New Zealand Biosecurity Institute

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# Protect

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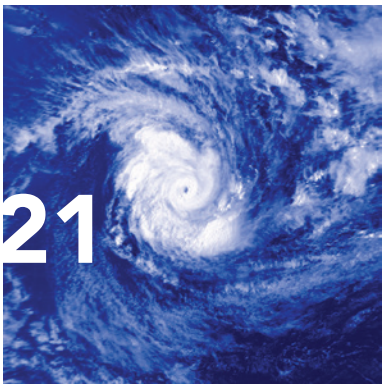


## inside



New Zealand Biosecurity Institute

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

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From the Editor

# Learning from Covid everywhere we look

Well done to all of you who organised or joined activities surrounding Biosecurity Week in the final week of July.

Among many initiatives nationwide during the week, the Canterbury - West Coast branch held a series of webinars, and the Lower North Island and Top of the North achieved some great local print and social media coverage. Biosecurity NZ also incorporated the Week into its ongoing "This is Us" campaign.

In this issue we celebrate the NZBI Legacy Award winners who this year had to settle for virtual presentations.

There's plenty of news on research, including how the NZBI Scholarship is being put to good use. And there's more on what we can learn from our Covid experience, including a "silver lining" story from the Manawatu which also highlights the benefits of the networking and knowledge sharing benefits that the NZBI provides.

I also found an opportunity to use X at the start of a sentence. See if you can spot it.

Chris Macann,
Protect Magazine Editor

From the Executive

# A Living document: Guidelines to support the constitution

Thank you to those who joined the Executive online for the Annual General Meeting. Although a daunting prospect the meeting turned out to be quite a success.

In particular, thank you also to those who participated in activities during Biosecurity Week.

As mentioned at the AGM the NZBI Executive Committee has been working on governance guidelines to support the NZBI Constitution and to increase clarity, as well as to support understanding of the requirements and processes within both the Institute and the Executive Committee.

The aim is to create a living document which will include guidelines such as a description of the roles of Executive members, information on the Awards within the Institute and the Awards Committee membership, honoraria payments, subscription policy and matters affecting branch participation and organisation of NETS.

Thank you all for your support so far during this most unusual year.

The NZBI Executive Committee

From the President

# A year like no other

**President's Report 2020**

**Well, I can certainly say that this year has been like no other. Usually this would be the first day of our conference and we would be together, networking and sharing our knowledge and experiences. Instead, due to Covid-19 we made the call to postpone our conference until next year as there was a lot of uncertainty as to whether it could be held.**

I'd like to acknowledge the impact Covid-19 has had in terms of interruptions or diversions to work programmes, the many of you who helped out in the civil defence responses, and of course the personal impact or toll it has taken on some.

**It has been a tough year but I'm sure has also brought with it many learnings and insights**, and truly shown us what our team of 5 million can do when we persevere.

The circumstances of the lockdown meant we have had to do things differently—today is a good example of this. Additionally, many of the branches held their AGM's virtually. I'd like to acknowledge and thank the organisers of these meetings and all of those who attended—for me it was wonderful to interact with the Branch whilst being in my little bubble and feeling a touch of normality that was still to come.

**The Institute has recently welcomed the government's budget package which seeks to put more people into on-the-ground biosecurity projects.**

As well as specifically targeted biosecurity spending on wilding pines and wallaby control, plus Predator Free New Zealand projects, there is also significant targeted funding for biodiversity projects which will have a major pest control component to them as well.

As a result of this funding package the Institute is expecting to see a lot of new people coming into the biosecurity sector over the next four to five years and we hope to see a swelling of our ranks in the Institute—with a new job will come the opportunity to develop new skills, through on-the-job training, and through certification programmes and networking opportunities through Institutes such as ours.

*Alice McNatty, NZBI President*

As part of continuing to promote biosecurity, and the work of our members, I will be representing the NZBI on the judging panel for the National New Zealand Biosecurity Awards organised by Biosecurity NZ. The New Zealand Biosecurity Awards are to celebrate people and organisations across the country who are contributing to New Zealand's biosecurity—recognising the incredible individuals and teams who are working hard to help ensure our country and its unique environment are safe from pests and diseases through their contributions to biosecurity.

I encourage you to keep an eye on these awards and to put forward a nomination for an individual or group if you believe they have made an outstanding contribution to biosecurity.

I would like to extend my sincere thanks to the Executive Team who have supported me during my first year as President, and who have continued to grow and expand the Institute.

I look forward to my year ahead, especially the reunion of next year's NETS conference in Christchurch.

Alice McNatty
NZBI President

# An interesting and challenging year:

NZBI Secretary's 2020 report

**The first year in a new role is always interesting and challenging and my new position as NZBI Secretary has proved to be the case, especially as I was following in the footsteps of two highly competent secretaries: Wendy Mead and Alice McNatty.**

One year into my new position, I now feel I am starting to get to grips with the responsibilities of the role. I would like to thank the members of the Executive Committee, but particularly Alice and Jono for their help and support in guiding me through the task and the communication with the wider NZBI community. Their patience and support was very much appreciated and the cooperation of all the Executive Team is, I think, creating a strong basis to support the NZBI members.

This role has allowed me to become better acquainted with the people, organisations and their functions within the biosecurity industry, which is definitely a positive outcome in my teaching role at Unitec.

In our last Executive meeting we discussed the role of NZBI as being a 'professional networking organisation'.

I encourage everyone to use the Institute as a mechanism for distribution of information and discussion points within the industry.

*NZBI Secretary Diane Fraser.*

Covid-19 has obviously had an impact on our personal lives and our ability to network, and in particular, the postponement of the NETS conference. Saying that, the wonders of Zoom have allowed us to continue to connect with each other, including the continuation of the Executive Committee meetings and our current AGM. I am sure we are all looking forward to the next NETS in Christchurch next year (28-30 July 2021).

I have enjoyed the last year within the secretary's role and have thoroughly enjoyed the interaction with the Executive Committee and the wider NZBI members. Good luck to everyone in the upcoming year.

Diane Fraser
NZBI Secretary

## The best possible value from membership fees

In order to get the best value for members from the Institute, the Annual General Meeting this year approved a proposal from the Executive to address subscription payments for new members joining in the second half of a membership year.

Membership renewals and new applications received from 1 January - 30 June will pay the full $60 annual membership fee. New applications received from 1 July to 31 December will be billed for half the annual subscription fee.

The Institute presently has 440 members.

# A research focus and practical control advice:

## Kerry Harrington receives the 2020 Peter Ingram Award

Massey University Associate Professor in Weed Science, Kerry Harrington is the winner of this year's Peter Ingram Award for excellence in sharing knowledge in plant pest management.

Here is the citation prepared by his colleagues:

"Kerry has been involved in biosecurity for a significant time and not only undertakes his own research but also supervises under-grad students and post-grad students, teaching weed biology, identification and control, and supporting distance learning. He also teaches a three-day course on understanding herbicides which is open to the public and is increasingly being undertaken by council staff and other biosecurity practitioners tasked with managing weeds. Kerry has also developed a widely used website profiling troublesome weeds found in agriculture and horticulture which complements the courses he teaches with both.

Kerry is also the secretary of the Council of Australasian Weed Societies, an independent body that promotes weed management, and its practitioners, through education, awards, travel grants and publications."

Here are some of Kerry's comments upon accepting the award.

"I am deeply honoured to receive this award and would like to thank the NZBI very much.

Throughout my career, I have been keen to get people thinking about how best to control weeds in all sorts of situations, including environmental weeds.

Hopefully there are many people out there now benefiting from my lectures, and although we don't do this sort of work looking for prizes, to have my work recognised with this award is very gratifying.

I have been lecturing students on how best to control weeds since 1985 and have been offering distance courses over most of this time, and in fact Peter Ingram, who this award is named after, took my distance Controlling Weeds course in 1992.

Over my time at Massey University, I have also been involved with many research projects, including supervising postgraduate students with their work. Some of this work has involved looking at how best to control weeds around recently planted natives as part of revegetation projects, and we have also taken on projects to determine how best to control weeds such as Madeira vine and broom in the past and currently we have a PhD student who is studying the biology and control of old man's beard in more detail."

*Kerry Harrington*

### Peter Ingram Award

The Peter Ingram Award is given to a member of the Biosecurity Institute who has successfully undertaken or enabled others to achieve, relevant to pest plant education, control or management. Peter was the pest plant coordinator at Environment Bay of Plenty when he died in August, 2001, not long before his 61st birthday. Peter had a passion for learning, shared his knowledge and discussed ideas and theories. He was especially encouraging of his team at Environment Bay of Plenty to further their education, apply for study awards and take advantage of learning opportunities. He was a past president of an NZBI predecessor organisation, the Institute of Noxious Plants Officers.

# Passion and Innovation:

## High Country Contracting wins the Peter Nelson Memorial Award

**South Canterbury-based High Country Contracting Limited has won this year's Peter Nelson Memorial Trophy for achievement in Vertebrate Pest Management.**

High Country Contracting Limited (HCC) was nominated by the Canterbury-West Coast Branch of the NZBI. Here is the citation which accompanied the Award announcement:

"While HCC has only been in the industry for a relatively short time (since 2014), the Canterbury-West Coast Branch nominated the company because **the impact it has had on biosecurity is a reflection of the skills and experience of its staff.**

*The Peter Nelson Trophy in detail.*

HCC has been drawn together through a passion and a love of the outdoors, with the aim of protecting NZ's primary industries and biodiversity. It has shown over the years to be a professional company while embracing innovative ideas, health and safety and a strong team focus.

The company successfully surveys and controls a wide range of animal pests (and plant pests) across a wide range of landscapes. While primarily based in Canterbury-Otago, the company works throughout the South Island.

**The staff's ongoing commitment should be recognised, if not for their own efforts, but on behalf of all small-to-medium contractor businesses** around New Zealand tirelessly putting blood sweat and tears into protecting NZ's primary industries and biodiversity."

*High Country Contracting owner Khan Adam.*

Owner Khan Adam said he decided to start HCC because: "having been in the industry since leaving high school, I always had a dream of owning my own company and bringing a whole new level of professionalism to the industry generally known for its "slapdash" operators. Being passionate about conservation and the environment, it seemed a perfect fit and has been received well by all clients to date," he said.

### Peter Nelson Memorial Trophy

The Peter Nelson Memorial Trophy is awarded annually by the NZ Biosecurity Institute to individuals or organisations, for achievement in Vertebrate Pest Management within New Zealand. The trophy is a carved kokako standing on a limb above the skulls of small predatory mammals—a rat, a possum and a stoat.

# 20-20 vigilance for all unwanted organisms is vital

The Institute prepared this media release to launch Biosecurity Week in the last week of July:

**"Let's not forget to remain vigilant for all other unwanted pests and diseases as well as Covid 19," That's the message from biosecurity sector interest group, the New Zealand Biosecurity Institute.**

Institute president Alice McNatty said Covid 19 has shown the extent to which Kiwis will go, to protect their health and wellbeing.

"There are many other biological threats to be aware of but the same basic practices occur - constant vigilance and good hygiene practices," she said.

On Monday 27 July the Institute launched Biosecurity Week, a week of activities nationwide in which those working in the biosecurity sector highlight their work to their communities.

The theme of the week this year is "20-20 Vigilance".

Ms McNatty said **it's vital to understand the words "good hygiene" in the wider context** of all practices which contribute to preventing all diseases, especially through cleanliness, of equipment including vehicles, and the way we quarantine products, not just people coming from overseas.

She said Covid 19 is a reminder of the need to be vigilant for all pests and diseases.

"We need a team of five million New Zealanders so we can do this."

"Tried-and-true ways of controlling the nation's animal and plant pests and other invasive organisms have worked well, but something we have always known is the importance of early detection, meaning constant vigilance. We want everyone's eyes wide open for 20-20 vigilance."

Ms McNatty said many of our enemies are already here.

"There is a huge time lag from when new organisms arrive in New Zealand until they become pests.

"Good science and constant vigilance are the secrets to keeping the country's emerging pests under control.

"What are known as legacy pests have been with us for a long time and we must continue to control them so they do not spread. These are rabbits, possums, gorse, and broom. Also now becoming a problem are wallabies and wilding pine trees.

"Some major biosecurity responses in addition to Covid 19 include the attempt to eradicate *Mycoplasma bovis* from cattle as well as attempts to control the spread of kauri dieback.

**"We have shown there can be successes.** We have successfully defended the country from Queensland fruit fly on several occasions and most recently we have eradicated the pea weevil—a world first we believe. As well, a species of saltmarsh mosquito was eradicated from New Zealand this year. To our knowledge, this is only the second time in the world that any saltmarsh mosquito has been eradicated from a country."

Ms McNatty said anyone who thinks they have seen any unwanted organism should contact their regional council or Biosecurity NZ.

## On-line Annual General Meeting a success

This year's Annual General Meeting was held on-line on July 29. Being on-line it was new territory for the Institute. Feedback from some of the around 45 members who took part indicated they thought it went well.

In order to streamline the meeting, **business was kept as simple as possible.** Incumbent office holders remained in position. The NZBI Legacy Awards to be presented later, were announced.

President Alice formerly announced the postponement of NETS to Christchurch next year. The meeting also endorsed a membership fee structure depending on what time of the year it is paid.

# Working with biocontrol agents: Unitec students' summer experience

**Since 2011, Unitec's School of Environmental and Animal Sciences (EAS) has worked to partner students at Level 7 with external organisations, as part of their self-directed study course for their Bachelor of Applied Science degree.**

Students have had the opportunity of stipend funded work within some of these organisations, to carry out a small research project, the outcome of which will benefit the organisation and can be submitted for the completion of their degree qualification. Students have frequently had the opportunity to present their work as posters and/or oral presentations at local conferences, such as the New Zealand Biosecurity Institute NETS Conference. As these are third-year undergraduate students, their efforts have received positive attention from students working at master's and PhD level in other institutions.

*In the thick of it. Looking for possible biological control sites. [Photo Emma Edney-Browne]*

In the summer of 2019–2020, Aaron Chang and Zac Wilcox-Brown – both from the Bachelor of Applied Science (Biodiversity Management) programme – carried out work with Emma Edney-Browne of Auckland Council and EAS staff member Dr Diane Fraser, doing monitoring of sites where biocontrol agents had been released by the council to control invasive plant species. These agents included Chinese privet lacebug (*Leptoypha hospita*), woolly nightshade lacebug (*Gargaphia decoris*), giant reed gall wasp (*Tetramesa romana*), Honshu white admiral butterfly (*Limenitis glorifica*) for the control of Japanese honeysuckle and Tradescantia leaf beetles (*Neolema ogloblini*) and yellow leaf spot fungus (*Kordyana* sp.) for the control of *Tradescantia fluminensis*, commonly known as Wandering Willy. They also looked for new sites that were suitable for the release of moth plant beetle (*Freudeita cf. cupripennis*). All of these plant species, if unchecked, are a threat to the regeneration of native species. As with all biocontrol agents, these insects and fungus have been thoroughly tested by the Environmental Protection Authority before being released into the New Zealand environment.

> "It was exciting to see how many people in our community are so passionate about our native ecosystems. They took a lot of pride in the part they were playing to increase the native diversity of the region."
>
> *- Zac Wilcox-Brown, Aaron Chang*

Both Aaron and Zac were looking for hands-on industry experience in operations and procedures. Aaron said: "**I wanted to confirm that I was on the right career path and that this was an area that I wanted to commit the next significant portion of my life to** and experience Auckland Council as a potential employer. They have a wonderful graduate programme and this summer job was a good way to assess if their values were a good match for me."

The students discovered a great interest in conservation within the wider Auckland community. Zac remarked: "Something that surprised me was how keen some of the private landowners were to get involved with conservation and weed management, not only

on their own properties but on a broader scale. I was also surprised at how many people were actively working to protect our native environment, including community groups, council employees and members of the general public. It was exciting to see how many people in our community are so passionate about our native ecosystems." Aaron agreed: "They took a lot of pride in the part they were playing to increase the native diversity of the region."

*Location recording is important. Zac Wilcox-Brown and Aaron Chang recording their location and what they found there. [Photo Emma Edney-Browne]*

For Aaron, the most enjoyable part of the job was releasing the *Neolema ogloblini* (Tradescantia leaf beetle) into the wild. "We had been nursing and raising these beautiful iridescent creatures, painstakingly catching them one by one, tending to the foliage in their tents and continuously scouting out potential release sites. **To watch them settle on fresh leaves, bask in the sun, settle down for a nibble or to spread wing and fly was an absolute joy**!"

For both students, it has been a valuable experience. Zac: "Probably the biggest benefit of doing this work for me was gaining industry experience and getting a taste of how some of the things I get to learn about in my studies can be applied in real-life management scenarios. Aaron: "Getting to know the biocontrol team at Auckland Council was great. We also met the people they work with at Landcare Research, the Tūpuna Maunga o Tāmaki Makaurau Authority and the Department of Conservation. It was awesome watching various agencies work together for the future of New Zealand. It also gave me a lot more confidence in my ability to do the work and that I am heading down the right path. Everyone that I encountered was extremely helpful, sharing their knowledge of both biocontrol in New Zealand, and the greater industry. I feel that I am a lot better prepared now when it comes to applying for jobs when I finish my degree."

Zac and Aaron were due to present a poster of their work at NETS 2020 but, due to Covid-19, they hope to attend the conference in 2021 in Christchurch.

This article was first published in the Unitec Research Blog: https://www.unitec.ac.nz/unitecresearchblog/industry-experience-for-unitec-science-students/

by Diane Fraser and Marie Shannon, Unitec Institute of Technology

# Filling in the blanks on old man's beard *(Clematis vitalba)*

By Brenda Lowry, NZBI Scholarship 2019 winner

**Thanks very much to NZBI for awarding me a scholarship last year. I would like to let members know how my PhD project has been progressing.**

It would be nice to discover a magic bullet that could be deployed to combat invasive old man's beard (OMB). In spite of our combined efforts over the years, OMB remains a serious environmental problem in New Zealand. Many of us are hoping that the latest biocontrol agent allowed into the country, the leaf and bud galling mite Aceria vitalbae, will turn out to be that magic bullet. But while we wait for its release and establishment, there are still a lot of things that are poorly understood or unknown about OMB, which could help us with its control.

With funding help from Horizons Regional Council, the NZBI Scholarship, and other scholarships, my PhD research at Massey University involves looking at several different aspects of OMB's biology and control. Other researchers have disputed its seed longevity in the soil, so I have set up a two-year buried seed experiment to assess seed behaviour under different conditions, with samples being retrieved at three-month intervals. In the first nine months of the experiment, a proportion of OMB seeds (up to 54%, depending on seed source, depth of burial and soil type) remained dormant and viable when retrieved from the soil, with good germination of some seeds. So far, what this tells us is that at least some OMB seeds can persist in the soil during the first year following dispersal.

*Ground-based horizontal OMB stem with roots at nodes and new vertical growth, Palmerston North.*

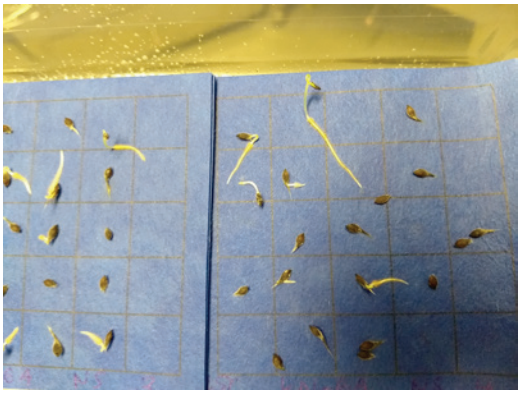
I have also been following viability, dormancy and persistence of OMB seeds on the mother plant. Although most seeds are dispersed during the winter and spring, seeds can and do persist on the plant from one reproductive cycle to the next, so seeds are dropping from the vines throughout the year. Germination and viability tests of seeds indicate that seeds that remain on the mother plant throughout the year retain viability, but may go through periods of dormancy. I have also discovered that under favourable circumstances, non-dormant OMB seeds do not require light to germinate.

*NZBI Scholarship winner Brenda Lowry with OMB.*

In addition to problems in native bush, OMB can also be troublesome in riparian zones, as well as in production forests, and I am interested in how it can establish in these various areas. Early data from an ongoing experiment studying the competitiveness of OMB seedlings with grass swards indicate that vigorous, established swards prevent seedlings from establishing successfully. Instead of new seedlings, OMB found in such locations may be regrowth from fragments or broken stems of plants displaced or overlooked during retirement of riparian zones or windrowing of forestry sites. I plan to look more in-depth at the asexual spread of the plant over the coming months.

It has been assumed, but remains unsubstantiated, that OMB seeds can be water dispersed. This is also an important issue related to riparian zones. I have an upcoming study planned to test the tolerance of seeds as well as stem fragments to prolonged submersion in water and/or waterlogged soils.

In terms of chemical control, I am studying the efficacy of basally-applied herbicides to woody plants of OMB, which is a technique used on low to moderate-density infestations. The research involves an evaluation of triclopyr in oil (X-Tree Wet and Dry) as well as concentrated glyphosate gel (Cut 'n' Paste), the first



*Early OMB germination trial in 2019*

*OMB seedlings forestry understory underneath a mature farm forestry block, Taihape.*

*Setting up an OMB seedfall monitoring experiment near Feilding.*

assessment of which will be done this October.

Pre-emergent herbicides are used in farm and production forestry around new trees to prevent weed competition during the first year of establishment. I am planning another experiment to assess the efficacy of commonly used herbicides, hexazinone and terbuthylazine, against OMB, as some observations have suggested seedlings establish in these bare areas in new forests.

In some areas where OMB is especially abundant, ground-based stems are common, sprawling over low vegetation, and rooting in the soil at the nodes, sometimes spreading unnoticed underneath litter and detritus. Another area of chemical control I am looking into is how to deal with scrambling OMB stems in riparian zones. I'm sure many NZBI members have experience with OMB. I would be interested in feedback relating to any of the above-mentioned aspects of the research, especially with regard to chemical control of scrambling plants. You can contact me at b.lowry@massey.ac.nz if you wish to share any useful observations that might help with my work.

*Rangitikei District Councillor Angus Gordon (left) and Massey University ecology professor Alastair Robertson measuring two months' OMB growth, Taihape.*

## A note about the NZBI scholarships and awards

### The NZBI Scholarship

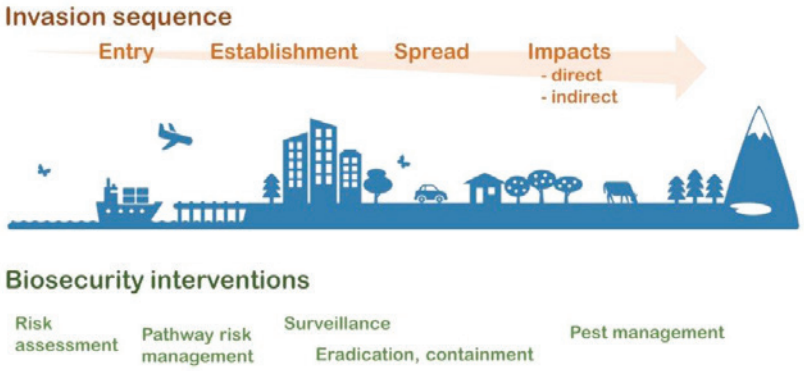
The purpose of the NZBI Scholarship is to provide funds to assist with an individual's research to improve knowledge in the field of biosecurity. The scholarship, to a maximum of $2,000 also comes with a complementary membership for two years.

### The Wendy Mead Professional Development Award

The purpose of this award to the value of $1,500, is to provide a member of the NZBI with funds to assist with travel expenses where that member is undertaking travel to further their knowledge in the field of biosecurity.

# New projects add to research line-up for the Better Border Biosecurity (B3) Science Collaboration

Six new plant border biosecurity projects began in July 2020, adding to an already extensive suite of work currently being undertaken by New Zealand's B3 research collaboration.




B3 Director Dr David Teulon said co-innovation has been critical to the development of these new projects. This has meant working closely with key stakeholders so that the research targets high priority biosecurity needs for New Zealand and outcomes are implemented by government and industry.

The six new projects are:

## *Xylella fastidiosa* and its vectors in the New Zealand

*Xylella* is a serious invasive pathogen currently spreading through the world and is of serious concern for many NZ sectors including the natural estate. The potential for NZ native insects to transmit *Xylella* needs to be understood. This is a five-year project.

## Global change and NZ biosecurity: The risks and economics of future climate and trade patterns.

The impacts of climate change on plant border biosecurity are not well understood. This five-year project will bring together all interested parties (science, government, industry) in the first year to develop a programme of research targeting the main issues.

## Prospects for the future of commodity treatments research

Treatments within the trade pathway are a major part of the biosecurity tool-kit and are severely affected by the imminent loss of methyl bromide. This one-year project, which will include literature and a stakeholder workshop, aims to set the scene for a larger and more experimental project to be submitted at a later date.

## Remote sensing for biosecurity threats in nurseries

Early detection of asymptomatic pathogens within plant nurseries can make the difference between eradication and establishment. This project will investigate the relatively novel use of hyperspectral imaging for surveillance of invasive pathogens in nurseries initially targeting the destructive plant pathogen *Phytophthora*.

## Aerodynamic design principles for effective insect traps

Early detection and delimitation of invasive species is essential for successful biosecurity outcomes. This three-year project will investigate some of the fundamental principles needed to develop more effective insect traps for the brown marmorated stink bug, a key biosecurity risk threat for which there are limited trapping options.

## Effectiveness of UAVs for spot spraying large urban trees during incursion responses

The use of pesticides is likely to continue in the near future as a key tactic for eradication of invasive species, but under the strictest of conditions to minimise environmental and social impacts. This year-long project will investigate the use uncrewed aerial vehicles to provide much more precise application opportunities than current alternatives and in difficult to access places such as urban trees.

# Beating alligator weed: Covid's rare silver lining

Contributed by Horizons Regional Council, including Kelsey Hoggard and Jack Keast

**While a large part of the country was disrupted by Covid this year, lockdown and the impact it had on our daily routines has led to some important discoveries for the Horizons region.**

During the first few weeks of the Covid-19 lockdown Mike Beech from Taranaki Regional Council was holed up in Palmerston North. During an excursion along the Apollo St walkway, he spotted a patch of alligator weed. Luckily enough, the NPPA (National Pest Plant Accord) training had taken place not too long beforehand, and attendees had been able to use a potted specimen to improve ID skills. Using iNaturalist, he sent the record to Horizons' pest plant team, who put it at the top of the list for when we could escape lockdown. Downstream from this drain is the Mangaone Stream, a highly modified urban stream that leads directly into the Manawatu River. Due to the highly invasive nature of the plant and the potential threat to the lower Manawatu catchment, we had to act hard and fast.

*continued* ▶

*Watch for alligators. Removing alligator weed from the Apollo Drain, which flows into the Mangaone Stream then into the Manawatu River.*

### A bit more about Better Border Biosecurity (B3)

Known as B3, Better Border Biosecurity is a multi-partner, science collaboration that researches ways to reduce the entry and establishment of new plant pests, pathogens and weeds in New Zealand. B3 is aligned to New Zealand's Biological Heritage National Science Challenge. Partners are Science organisations: Plant & Food Research, AgResearch, Scion, Manaaki Whenua/ Landcare Research and the Bio-Protection Research Centre hosted by Lincoln University. End-user organisations are: Ministry for Primary Industries, Department of Conservation, Horticulture NZ, and Forest Owners' Association. The Environmental Protection Authority and Beef + Lamb New Zealand have observer status. Its website is www.b3nz.org.nz from where visitors can sign-up for news alerts.

B3 Science Solutions for Better Border Biosecurity AOTEAROA NEW ZEALAND

### What is *Xylella fastidiosa*?

Sometimes called Bacterial leaf scorch, this is a disease of many different names. The bacterium can infect many different plants, both natives and important crops. The full scale of the damage it could do if it got to New Zealand is uncertain. It affects plants important to New Zealand, like grapes, olives and citrus. It goes by many names, such as Pierce's disease in grapes, olive quick decline syndrome, and citrus variegated chlorosis. This bacterium has killed 1,000-year-old olive trees in Italy and initially devastated vineyards in California. Although, it's now managed in California.

This additional information was gathered from Biosecurity NZ's website.

▼ *continued*

For those lucky enough to not have it, Alligator weed is a rapidly growing perennial aquatic or terrestrial herb with long, fibrous roots. It has pink, soft, hollow stems which root at the nodes, and it can creep along the ground or float on water with tips standing upright, forming dense stands or rafts. It replaces most other herbaceous species on water and dry land, causing silt accumulation and obstructing water flow which can lead to flooding. Rotting vegetation degrades habitats for aquatic fauna and flora. It also can be toxic to stock, causing blindness and other health problems.

*Most unwanted. Alligator weed in a Manawatu waterway.*

As soon as level four restrictions eased to level three, our team walked the edges of the Mangaone stream finding 17 sites of rooted plants and fragments. Not having experience with riparian alligator weed infestations **we reached out to the NZBI community and had a lot of 'brews' and tricks offered-up as solutions**. We tried a couple of different mixes applied via knapsack. Each site was sprayed, and as others have discovered, this resulted in rapid fragmentation regardless of the mix. At the three largest sites, a long-reach digger fitted with a skeleton bucket, a dump truck and a crew of nine were necessary to extract the plants from the stream. The 6m$^3$ of weed and silt was covered in black polythene and left to decompose at a secure location.

Following our initial control attempt, an inspection of the stream uncovered a new site hidden amongst rank grass and other growth. The decision to spend a week wading and kayaking the rest proved successful, with the total number of sites now totaling 65 in the Mangaone Stream. Most of these sites are less than one square metre. After checking the whole stream from Palmerston North to the confluence with the Manawatu, the next area that needed to be surveyed was the Manawatu River, including all the inundation zones and the Moutoa spillway.

We used a jet boat to do an in-river bank to bank survey looking for larger infestations. We found no weed but our new crew member did spend a good couple of hours inspecting a sandbank when the driver over-estimated the depth of water a jet boat needs to keep moving forward. Horizons catchment information staff provided a flood inundation map from recent high-water events to help us define selected surveillance sites. The river is tidal in most of this lower section, so we focused on the confluences and lower stretches within drains and streams, as well as deposition areas of flood zones, including bits of the Moutua spillway by foot. So far nothing has been found.

With the help of a local tramping group, we plan to continue our surveys, and are preparing for any necessary control in the Mangaone Stream during spring growth. We are hopeful that farmers will remain vigilant to the prospect of alligator weed on their farms and will be keen to notify the team of anything unusual in their pasture, drains and streams. We are also trying to raise awareness in the larger community through a media campaign and flyers.

Horizons' pest plant team has been liaising with Sam Stephens from Bay of Plenty Regional Council and Darion Embling from Waikato Regional Council on their experiences with Alligator weed, and we will be visiting to see how these guys tackle this weed in all its various infestation forms. We are keen to hear from any other Institute members on their experiences with this weed; what worked, what didn't, and any tips on how to beat this plant. We have a real opportunity to beat it before it gets well established, and any information would be greatly appreciated.

# Thanks for the observations and innovations: Walter Stahel

**29/12/1942 - 19/8/2020**

Former animal and plant pest operator, innovator and keen biosecurity industry observer, Walter Stahel died in August aged 77.

Walter was one of the subjects of the NZBI oral history project in which he described in depth his career in the industry.

Walter had a thirty-eight-year career in both animal and plant pest control in New Zealand. He was born and grew up in Switzerland, where trained as a fitter and turner, a skill which helped him greatly in the biosecurity world. He worked in several countries until 1971, when came to New Zealand. He trained and worked in saddle making in the South Island. He worked as a rabbiter and then supervisor for the Hawkdun Pest Destruction Board from 1974 to 1984; then as a noxious plants officer in Waikohu County, inland from Gisborne, from 1984 to 1989. Then followed work at Tauranga County in 1989, then Bay of Plenty Regional Council from 1989 until his retirement in 2012. He participated in training seminars and conferences of both the NZ Institute of Pest Destruction Officers and Institute of Noxious Plants Officers (forerunners to the NZ Biosecurity Institute).

In his oral history Walter describes the early days as a rabbit shooter where night shooting did little to bring down the numbers. He said there was a lot of observation involved. Noticing what was happening on the land was important.

His training as a fitter and turner enabled him to develop devices which enabled better ways to do things, which he shared at training opportunities.

He describes dealing with farmers who were not always easy as some were businessmen rather than farmers.

He mentions the effects of new legislation when environmental pests also became significant. There were many more pests but only so much you could do.

*Walter Stahel at his home near Aongatete in the Bay of Plenty, November 2013. [Photo Shona McCahon]*

He shares his enthusiasm for biological control. A lot of the landowners were sceptical but some insects spread quickly and made a huge difference. He said the field workers had a good relationship with the scientists.

As well as a life-long interest in horses and riding, he was a keen photographer which he could do during working hours. He stayed in the field of animal and plant pest control work because of the freedom, and working outside and doing something new every day. He had the best of both worlds he said.

Colleague John Mather contributed these comments:

Walt was a fantastically clever colleague—he nutted out the best way of containing many invasive plants—a heavy infestation of *Salvinia* in the Kaituna wetland and alligator weed in ponds near Tauranga, come to mind. He organised plots and counts of ragwort plants to prove the worth of the flea beetle biocontrol agent. He was the first to notice wild kiwifruit when plants began to establish in pine blocks, and coast tea tree causing heavy erosion along the dunes of Matakana Island. His early trials with herbicides and different application methods stood the Bay of Plenty Regional Council in good stead for years. Walt's many plant photos are still being used by Councils, and likely will continue to be for years.

At Walter's funeral there was a great gathering of some former colleagues, and many friends from Katikati including the local Swiss community. One of Walter's beautifully carved western saddles was up front. His leather work was outstanding and provided an income in retirement.

A great colleague and friend has passed. Walter was farewelled with a beautiful karanga from Mrs Murray who lives on Matakana Island.

Shona McCahon who interviewed Walter at length about his life said he was a "gentle insightful man."

# Covid-19 and plant border biosecurity: what we can learn

By David Teulon, Director Better Border Biosecurity (B3)

**COVID-19 as a biosecurity event has reminded us and reinforced how critically important it is to protect our border from invasive species. However, as well as protecting the borders, we must also plan for biosecurity events before they happen and how we can manage any incursions in the long term if they establish here. There is no question that plant biosecurity can learn much from COVID-19 and vice versa.**

COVID-19 has focused our attention on how our wellbeing and the health of the economy rely on Aotearoa, New Zealand's animal and plant systems and emphasised the need to protect them from invasive species. Right now, we simply cannot afford to have any new major disruptions from invasive species – similar to PSA or *Myocoplasma bovis* – because our primary industries will be vital in pulling us through this period of economic disruption and uncertainty.

The global supply chain disruption brought on by COVID-19 does, however, appear to have reduced the number of plant pests and pathogens crossing our borders. The number of notifications (and consequential investigations) of biological risk in the plant health and environment area were down from 167 in March 2019 to 105 in March 2020. This is a notable and substantial reduction, particularly as biosecurity was considered an essential service throughout lock-down and our border services were busy throughout looking for unwanted invasive species.

The Better Border Biosecurity (B3) research programme has been significantly impacted by COVID-19. Because our work focuses on pest, pathogen and weed species not found in New Zealand, much of our research is carried out overseas. Our institutes were proactive and stopped international travel by researchers in February 2020 and **international travel is not an option for the foreseeable future. This means several important pieces of research on significant pests and pathogens could not be completed as planned.** Of note was our inability to assess the impact of the invasive pathogen *Xylella fastidiosa* on New Zealand native plants in California. Also delayed was research in Australia necessary to evaluate the usefulness of new lures to detect fruit flies and other work to generate markers that allow us to distinguish the geographic origin of fruit flies intercepted in New Zealand.

A major project assessment of pests in China that could threaten our pasture industry was also delayed.

Fortunately, most of our researchers were at home at the time of lockdown. But there have been cases of non-resident students working on biosecurity topics with international experts being stuck in another country due to border closures. The B3 Conference scheduled for May 2020 has been rescheduled to May 2021, but, was largely replaced by a series of very useful virtual meetings.

> "Right now, we simply cannot afford to have any new major disruptions from invasive species—similar to PSA or Myocoplasma bovis – because our primary industries will be vital in pulling us through this period of economic disruption and uncertainty."
>
> *- David Teulon, Director B3*

Like for everyone else, the B3 future under COVID-19 is uncertain and we need to adjust to a new way of doing things. **Many of our research projects require international work and whether we will be able to undertake these in the near future, or how we might practically engage with overseas researchers as part of an extended team, is not at all clear.** We are reviewing all projects on a monthly basis and exploring alternative ways of doing things where possible, necessary and available. The B3 programme team are all committed to their part in keeping new pests, pathogens and weeds out of New Zealand, and understand their increased responsibility and need to respond creatively at this time.

# Protecting all we treasure:

**Hannah Palmer, Environmental Consultant at Waikato/Bay of Plenty-based Place Group Limited**

*Hannah Palmer*

I have worked in the biosecurity and biodiversity fields for the last seven years, after studying earth/environmental science and resource management planning. Prior to moving into biosecurity, I was a consents planner for Southland District Council, which gave me a good grounding for the work I do now. In 2016, I joined Place Group Ltd as an Environmental Consultant. Most of **my work involves finding innovative ways to support and streamline both operational biosecurity activities and the supporting policy and legislative frameworks.**

One of the projects that I am most proud of being involved with was the preparation of a collaborative business case which resulted in the successful adoption of a Section 360(1)(h) regulation under the RMA. This regulation has reduced duplication in consenting and permitting between the RMA and HSNO Acts for aerial 1080 operations, resulting in considerable cost savings and simplified compliance for users.

**I really enjoy the challenge of working in the biosecurity/biodiversity area, particularly when there are opportunities to improve processes to make life a little easier for everyone.** A typical day sees me collaborating with Regional Councils and Central Government departments, running workshops, and navigating legislation and policy frameworks. I love that what I do makes a tangible difference to biosecurity and biodiversity, and helps us to protect all that we treasure.

# Keeping an eye on pest fish:

**Michelle Archer, Environmental Consultant at Waikato/Bay of Plenty-based Place Group Limited**

*Michelle Archer*

The first eleven years of my career was environmental and stakeholder management in the electricity industry. This provided me with a wide range of experience in hydro, wind and thermal assets and managing these operations within the parameters of resource consents. Along with working closely with senior management and operations staff, these roles included regular communication with iwi and stakeholders, providing me with an increased understanding of impacts on the people and creatures who live in "managed" systems.

These roles led me into the project management of ecological restoration projects, including pest plant management, freshwater ecology and fish passage enhancement.

When I moved to Place Group I took my understanding of freshwater environments and my ability to see the strategic possibilities into freshwater biosecurity planning and implementation, primarily focused on pest fish management.

For the past two years I have worked on implementing and coordinating the pest fish management resources in the Waikato Region for the Waikato Regional Council and Department of Conservation. My role is to ensure an agreed understanding of roles and responsibilities in relation to freshwater biosecurity. I also work on projects to undertake surveillance, respond to public queries and provide support for iwi and other groups with an interest in pest fish management. The **Waikato Region is the hotspot in New Zealand for pest fish, so the region can lead others to ensure that the spread and impact of invasive fish species is limited.**

From the archives

# Looking at Yesterday - Today - Tomorrow

BY N CULVAN, COUNTY CLERK, WAIMARINO C C

**In this article I am going to try and relate to members my experiences particularly in relation to Noxious Weeds during my 37 years as a local body officer and to stick my neck out by offering some points to ponder over for the future.**

Starting as a clerical cadet in the Auckland City Council in 1937, I rapidly moved into khaki for about 5 years and on my return to civilian life resumed duty with the Council as one of seven timekeepers or wages clerks. The war life soon gave me itchy feet and I applied for and was given a new appointment as Noxious Weeds Inspector for the Council at the princely salary of 900 pounds.

I started from scratch and had to learn the hard way. **It was soon apparent to me that the attitude towards Noxious Weeds in an urban area was most different than that in rural areas.** In the city the problem was more or less aesthetic and fire hazard problems. Economics and productivity were of little consequence. I attended one of the very early gatherings of the North Island Inspectors, the second gathering, I think, and I then decided that a County Inspectors job was what I wanted.

The Waimarino County job came up, I applied, got it and here I am still with the County 20 years later, but in a different job now however.


Again I had to start from scratch, educate the local people on Noxious Weeds obligations, even to taking a few court cases to prove that the work had to be done.

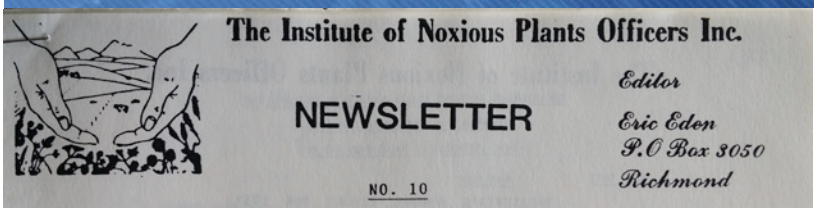
Almost at the same time as I took on this County job, I was elected to be Secretary of the Association as it was then and served for several years in that office, then President and Immediate Past President. During my term of office I was involved to some considerable extent in the formation of the Incorporation of the Island Association and then the National body as we now are. I had a most enjoyable association with the chaps particularly Sam Neill and Robbie.

Through the years many others have come along and I do believe that I have cemented firm friendships with most and I cherish these memories. **Here I think I may assume the right to offer some fatherly words of advice and state that the Institute has been built up by hard and conscientious efforts** of us all and provided that we always remember that we are employees and that we attend conferences at the pleasure of our respective Councils, that we never try to form ourselves into anything that may even resemble a "pressure group"

**I am confident that the Institute will go forward and be recognised as a responsible group of people worthy of being heard.** At this, moment I do not consider we have reached that situation but we must strive to achieve that goal and ensure that any actions or statements we make and take do not prejudice our future wellbeing.

On the industrial side, I hold the view that the Association should avoid any activity of that nature; **leave it to the Unions which I now believe all members are probably obliged to join.**

Looking back over the years, highlights that come to mind are: The highly accomplished after dinner speakers that Dan Watkins had on his staff - such people as Peter Ferens (who now has another appointment) Phil Balfour (still in Agricultural Chemicals) and even old Dan himself. However, I must state here that our own Ivan Williams is "close up their behinds" (Sorry for the pun Ivan) but that address you gave at the Jubilee was one out of the bag. I remember " Butch" from Hawkes Bay and the rat limit in a restaurant in Frankton - the night in a restaurant that a cat refused to eat a steak that one of our chaps could not get his knife into. There was the instance when three chaps got involved with a bottle of scent in the Rutland at Wanganui and had to get urgent dry-cleaning work done before they left for home.


The Institute of Noxious Plants Officers Inc.

NEWSLETTER

NO. 10

Editor
Eric Eden
P.O Box 3050
Richmond

▼ *continued*

Probably the most brilliant evening was that in the Nelson Hotel when one of our chaps from the Waimairi County I think stood up in the private bar, full of our members, and spoke for over an hour and never repeated himself and all the tales were new and good.

I wonder how many can recall the very first time hormones came out for testing. I received two tins of about a pint each, with a note that one was to be used on blackberry and the other on fennel. They only had number F.N. 932 - F.N. 922. **There was no warning, just to mix with water and apply.** I tried them out in a place not 100 yards away from a leading nurseryman's garden. I did not concern myself about drift or anything like that. However, I don't know whether there was any damage and even if there was probably nobody would have guessed the cause in those early days - I shudder to think however what could have happened today.

Well, to wind up, I am now no longer in the game - I sit in an office, have a continual fight with my weight, and worry like hell about expenditure and where the money is coming from to provide the where-with-all. **Our present Inspector has a bike to do his work - I had a pair of boots and an occasional old nag to get around the job.** A certain gentleman in Wellington has fixed my salary, but I don't know what it is going to be. He has also fixed other matters, some of which. I will agree wanted attention. Where it will all end up I don't know, but I would say sit on your present job, get some service up so that you are protected if there is any redundancy **and trust that what is around the corner is not as bad as the 30's** - I have vivid memories of these years even though I was one of the lucky ones and had a parent who had a job right through the depression. - Things could get tough."

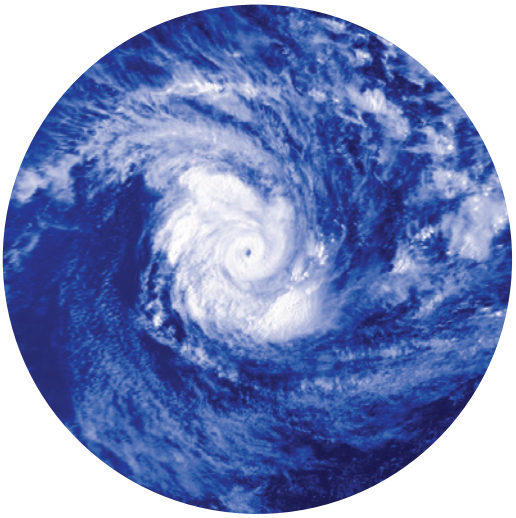
Noxious Nell

Noxious Weeds Inspectors Magazine, February 1975

# The versatility of the Noxious Plants Officer

Institute of Noxious Plants Officers Hawkes Bay - East Coast Branch Report, 22 March, 1989

Printed in The Institute of Noxious Plants Officers Inc, Newsletter Number 10, April 1989



"Officers in the Gisborne region have had an eventful year in the wake of Cyclone Bola. Their jobs have been an amalgamation of proliferated duties, chief butcher of impounded stock, chief culler of assorted dogs, under-secretary to offensive deposits, apprentice huntaway of roadside stock and occasional noxious plants duties. This shows the versatility of the noxious plants officer."