thinking of doing contribute specifically to our broader national or regional goals?

As every hunter knows, target identification before pulling the trigger is critically important behaviour. So too, with pest management - we need to be accurate and specific in identifying our outcome targets and how what we are planning will impact on those targets.

As a sector we still have a lot of work ahead on being more informed and disciplined in our intervention decisions and also in monitoring the real effectiveness of our activities – not in terms of outputs –we are pretty good at that, but in terms of contributions to economic, social, cultural and environmental outcomes.

Some progress is being made with for example, the development of conversations around concepts like ecosystem services, but it is complex and there is still much to do to sharpen up our investment strategies and to assist in presenting meaningful and defensible value propositions to our paying public at both regional and national levels.

As an aside, I am watching the enthusiastic support for valuing ecosystem services and valuing nature - 'natural capital' to use some of the fashionable language, with some concern. It could turn out to be a very double edged prospect with perverse results. Putting dollar values on rivers, forests and wildlife - what some are even now terming as 'green infrastructure' – apart from producing some very spurious numbers masquerading as being credible – creates the risk is that as soon as this occurs, there is arguably a market that has been created.

If you have markets, expect trades to occur. Take for example, when a development proposal comes along with, no surprise, an assessed value that is greater than that of the little slice of national park, penguin colony, or marine reserve that the project needs to destroy to proceed. Who is on the high side of the discussion and playing by market rules and a negotiation game that is their natural territory? Conservationists need to be very careful and not naïve in their moves to price, value, monetise and financialise nature, in their efforts to have it better appreciated and therefore protected. Money is the language of markets and development.

These are very interesting and developing conversations and such methodologies will have their useful applications. But I sense that those in the conservation game, would do well to largely stick with advocating that intrinsic conservation values are incommensurable, meaning they cannot and should not be directly compared with more easily measured



cost/benefit values, such as those associated with physical infrastructure or mining activities. That leaves the debates firmly with the people and democratic politics – a generally much safer habitat for endangered species and precious ecosystems than market places.

Personally, I have been involved at a range of levels with biosecurity over the past quarter of a century and there has been continuous change and evolution - much of it for the better. The last two years have been no exception.

In 2008, a small group of us produced a think-piece aimed at improving the business of pest management. This project was a key driver to what became the 'Future of Pest Management' project. One of the things that we strongly advocated for was for the Crown to be bound to pest management strategies, as for any other land owner. I have yet to hear of a plant or animal pest that acknowledges the difference between private as opposed to Crown land. To me, this tenure neutrality was a critically important change and the positive effects of it will roll out over the next several years.

And so in the last couple of years we have seen the law changed to institute tenure neutrality and there have been a host of other changes and challenges, some legislatively driven, others policy driven; and others still, from the coal face reality of the front line of biosecurity.

*" I am watching the enthusiastic support for valuing ecosystem services and valuing nature - 'natural capital' to use some of the fashionable language, with some concern. It could turn out to be a very double edged prospect with perverse results. Putting dollar values on rivers, forests and wildlife - what some are even now terming as 'green infrastructure' – apart from producing some very spurious numbers masquerading as being credible – creates the risk is that as soon as this occurs, there is arguably a market that has been created."*

Some of these include:

- Substantial changes at MPI, with no doubt some renewed efforts on priorities, but with I fear something of a loss of the increasingly successful brand of Biosecurity New Zealand
- Several notable incursions, namely fruit fly, PSA and the seductively named Sabella with all the learnings we take from these events
- Progress, albeit too slow in my view, with Government/Industry agreements. We are as strong as our weakest link and having a coherent and fully adequate approach to surveillance and incursion response is threatened by a somewhat slow and patchy GIA programme
- A worryingly strong critique by the OAG of New Zealand's response plan for foot and mouth incursions, that I trust and understand is receiving very serious attention
- The emergence of the National Policy Direction for Pest Management which seeks to drive, amongst other things, greater alignment and consistency in pest programmes and really careful consideration of cost benefits
- A greater focus on pest pathways, and
- A greater emphasis on collaborations between organisations and with the likes of the National Biosecurity Capability Network

A project that has been jointly commissioned by Regional CE's, is a policy paper on roles and responsibilities for biodiversity management with an emphasis on pest management. The feeling of several of my colleagues is that there seems to be a divergence of understandings and related activities across the regions, for example in the marine space and public vs. private lands.

Roles in safeguarding and monitoring habitats vs. protected species are a further point of examination. We intend the work to refresh our understandings of mandates, and roles and responsibilities with reference to who pays, which in our case are normally our private land owning ratepayers.

One discussion I will also be watching with interest is the review of the Bovine Tb national plan. From a regional council viewpoint, there has been an interesting progression over the years from where councils were once both major service providers and substantial strategy funders, moving through to the present where there is little contracted service provision and relatively less, but still significant rate funding.

In the reasonably near future, I strongly suspect there will be no direct Council involvement at all - just perhaps mutually beneficial operational collaborations.

So, there is plenty to keep our minds focused for the future. Of central importance though, as we work through these ongoing changes and challenges as professionals, will be to keep improving our effectiveness, our efficiency, and our accountability and our disciplines in spending other peoples' money, or requiring people to spend their own money through our regulatory interventions.

In other words to keep getting sharper and smarter so that we can take even more pride in our roles in contributing to the wellbeing and future of New Zealand.

We believe that as a community we [Taranaki] have some really good and successful pest management initiatives underway and in particular in recent years, when we have had an emphasis on pest management for biodiversity purposes, and where we have thought hard about how to prioritise, the need for team collaborations and to try and make sustainable investments.

It has been really important to learn the discipline of when to say no, this is not a sustainable investment, despite the feel-good emotions that are often present, as well as when to green light a project."



## Never too old to learn: Life Membership for Dave Galloway

NETS2014 was Dave Galloway's 20th consecutive NETS, so it was fitting for the Institute to reward him with a life membership.

Dave's colleagues prepared this tribute for a career so far, of service to the biosecurity sector and the Institute

Agriculture has always been somewhere in Dave's life.

Born in Dunedin and raised on a farm in Matakanui, Central Otago. His mother died on his seventh birthday and he was whisked off to an Aunt and Uncle and their Mt Hutt farm.

On returning to Dunedin, Dave went to Mornington Primary School and Kaikorai Valley High.

Dreams of working on farms and of ultimate ownership disappeared and upon leaving school he went to work at Dalgety NZ in Dunedin in late 1969, first as a fertiliser clerk in the Merchandise Department, then upon transferring to Gisborne, as a grain and seed clerk. After a short but enjoyable stint on the East Coast he transferred back to his beloved mainland as an Agresearch technician specialising in pea, wheat and maize breeding. This saw him travelling the high country carrying out trials and multiplying-up various species for overseas producers. A ten month stint at the then Lincoln College saw him graduate with a Diploma in Field Technology.

### Quarantine work

Shortly afterwards Dave started work for the Port Agriculture Service in Auckland which began 17 years as a Quarantine Officer. His time was spent equally between port and airport and he became a quasi-specialist in law teaching staff the vagaries of the Plant and Animal Acts and, from 1993 the Biosecurity Act.

He rose through the ranks to become a Senior Officer and finally to become the manager of the Treatment Technology Centre at Auckland Airport, at that time the best, most modern and safest fumigation station in Australasia.

During his time he also spent two-and-a-half years carrying out an overseas aid project for the Ministry of Foreign Affairs in Papua New Guinea where his job was to write a Biosecurity Act for PNG which was needed to split its public health sector away from the plant and animal sector in its existing Quarantine Act.

### Noxious Plants Officer

Upon leaving MAF he took-up a quality control position within the timber industry but his background got the better of him and he successfully applied for a job as a noxious plants officer with Waitakere City working on



contract for the Auckland Regional Council, which three years later was absorbed into the new Biosecurity Unit of the Auckland Regional Council. He quickly rose to the position of team leader North/West and after 20 years with local government is now, having survived constant restructuring, Biosecurity Team Manager North/West overseeing six staff and managing Auckland's possum population to low levels and the Low Incidence (Total Control) Pest Plants Programme. Until 2004 he was actively involved in the Auckland Tb programme which was declared as a vector free area that year and has been downgraded to reactive work if an infected animal is found during herd testing.

His latest area of expertise has been the monitoring of toxin distribution and breakdown during and after five aerial bait drops in the Auckland Region and also giving advice on this process to managers doing aerial bait drops at Lake Ritokare (Taranaki), Quail Island (Banks Peninsula) and Macquarie Island (Southern Ocean).

### Institute service

His involvement with the Institute began in 1995 when he became secretary for the Auckland/Northland Branch of the then Institute of Noxious Plants Officers and became National Secretary of that body in 1997. Holding this role through until 2004, he reported to three different Presidents.

During his time the Institute changed its name to the New Zealand Biosecurity Institute. Dave has been involved in the NZBI Archive Project from its inception and has provided useful insight to the history of the Institute from its humble beginnings 64 years ago. He has also been on the organising committee of the last

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## Never too old to learn (cont.)

three NETS in the Auckland/Northland area - Auckland 2000, Paihia 2006 and Takapuna 2011.

Dave has also attended the Australasian Vertebrate Pest Conference twice, in Wellington and Darwin and presented at the Australasian Weeds Conference in Christchurch.

He said he is not too old to learn and recently attended training as a restricted Place Manager with the National Response Team for the National Biosecurity Capability Network.

NETS2014 in New Plymouth was Dave's 20th consecutive NETS.

Institute President Rebecca Kemp said Dave still holds a valuable ex-officio role with the Institute as her PA (personal advisor)..

# Sector News

## A little brown bug that could cause a big stink

### What's brown and stinks?

The answer is a little brown bug. It hasn't caused a stink here yet but it soon could.

The Ministry has been keeping an eye on the brown marmorated stink bug (*Halyomorpha halys* or BMSB) for a number of years now and has stepped up its efforts to keep this pest out of New Zealand - or detect it early should it get here. This is in response to the insect emerging as a serious horticultural pest in the United States.

BMSB is native to Asia and has aggressively invaded the United States and has now been found in Canada, Switzerland, Germany, Hungary, Greece, Italy and France. The New Zealand horticulture industry currently lists it as one of the top six pests of concern.

Almost any crop can be at risk from the BMSB including: citrus; pip fruit; stone fruit; berries and grapes; asparagus; soybeans; sweet corn and maize; honeysuckle; maple; butterfly bush; cypress, hibiscus; and roses.

Also, when they hibernate over winter in buildings and houses they can be a nuisance, as when disturbed or crushed they emit a characteristic, unpleasant, long-lasting odour (although this does not pose any health threat).

### What is MPI doing about this stinky threat?

MPI is currently trialling 50 traps in high risk areas to determine the feasibility of integrating pheromone lures for BMSB into its existing trapping programmes. Border and transitional facilities have also been put on alert for BMSB.

MPI is also rolling out a public awareness campaign. Soon it will begin by targeting travellers from the United States via advertisements on airline e-tickets. Closer to Christmas, travellers into Auckland International Airport will be welcomed by giant digital stink bugs on arrivals baggage carousels.



BMSB has not been detected in New Zealand. To report suspect sightings phone MPI on 0800 80 99 66. For more information visit [www.biosecurity.govt.nz/pests/brown-marmorated-stink-bug](http://www.biosecurity.govt.nz/pests/brown-marmorated-stink-bug).

These bugs don't just hitch-hike with human travellers. They can also arrive through cargo and mail. That's why we're working with NZ Post and their US based warehouses to raise awareness by putting up posters at mail centres and warehouses and providing information on NZ Post's website to encourage people to open their parcels indoors.

Finally New Zealanders shopping on eBay will see digital ads encouraging them to carefully check their parcels when they receive them.



## A 'sniffer' dog to detect Argentine ants

D.F. WARD<sup>1</sup>, R.J. TOFT<sup>2</sup>, J. COOK<sup>3</sup>, B. SHIELDS<sup>3</sup>, R. JONES<sup>3</sup>,  
N.W. WAIPARA<sup>3</sup>

**Darren Ward tells the tale of an ant sniffing dog who has become a highly successful and treasured colleague.**

The Argentine ant (*Linepithema humile*) was first found in New Zealand in 1990. It is often found closely associated with humans, and consequently humans are primarily responsible for its range expansion around New Zealand.

Trying to find small colonies of Argentine ants is a vital element in their management, for both surveillance and eradication programs. Argentine ants (and many other invasive ants) are good candidates for poor detection because of their small size, variable foraging habits, and cryptic nature.

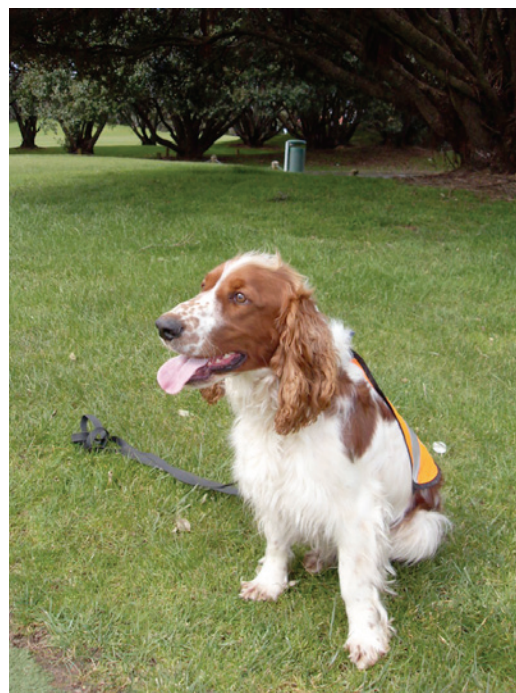
One avenue receiving attention to increase the detection of pest ants is the use of 'sniffer' dogs. Trained dogs have the great capability of detecting concealed targets, including a wide range of animals, such as, snakes, gypsy moths, termites, and bed bugs. In the past few years, dogs have been trained to assist with eradication programs of red imported fire ants in both Australia and Taiwan, and for electric ants in Australia. Here we report on the training and performance of the world's first sniffer dog trained to detect Argentine ants.

### Training

The dog is a male Welsh springer spaniel who began training at 8 months of age by recognising the scents of Argentine ants. Colonies of Argentine ants were kept in the laboratory and had to trail through plastic tubing and into a container with clean filter paper on the floor on their way to and from a separate container with food. The ants were left to trail over the filter paper for a few days before the filter paper was removed, put into a sterile vial, and kept frozen until training began.

Dog training was done by hiding pieces of filter paper inside concrete blocks. The handler (B. Shields) led the dog to sniff the blocks and verbally encouraged it to sit by the vials where a food reward was given. Simultaneously, the dog was also taught not to react to, or sit by, empty vials through oral instructions. As training progressed, positive indications were encouraged by food rewards and dogs false indications were discouraged verbally by the handler. Basic training took 7 months and the dog passed DOC certification as a 'conservation dog' in April 2012.

However, further trials were also undertaken to compare the dog's response to target (Argentine ants) and non-targets (other ants). Trials were conducted in September 2012 on three different surfaces; hard concrete, grass (sport field), and urban wasteland (combination of concrete, overgrown grass, weeds).



At each site 100 vials (25mm diameter opening) were placed in a 10x10 grid with 5m spacing. The vials consisted of 40 controls (empty); 30 vials of Argentine ants (10 vials had 5 specimens, 10 vials had 50 specimens, and 10 vials had scented filter paper as used in the initial training); and 30 non-target ant species (10 vials of *Doleromyrma darwiniana* (Darwin's ant), *Technomyrmex jocosus* (White footed house ant), and *Tetramorium grassii*, each vial with 50 specimens; only one species was present per vial). All ants were dead, having been frozen one week before the trial. Vials were arranged randomly in the grid and the dog walked up-down each grid line and indicated the presence of Argentine ants by sitting (as trained to do). At each vial the dog's response was recorded, sitting or not sitting. Trials were done blind (the handler did not know what was in each vial).

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## Results so far

The dog demonstrated high response rates (average of 83% across all trials) in detecting Argentine ants, and only a few instances of response to non-targets (average of 7% across all trials), and no response to empty vials (see Figure 1). This is encouraging, especially for such a young dog, yet to have undertaken much 'real-world' work. Results also showed that detection is high even if just based on vials of scent, or vials with very few individuals (~5), which is an important aspect of finding small colonies.

Over the last two years (2012-2014) the dog has been highly successful as an 'employee' in the Treasure Islands campaign, a joint initiative between Auckland Council, DOC, and the community ([www.treasureislands.co.nz](http://www.treasureislands.co.nz)), to keep islands in the Hauraki Gulf pest free, or eradicate existing pests from certain islands. The dog has been working in a surveillance capacity on offshore islands, but also at mainland ports in the Auckland region which transport good to offshore islands. The dog has also been assisting eradication programs to give confidence that Argentine ants have been eradicated from certain sites.

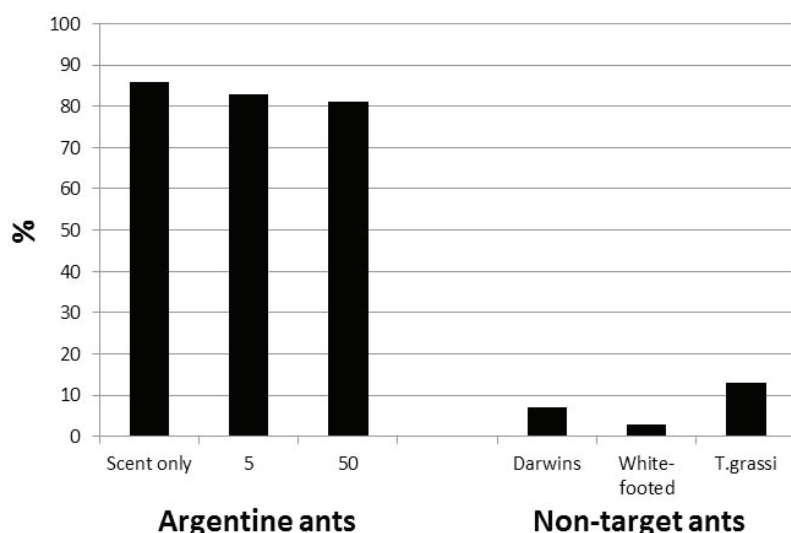


Figure 1. Percent of vials (average across 3 trials) showing positive response to Argentine ants (correct choice) and non-target ant species (false-positive).

So far, the dog has proved valuable in: i) detecting hidden nests of Argentine ants; ii) as a Treasure Islands 'pest-free' ambassador; and iii) in reducing the economic costs associated with large-scale surveillance (preliminary data suggests the dog is >5x more cost effective than the use of large-scale baiting grids).

As Argentine ants continue to spread through the warmer parts of New Zealand there will be an increasing need to try and exclude them from 'valuable sites' (e.g. conservation, cultural, economic sites). An important part of keeping sites ant-free is to link the activities of pathways-surveillance-control. The sniffer dog is now a vital part of this process.

1 Landcare Research, Private Bag 92170, Auckland, New Zealand [wardda@landcareresearch.co.nz](mailto:wardda@landcareresearch.co.nz)

2 Entecol, PO Box 142, Nelson, New Zealand

3 Biosecurity Environmental Services Unit, Auckland Council, Auckland, New Zealand.

## Acknowledgements

Thanks to Jack Craw for supporting this project and Kerry Barton helped with collecting ant scent. This work was also supported by the Auckland Council and the Ministry for Business, Innovation and Employment through funding of the Managing Invasive Weeds, Pests and Diseases Portfolio.





## How do we know the zeroes are real? - Surveillance to declare eradication

■ M.C. BARRON, D.F. WARD AND D.P. ANDERSON, LANDCARE RESEARCH

How do we know the zeroes are real and there is truly nothing left? Mandy Barron, Landcare Research Lincoln explains by using the example of Argentine ants on Kawau Island.



Surveys undertaken near the end of an eradication programme often will not find any target pests remaining and the search results will consist of many zeros. But how do we know those zeroes are real and there is truly nothing left? Maybe some individuals have survived control but haven't been detected because they're so rare and the search effort was insufficient to find them. Some eradication programmes declare "success" after a certain time during which the pest has not been found (e.g. 2 years). However, "not finding in a certain time" is a meaningless criterion unless the surveillance effort required to find a pest at low density is specified. It is easy to find nothing with only a few surveys or when only part of the area is searched! To answer the "are-they-true-zeroes" question, surveillance sensitivity must be quantified in terms of the probability of detecting an organism if it is present. With this information, managers can then estimate the probability that eradication has been achieved and thus avoid prematurely declaring success due to insufficient survey effort or, conversely, avoid wasting resources on surveys when the pest has already been eradicated from an area.

We applied these concepts to the eradication programme for Argentine ants from Kawau Island. We used the spatially explicit surveillance data model developed by Anderson et al. (2013) to estimate the probability that Argentine ants had been eradicated from the Schoolhouse Bay area. This method quantifies the sensitivity of each search method using a maximum probability of detection parameter (assumed to be when the target is directly on the search path or the detection device) and a spatial decay parameter describing the decline in detection probability with increasing distance from the device or searcher. All search paths or device locations are used to calculate a combined probability of detection for that survey (i.e. the surveillance sensitivity) and a map of the surveillance coverage is produced. Each time a survey is done the surveillance sensitivity estimate is used to update the probability of ant eradication derived from the previous survey. For the very first survey a 'prior' probability of the ants being eradicated is derived from expert opinion or is left deliberately vague, e.g. equally likely to be somewhere between 20% and 80%.

*"not finding in a certain time" is a meaningless criterion unless the surveillance effort required to find a pest at low density is specified*

For the Kawau Island ant eradication project there have been four surveys since the Spring 2012 poisoning of ants in the approximately 3-ha infested area at Schoolhouse Bay. Three surveillance methods were used for these surveys: visual hand searching; baited vials (with non-toxic "Inform" bait); and a sniffer dog (trained by Auckland Council, see sniffer dog article in this issue). Several "paths" were used to cover the entire Schoolhouse Bay area. These paths were

documented with a GPS and used for all three surveillance methods. The spatial sensitivity parameters used are shown in Figure 1, where a sniffer dog has a greater search range than a human visually searching. An example map of surveillance sensitivity, for the combined methods of people searching, baited vials, and sniffer dogs, is shown in Figure 2.

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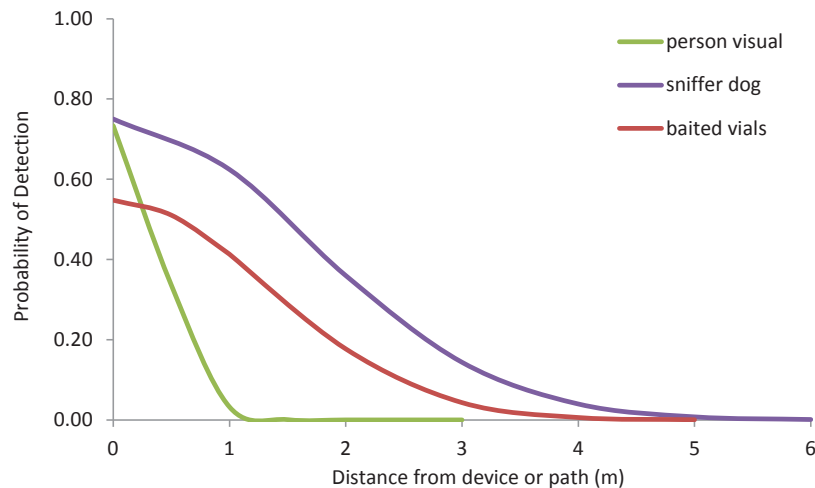


Figure 1. Spatial decay functions (half-normal) describing the probability of detecting an argentine ant or nest with distance from a device (baited vials) or from a point along a path (person visual, sniffer dog).

No Argentine ants have been detected at Schoolhouse Bay since the control operation in 2012. The estimated probability of eradication (POE) increased sharply as each survey was conducted. Analysis of the four post-control surveys estimated a median probability of eradication of 96% with a high level of confidence in the POE result (87% of the POE estimates were greater than the threshold value of 90%). Sniffer dogs gave the highest probability of detection per "path" searched and thus the predicted number of surveys to reach a threshold POE of 95% was less using this survey method than the other two methods.

Combined modelling of all surveys and sampling devices indicates there are several small spatial gaps that have had less survey effort. Such gaps might be a refuge for a small Argentine ant population. These gaps are generally on the north-facing slope behind the residences and will be targeted for surveillance in future monitoring.

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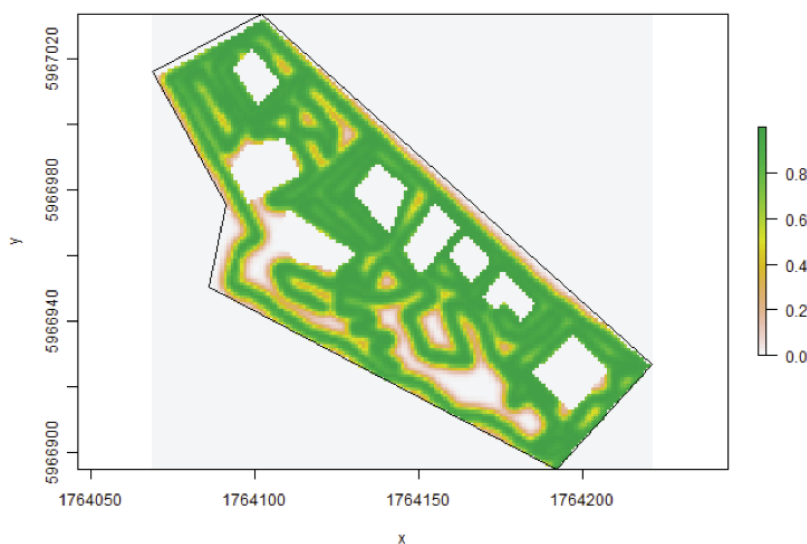


Figure 2. Combined system sensitivities for the detection of Argentine ants across the Schoolhouse Bay study area for the February 2014 survey using baited vials, visual searching and the sniffer dog. Green areas = high probability of detection, red-white areas = low probability of detection; the large square white areas are houses, which were excluded from analyses.



## All about bird invasions: International Ornithological Conference, Tokyo 2014

New Zealand is well respected for its prominent biosecurity procedures as Diane Fraser explains in this report on the conference she attended with the help of NZBI.

Thanks to a travel grant from the NZBI, I was able to attend, with Mel and Josie Galbraith, the 26th International Ornithological Congress (IOC) in Tokyo from 18-24 August this year. I delivered an oral presentation on 'The spread of the Spur-winged Plover (*Vanellus miles novaeholandea*) in New Zealand', which was well accepted. The presentation was part of a symposium titled 'Invasive species and Pacific island bird conservation', which included presentations on the impacts of a variety of invasive species in a wide range of countries including Korea, Japan and the Galapagos Islands.



*Diane Fraser and Mel Galbraith birdwatching in Hokkaido.*

Mel Galbraith presented a very good talk on "Tiritiri Matangi Island, New Zealand: inspiring environmental stewardship through interactions with birds" in the ethno-ornithology symposium, Mel and I presented a poster titled "High altitude New Zealand record for a Long-tailed Skua (*Stercorarius longicaudus*)" while Josie's poster reported on "Changes to local bird communities as a result of supplementary feeding".

Attending this conference has provided me with a valuable opportunity to discuss biosecurity issues with a number of delegates including Professor Tim Blackburn, the Director of the Institute of Zoology, Zoological Society of London, a renowned invasion biology

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## *All about bird invasions (cont.)*

expert. Tim gave an excellent informative plenary presentation on 'Beyond the long list, or four things we (should) know about bird invasions' covering issues such as propagule and colonization pressure in relation to establishment success or failure of invasive bird species.

New Zealand is well respected for its prominent biosecurity procedures, and a visible presence at conferences such as the IOC allows us to promote our research in biosecurity to an international audience.

This conference has created valuable contacts with other researchers in invasion biology as well as in the wider field of ornithology. It has increased my knowledge in a number of areas, forged new friendships, given me an insight into Japanese culture and food, and an appreciation of their environment and some of the ecological issues they face.

I would like to extend my sincere thanks to the NZBI for their financial support with the travel grant. The experience has been invaluable.

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# From the Archives

## It's Our Institute

I state "our" Institute, as that's what it should be. Not "mine", not "yours", but "OURS". One must not lose sight of the fact that you only get out of an organisation what you put into it.

So I recommend to all our members that they attend the Branch Meetings in their District. To voice your opinions, whether they be for or against the matter under discussion. Don't just sit there and allow a few to make all the decisions. I am a member of what I consider to be a lively Branch and as I write these words I can hear the rumbling of some of its members.

However I am a great believer that the Institute is only as strong as its members. Therefore, young members should be encouraged at branch level if we are to make a career out of becoming Noxious Weeds Inspectors or Plants Officers.

In closing I ask that all members give their full support to our President and Executive so they may get on with the job they were elected to do.

Hunter Morris

National Treasurer, Noxious Weeds Inspectors Institute

**Protect** Magazine October 1977

