New Zealand Biosecurity Institute

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# Protect

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New Zealand Biosecurity Institute

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

# NZBI CONTACTS

**Alice McNatty**
President

**Darion Embling**
Immediate Past President

**Sara Moylan**
Vice-President

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Central North Island

**Diane Fraser**
Secretary

**Jono Underwood**
Membership & Top of The South

**Rowan Sprague**
Canterbury/ West Coast

**Alfredo Paz**
Otago/Southland

**Alastair Fairweather**
Awards Co-ordinator

**John Sanson**
Biosecurity New Zealand

| | | | |
|---|---|---|---|
| **Alice McNatty** | President | | mcnatty@hbrc.govt.nz |
| **Darion Embling** | Immediate Past President | (07) 859 0790 | Darion.Embling@waikatoregion.govt.nz |
| **Sara Moylan** | Vice-President | | Sara.Moylan@gw.govt.nz |
| **Heidi Pene** | Central North Island | 027 2486447 | heidi.pene@pestplants.co.nz |
| **Duncan McMorran** | Treasurer | | duncan@connovation.co.nz |
| **Diane Fraser** | Secretary | | dfraser@unitec.ac.nz |
| **Vivienne Lepper** | Auckland/Northland | | viviennel@nrc.govt.nz |
| **Jen McGowan** | Lower North Island | | jen.mcgowan@gw.govt.nz |
| **Jono Underwood** | Membership & Top of The South | | jono.underwood@marlborough.govt.nz |
| **Rowan Sprague** | Canterbury/West Coast | | rowan@nzwildingconifergroup.org |
| **Alfredo Paz** | Otago/Southland | 03 211 5412/ 021 784 933 | alfredo.paz@es.govt.nz |

**Other Officers**

| | | | |
|---|---|---|---|
| **Chris Macann** | Protect Editor & Archives Co-ordinator | 03 349 9660 | chrismacann@hotmail.com |

**Seconded Members**

| | | | |
|---|---|---|---|
| **John Sanson** | Ministry for Primary Industries | (04) 894 0836 | John.Sanson@mpi.govt.nz |
| **Alastair Fairweather** | Awards Co-ordinator | 027 280 7750 | Alastair.Fairweather@waikatoregion.govt.nz |

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## From the Editor

# Number 8 mate

If ya can't fix it with Number 8 mate it can't be fixed.

**Well, that's not entirely true but that mentality has never left innovative kiwis, and we are on an innovation wave when it comes to the enormous task of ridding New Zealand of predators within the next thirty years.**

**A lot of the innovation allowing this to succeed is well underway.**

**There's more than one reference to Number 8 in this issue. A story from Hawkes Bay matches Number 8 ingenuity with a piece of Velcro and a bungee cord. You don't get much more simple than that, and it's been a success.**

**In this issue we also visit the dilemma of developing new technology versus the hoops that need to be jumped through. The hoops are not made from Number 8 but the item attempts to clarify the need for close scrutiny and approval and the costs associated with that.**

**There's also a note on flying traps.**

**Sound a bit strange?**

**It's not.**

**Read on.**

Chris Macann,
Protect Magazine
Editor

## From the Executive

# Formalising our roles and promoting the work we do

**The executive committee met in person in Wellington, and virtually, on November 30.**

We are in the process of formalising roles and responsibilities of Institute office holders. We are also reviewing the process of voting at the AGM particularly in the times of virtual meetings. This is part of our overall review of governance.

Canterbury-Westland branch chairperson Rowan Sprague reported that planning for NETS2021 is continuing for Christchurch. The venue is a quarantine hotel is presently not available, but new venues are opening up in Christchurch as well. Rowan reports a positive response to early registration.

We are investigating the possibility of recording presentations which could be viewed by those unable to attend, for a reduced attendance fee.

President Alice McNatty was a judge on the MPI Biosecurity Awards Panel and attended the presentation ceremony at Parliament in November 2020. She reported that it was a good opportunity to hear about the excellent biosecurity work being implemented around the country.

Treasurer Duncan McMorran reported on the projected budget for the next five years, which includes a small increase in the subscription in 2022.

We discussed options for an increase in the availability of educational grants. This is dependent on the surplus from NETS which, apart from membership fees, is the Institute's chief revenue stream. If NETS make a good profit the Institute can afford to increase educational awards in the following year.

As part of our discussion on the Institute's Archives Project we agreed that we should carry-out shorter (one hour) oral history interviews of old-timers rather than ones of longer duration (3-4 hours). This would be a more effective way of recording our history because it would allow the Institute to get more varied information from a greater range of people. We are looking for suggestions for suitable candidates.

A study award application was received from Britney Ford to survey private landowners as to pest control measures. The awards committee recommended the approval of this award. No applications were received for the NZBI Professional Development Award in 2020, probably due to Covid travel restrictions.

In acknowledgement of the legacy of the shooting trophy we are continuing to investigate how best this can be competed for, and integrated into the Institute's legacy awards programme.

In its annual holiday season media programme, the Institute plans to suggest New Zealanders see how many intruders they spot in their own back yards as well as while they are out-and-about.

Have a safe summer one-and-all.

The NZBI Executive Committee

# Top of South NZBI Branch Information Seminar

**30 Oct 2020**

**Seventeen members from the local NZBI Top of the South Branch met at Richmond, where the format included PowerPoint talks on pest topics and a field trip to Kingsland and Silvan Forests on the hills behind Richmond.**

Members represented a broad base of employers; Marlborough and Tasman District Councils, Department of Conservation, New Zealand Winegrowers and two contracting companies - Kaitiaki O Ngahere and Futurecology.

Topics discussed included:

- Jim Herdman on NZ Wine industry biosecurity issues and challenges.
- Lindsay Barber on the Taiwan cherry battle, Himalayan balsam and Asiatic knotweed.
- Renan Falleiros on Pest Fish in the Tasman-Nelson Districts.
- Phil Cochrane on water celery and Vietnamese parsley and variegated thistle.
- Brent Holms on boneseed control programme.
- Ken Wright on Yellow flag iris, Yellow bristle grass.
- Rob Simons on establishing a wilding pine control trial using TDPA and new surveillance pests in Marlborough.
- Andy Wards on Bomarea multiflora control at Reservoir Creek in Kingsland Forest.

Followed in the afternoon by a field trip to Reservoir Creek in Kingsland and Silvan Forests to examine a Bomarea vine control programme for Tasman District Council and the PF Olsen Forest Company. The work was completed by Kaitiaki O Ngahere, in steep challenging conditions.

*Bomarea vine.*

*Erwan Le Saux points out treated Bomarea vines in this difficult steep forest cover during the Reservoir Creek field day.*

Our guide was Erwan Le Saux from Kaitiaki O Ngahere. Erwan outlined that over 5,150 hours have been spent on methodically controlling Bomarea, old man's beard, banana passion and climbing spindle berry vines, over a three-year period. In our Tasman-Nelson Region, this is the worst infestation of Bomarea vine. Until the infestation was discovered in 2012 it was a sleeping giant, spreading at an alarming rate.

# You need to hang around if you want to see the results

## Hugh Gourlay celebrates 45 years

*A few decades later. Hugh Gourlay is still amongst the gorse.*

**There was cake and lots of reminiscing as colleagues of Research Technician Hugh Gourlay met recently to mark Hugh's 45 years with Manaaki Whenua Landcare Research and its predecessor organisation, the DSIR.**

"I actually started on a Waitangi Day. I almost needed a trailer to carry my lunch as my mother had made so much for me. We started to drive out to Mayfield to harvest wheat and halfway there it started raining so we turned round and came back. That was my first day," he said.

It was the start of a long career that took off from a desire to work in science from about the age of six. "I've always had a fascination with insects and used to collect and mount them to study," said Hugh.

He had great role models. His grandfather had similar interests and was a biology teacher at Christchurch Boys' High, and his cousin Ted Gourlay worked in the biological control of weeds between the 1920s and 1950s.

"Ted was involved in introducing the gorse seed weevil into New Zealand in the 1930s," Hugh said.

Entomology has been a shared interest with research associate Richard Hill over the years.

"Hugh is passionate about entomology and about biological control of weeds.

*Earlier times. Hugh Gourlay amongst the thorns.*

"When I came to join the weeds team in Lincoln in 1982, Hugh was already in place as a science technician working on weed projects and on the ecology of legumes in high country grasslands.

"Over the next 10 years, Hugh was pivotal in the whirlwind development and deployment of seven biological control agents aimed at controlling gorse and in finding answers to questions that are vital in the management of the weed. For example, finding out exactly how long gorse seed lasts in the soil, and how it spreads.

"Sadly, none of the control agents have been obviously successful in controlling the weed, but the development project itself was highly efficient, and much of the credit for that is down to Hugh," Richard said.

Science team leader Lynley Hayes has worked with Hugh for more than 30 years. "I got my start in weed biocontrol whilst covering for Hugh when he was working overseas on gorse for 12 weeks back in 1990. There have been lots of adventures. Hugh is well known for his overseas work, and in particular not being afraid to go to some tricky places like Colombia and Georgia in the pursuit of biocontrol agents. For many years Hugh has looked after our containment facilities at Lincoln, which is no easy feat, especially satisfying MPI's ever increasing compliance demands.

"Hugh has also looked after colonies of many different kinds of insects. Again this is not easy work as most don't come with a recipe and working out how to rear them is often a process of considerable trial and error. Hugh has particularly enjoyed working with community groups to solve their weed issues and especially moments like field days when he got to make the first releases of a new agent and share with people about his work.

"Forty-five years is a long time to work in a single job, but in a long-term endeavour like weed biocontrol you need to hang around if you want to see the results of your work. Hugh has witnessed success against ragwort and promising results with the broom gall mite and green thistle beetle, while still hoping for good things from the likes of tutsan, Japanese honeysuckle, old man's beard and moth plant agents," Lynley said.

**Hugh has been Chairperson of the Canterbury - West Coast branch of the NZBI and has overseen the organisation of several NETS conferences.**

## Hawke's Bay TB outbreak update

OSPRI is managing a TB outbreak in Hawke's Bay. There are currently 18 herds with a TB infected status in Hawke's Bay region, of which 17 have completed their first clear whole herd test. Of the herds with a clear test, at least half are expected to achieve clear status at their next test within the next six months.

TB infections in Hawke's Bay have been successfully managed before. OSPRI wants to work with the Hawke's Bay farmer communities, vets, stock and station agents and trucking companies in a collective effort to return Hawke's Bay to TB-free status.

OSPRI 8 December 2020

## New chief at Predator Free 2050 Ltd

Abbie Reynolds is the new head of Predator Free 2050 Limited. She began her role in September. Abbie is the former Executive Director of the Sustainable Business Council. She has also held senior roles in telecommunications as Head of Corporate Responsibility at Telecom and Head of Sustainability and Foundation at Vodafone New Zealand.

*Predator Free 2050 Ltd Chief Executive Abbie Reynolds.*

## Waikato farmer fined for not registering 152 cattle

**A Waikato farmer has been fined $3,900 for not registering 152 cattle under the National Animal Identification and Tracing (NAIT) scheme.**

A Waitomo sheep and beef farmer was sentenced at the Te Kuiti District Court yesterday after pleading guilty to 3 charges of failing to register the cattle.

The Ministry for Primary Industries national manager of Animal Welfare and NAIT compliance Gray Harrison said compliance with the animal and identification system was critical.

"We certainly take it very seriously. Our ability to track and trace cattle and deer through the NAIT system is a critical factor in managing biosecurity threats which could have a devastating impact on New Zealand's agricultural sector.

Recent amendments to penalties in the NAIT Act, which increased the maximum penalty to $100,000, reflected the importance of compliance, Mr Harrison said.

"This latest sentencing follows a number of recent NAIT-related convictions. People who want to take short cuts need to be aware we will continue to identify and address non-compliance."

In July, Taupo dairy farm manager was fined $3,600 for failing to register more than 1,000 animals. And a Northland deer farmer was fined $3,250 over his failure to put NAIT tags on 70 of his deer.

In the meantime, MPI will continue to work with OSPRI and the sector to ensure people understand their responsibilities.

"If you don't tag and register your cattle or deer in NAIT, the animal is not traceable and this has implications for managing disease outbreaks and our wider biosecurity capability. The absence of traceability may also impact on the value of the animal," said OSPRI head of traceability Kevin Forward.

# Protecting New Zealand for the benefit of everyone:

## Honouring this year's biosecurity champions

This year's winners of the New Zealand Biosecurity Awards were announced in mid-November.

The awards recognise organisations, volunteers, businesses, iwi, hapū, government, and tamariki around the country who are contributing to biosecurity.

Judging panel chair Dr John Hellstrom said the judges are always fascinated by the innovation displayed by each entry.

"We've had an outstanding number of entries this year, and the number of entries is growing each year which is fantastic to see.

"It takes all of us to protect what we've got, and these people have taken protecting New Zealand into their own hands, for the benefit of everyone," said Dr Hellstrom.

Here is a summary of this year's winners:

### New Zealand Biosecurity Supreme Award and GIA Industry Award

The New Zealand Biosecurity Supreme Award and GIA Industry Award went to Central North Island dairy processor Miraka for its programme: Te Ara Miraka – achieving enhanced biosecurity awareness and culture change on-farm.

Miraka established its farming excellence programme – Te Ara Miraka – to build farmer resilience, future-proof farmer regulatory compliance, extend the organisational values across their value chain, and lastly to start a traceable brand story.

The programme has a robust foundation focusing on employment relations, health and safety, environmental stewardship, prosperity and food safety standards, and Miraka has been able to demonstrate compelling and tangible behaviour change to farming operations and farmer mindsets through education, resourcing and financial incentives.

After involvement with a sector foot and mouth disease exercise scenario in 2017, Miraka identified that biosecurity was missing from the programme and set about working with external parties, Primary ITO and QCONZ to establish an industry-available and NZQA-funded farm owner/management training short course.

**Each participant was trained in biosecurity risk assessment, risk mitigations and how to create and implement a biosecurity plan within their business.**

Through educational initiatives, and incentives, in just 12 months, 72 out of 104 Miraka farmers fulfilled the criteria and executed a biosecurity plan. The course is now available to all.

### New Zealand Biosecurity Special Award

A New Zealand Biosecurity Special Award went to the New Zealand Kiwifruit Industry for its outstanding commitment to biosecurity.

Our kiwifruit industry has demonstrated exceptional leadership in the face of biosecurity incursions, driving research and managing the impacts, while also ensuring the welfare of our growers.

**The industry, alongside MPI, laid the foundations for a new era of biosecurity partnership, with the first signing of the Government Industry Agreement for Biosecurity Readiness and Response Deed – a commitment to working together on preparing for pests and disease and on managing them if an incursion occurs.**

The resilience demonstrated by this industry during earlier responses has carried through to today; it continues to pride itself on driving a collaborative approach to biosecurity and is an early adopter of new and innovative ways of managing this on behalf of its growers and the wider New Zealand food and fibre sectors.

### Minister's Biosecurity Award

The Minister's Biosecurity Award went to Linda Peacock for her service to the kiwifruit industry.

Linda has worked tirelessly with growers and technical teams from across the regions for more than 30 years, taking science-based lessons and turning them into easily understood, practical solutions to help kiwifruit growers.

Highly regarded across industry, she's been an incredible mentor who always puts the needs of growers first, with passion and empathy.

She's also an active contributor to regional biosecurity networks KiwiNet and Tauranga Moana Biosecurity Capital, a member of the PSA research steering group and the Zespri crop protection steering group, and a long-standing industry liaison and technical specialist at Kiwifruit Vine Health.

Linda's leadership, expertise and unwavering commitment to guarding against unwanted pests and diseases has been an asset to the industry and our communities across Aotearoa.

## Department of Conservation Community Pihinga Award for new projects/initiatives

The Department of Conservation Community Pihinga Award for new projects/initiatives went to Marine Meter Squared (Mm2), New Zealand Marine Studies Centre for its project: Seashore monitoring for marine pests – a citizen science approach.

Marine Metre Squared (Mm2) is a nationwide citizen science project that aims to get communities involved in the long-term monitoring of the seashore, raise awareness of biodiversity and biosecurity and changes in the marine environment, build links between scientists, educators, schools, community and iwi groups who care about the seashore environment and want to look after it.

By running educational programmes and workshops in communities and schools, alongside developing resources for people to use, Mm2 has been able to connect with a wide audience both online and in-person.

## Department of Conservation Community Kahiwi Award for established projects/initiatives

The Rotokare Scenic Reserve Trust in Taranaki won the Department of Conservation Community Kahiwi Award for established projects/initiatives.

This community-led success story celebrates the ambition and determination of the community to create and sustain a pest-free sanctuary, underpinned by a constant and priority focus on quality biosecurity delivery. This project demonstrates the purpose of Predator-free goals, and provides motivation and inspiration to the whole region.

The Rotokare sanctuary is possibly the largest essentially mouse-free environment on mainland Aotearoa. **A strong biosecurity history has enabled significant indigenous species reintroductions, including the return of tieke and hihi after aroun150-years of regional extinction, and pāteke also after around100-years of regional extinction.** A partnership project has established a kiwi breeding population, and has now begun translocating kiwi to other sites. The sanctuary is also a source for other species translocations.

A several thousand hectare trapping programme in partnership with surrounding landowners has provided major community inspiration, enabled a kiwi translocation to a nearby site, and the return of pāteke to Taranaki. Due to pāteke predation soon after their release, a significant up-scaling of feral cat control has demonstrated the significant issue this species presents.

A comprehensive environmental education and engagement programme reaches out region-wide, empowering the future generation of leaders with knowledge and inspiration to lead their communities to improve the prospects for indigenous biodiversity.

## Kura (School) Award

St Paul's Collegiate School won the Kura (School) Award for its programme: Understanding biosecurity future-proofing strategies in New Zealand secondary schools

Through its agribusiness programme, St Paul's Collegiate School is committed to taking the lead to meet primary industry needs by growing the talent, skills and abilities of students to better prepare them for careers in agribusiness.

The agribusiness programme encourages students to look at issues facing the primary sector, including biosecurity, where they gain a good understanding of topics such as *Mycoplasma bovis* or the Queensland fruit fly.

**Using the biosecurity context, they've written a suite of schemes and resources for one of the new agribusiness achievement standards at NCEA Level 3 – future proofing strategies. St Paul's Collegiate School has made this available to all New Zealand secondary schools.**

These resources allow students to learn about the potential impacts biosecurity may have on the primary industries and why all New Zealanders need to ensure our country is kept safe from pests and diseases, and to use innovative ideas to provide future-proofing strategies for the industry.

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## Te Tira Whakamātaki Māori Award

Te Rawhiti 3B2 Ahu Whenua Trust won Te Tira Whakamātaki Māori Award for its project: Nga Kaitiaki o Ipipiri Herenga Waaka (Guardians of the Bay of Islands).

Te Rawhiti 3B2 Ahu Whenua Trust with support from mana whenua Patukeha Hapū and Ngati Kuta Hapū has been conducting pest control and assisting with native bird re-locations in the Bay of Islands for over 20 years.

The mahi has involved clearing and maintaining trapping tracks, placing and checking traps and bait stations, monitoring birds and helping with translocations, and conducting a controversial, but very successful, 1080 toxin aerial drop on Rākaumangamanga (Cape Brett Peninsula). Pest control and conservation work by hapū members on Urupukapuka Island has ensured populations of kākāriki, tīeke (saddleback), pōpokotea (whiteheads), and toutouwai (robins) are flourishing.

The 3B2 Trust has also assisted several researchers, including PhD students, studying the marine and terrestrial ecology of the Bay of Islands, so the next generation of New Zealand conservationists and ecologists will have an understanding of kaitiakitanga.

## Eagle Technology Local and Central Government Award

Dr Mary van Andel from MPI won the Eagle Technology Local and Central Government Award for her strategic leadership for the *Mycoplasma bovis* and COVID 19 responses

Scientific excellence and courage are critical to biosecurity and protecting our precious taonga – and Mary's life work epitomises this. A strategic veterinary epidemiologist, Mary has spearheaded the strategic design of the *Mycoplasma bovis* response – a world first attempt to free New Zealand of the cattle disease – since 2017.

Mary is also a pivotal member of the *M. bovis* Strategic Science Advisory Group that steers the science research to support the eradication programme.

More recently she played a key role in the Ministry of Health's COVID 19 response – bringing her strategic disease tracing skills to serve New Zealand.

Mary is Principal Advisor to MPI's Chief Scientist and a member of the Australia NZ College of Veterinary surgeons – where her contributions to epidemiology saw her awarded the Chris Baldock Award in 2013.

Her PhD and life's work has made an enormous contribution to New Zealand's knowledge of animal population and surveillance data for use in national disease control, emergency management and outbreak investigation, as well as modelling and analysis.

## AsureQuality Emerging Leader Award

Thomas (Tame) Malcolm from Te Tira Whakamātaki and Te Arawa Waka won the AsureQuality Emerging Leader Award.

*Emerging leader Tame Malcolm.*

Tame Malcolm (Te Arawa: Ngāti Tarāwhai, Ngāti Pikiao, Ngāti Ngararanui, Tapuika, Ngāti Whakaue, Ngāti Ruanui) has more than a decade's experience in environmental management roles in the Bay of Plenty, Waikato, Canterbury and Marlborough regions. This has included working for OSPRI (TB Free), Waikato Regional Council, Department of Conservation (Waikato) and most recently Te Tira Whakamātaki (the Māori Biosecurity Network).

Tame is an avid hunter and trapper who grew up in the bush, on the water and embedded in te ao Māori.

He and his current mahi is committed to; protecting the whenua; helping Māori entities protect their environment; ensuring Māori have access to and a say in how other agencies protect the environment; and maintaining and elevating the Māori worldview in science and environmental management/ protection especially as it relates to biosecurity.

### Bio-Protection Research Centre Science Award

The Bio-Protection Research Centre Science Award went to Technology developer Onside for its programme: Network technology to inform risk-based testing, eradicating biosecurity incursions in the primary sector

There are approximately 300,000 rural properties in New Zealand which are linked by an estimated 100,000,000 annual movements. These movements mean that rural New Zealand is joined via a giant interconnected network. **Although this connectedness has improved business efficiency, it has also meant that disease can spread much more effectively.**

With the support of Callaghan Innovation and Agricultural and Marketing Research and Development Trust, along with world-leading scientists, Onside has created a biosecurity system, Onside Intelligence (OSI), that is capable of managing readiness and response within the complexities of the modern world.

**Onside Intelligence uses data from a range of sources to construct an intricate rural network which can be used to map disease pathways and feed algorithms to direct disease testing and management activity in the fastest and most resource efficient way.**

### Mondiale Innovation Award

Science and technology company Groundtruth Ltd won the Mondiale Innovation Award for its programme: Trap.nz.

Operating since 2014, Trap.nz is now the largest trapping database in the country and the leading software solution for pest management and outcome monitoring in New Zealand.

Trap.nz is the result of engaging with a widely dispersed community with large-scale pest control projects, and by building an interactive tool to establish manage, and link these projects. Users can set up, manage and report on their projects using the system.

Trap.nz is in constant development with innovation always at the forefront. Trail camera recording and reporting has been added and radio sensor traps, which electronically notify Trap.NZ when triggered, are included.

An open map API allows data to be viewed on a wide variety of systems, which is particularly useful for councils to manage trap deployments in partnership with community groups.

# The vital importance of pig food hygiene at all levels

Contributed by New Zealand Pork

**Pig farming is a relatively small livestock industry in New Zealand, however consumption of pork is growing dramatically in the country and the sector is worth $700m a year to the economy.**

On average, New Zealanders consume 23.46kg of pork per capita annually. 8.81kg of that is NZ-produced pork and the rest is imported meat.

The sector is known for its high welfare standards and high health status, being free of most of the pig diseases which have wreaked havoc across pig herds in many other countries. Maintaining that status requires both exceptional commitment to biosecurity by the sector, science-based on-farm biosecurity measures by commercial pig farmers, and an ongoing public education campaign.

"New Zealand does not import live pigs **but imported meat is one of the biggest biosecurity risks for New Zealand pork producers**," says David Baines, chief executive of NZ Pork. the statutory industry board working to support New Zealand pork producers.

"Pig herd health status has a very positive effect on both animal welfare and productivity, so it is critical that we keep New Zealand free of the serious pig diseases which have seriously impacted pig farming in many other countries."

**NZPork is partnering with the Ministry of Primary industries (MPI) on an ongoing public awareness campaign to raise awareness of exotic diseases, particularly African Swine Fever (ASF), which has already resulted in the death of at least a quarter of the world's domestic pigs**, including 220 million in China.

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ASF was first identified in East Africa. By 2007, it had reached Europe, via infected wild boar and contaminated meat.

It reached China in mid-2018. During 2020, the disease took hold closer to New Zealand, in Papua New Guinea.

The ASF virus is highly contagious among pigs and there is no vaccine or effective treatment. The circulating strain has a mortality rate in the order of 80 -100%.

Other pig diseases affecting countries importing pork to New Zealand, include Foot and Mouth Disease (FMD), Aujeszky's Disease (ADV) and Porcine Reproductive and Respiratory Syndrome (PRRS). PRRS is considered the most economically damaging disease to affect USA pig production in the last 50 years.

**Among key pathways for disease incursion and spread are domestic or wild pigs eating infected scraps of imported meat, which have not been properly treated.** New Zealand's biosecurity regulations prohibit the feeding of uncooked meat, and these regulations are well supported by commercial pig farms. But it is estimated that in addition to the commercial pig farming industry, non-commercial pigs are kept on 6-8,000 other properties including farms or lifestyle blocks. Many of these pigs are fed food scraps, including from a range of sources – restaurants, schools and kindergartens.

The NZ Pork and MPI campaign focuses strongly on the measures in the regulations around treating scraps.

**"It's illegal to feed any pigs waste food containing meat products, or any food that has come into contact with meat unless it has been heated to 100 degrees Celsius for one hour,"** says Mr Baines.

"In the six months to April 2020 over 22 million kilos of pork was imported into New Zealand from countries affected by pig diseases. These diseases are not harmful to humans, but if infected pork or scraps that have come into contact with infected pork are not heat-treated in the required way, there is a risk that diseases, including ASF and PRRS, could enter and spread to the national pig herd.

"That makes it critical that we get the message out and keep repeating it. While the commercial industry is well connected with veterinarians with pig expertise, it is unlikely that properties that have just a few pigs work with a vet with specific pig knowledge, so issues may not be identified quickly. For this reason, rural vets have been one target group for the awareness campaign."

**The awareness campaign also targets hunters, urging them to be the 'eyes and ears' to look for any signs of diseased pigs in the bush.** This includes posters highlighting the signs to look out for and how to notify the Ministry for Primary Industries with any concerns.

Hunters are asked to look out for any wild pigs that are slow moving or have diarrhoea, any dead or sick animals or blood spots or lesions on the organs when a pig is opened up.

The ASF virus can survive for long periods of time in the environment and on contaminated clothes, vehicles or equipment. **Hunters are advised to dress out wild boar where they were killed and to bury the guts. Hunting gear, including knives, trophies and any other equipment should be disinfected before returning home. Hunters should not visit any farms with pigs for 48hrs after a hunting trip.**

"New Zealand commercial pig farmers operate very strict biosecurity on their farms," says Mr Baines. "Pigs, people and transport are the three vectors likely to carry disease. Commercial pig farms will strictly limit people and vehicles coming beyond the perimeter fence. Those entering a piggery may be required to shower and completely change all clothes and footwear."

Anyone noticing any unusual symptoms in a pig or pigs should consult their vet or call MPI's pest and disease hotline on 0800 809966.

New Zealand Pork is the statutory industry board that works to support New Zealand's commercial pig farmers.

## Velvetleaf update:

# Research, community outreach and beware of imitators

Contributed by Trevor James, AgResearch

### Velvetleaf community outreach

The Ministry for Primary Industries has three contracted positions as Velvetleaf Community Outreach staff. Based in Waikato, Canterbury and Southland this team covers the country, working with farmers and regional councils in the management and control of velvetleaf. They also work with and coordinate stakeholders, agronomists, seed merchants and contractors to grow capacity and capability in the sector on velvetleaf management.

The aim of these roles is to take a coordinated approach in working with those who have a role in the control and management of velvetleaf and ensuring the most up-to-date information and research is easily accessible.

Given the nature of velvetleaf with the ability of the seed to survive for more than 50 years, a critical part of the velvetleaf programme has been to ensure accurate records are kept of where velvetleaf has been found. Geospatial data standards have been developed and the Community Outreach roles ensure for all velvetleaf sites, that the surveillance, Farm Management Plan follow up and monitoring activities are recorded into the velvetleaf database.

For further information on velvetleaf the Community Outreach contacts are:

### Waikato

**Sally Linton. Phone 027 278 1620 Email** sally.linton.nz@gmail.com

### Canterbury

Megan Hands: Phone 021 665 160 or email megan@landsavvy.co.nz

### Southland

Rebecca Robertson: Phone 027 424 6129 or email rebecca@slwp.co.nz

Sonya Nicol: Phone 027 505 0077 or email sonya@slwp.co.nz

*Sally Linton dealing to velvetleaf in the field.*

### Velvetleaf research

**Field studies**, work is continuing to find a replacement crop for maize for affected Waikato farmers. This summer we will be trialling sorghum. Sorghum is tall growing and high yielding, a bit like maize, but we also have the option of cutting it throughout the summer (every 4-5 weeks) for green feed. This should prevent velvetleaf from producing seed and hence removing the major problem with growing maize on infested sites. Test crops will be grown near Matamata and in Karaka.

**Climate studies**, for the second year in a row we found that in the deep south (Invercargill), velvetleaf does not mature and set seed. The plants flower but do not develop into seed. Further north at Mosgiel, seed production of velvetleaf was only about a quarter or less than plants grown at Lincoln or in the North Island.

**Seed bank study**, after 4 years, seedling emergence at the Matamata site remained fairly constant (Table below). This was the same pattern on an adjacent location where we have also been cultivating the soil 4-5 times each summer. Unfortunately, at the 3-year location there are still about 600 seeds/m2, which if the emergence rate remains at about 80/year will keep going for another 8 years at least!

Yearly emergence of velvetleaf - total 4-5 cultivations over spring/summer

| Year | Old site (50 x 5 m) | New site (10 x 5 m) |
|---|---|---|
| 2016/17 | 780 (3.1/m$^2$) | - |
| 2017/18 | 1069 (4.3m$^2$) | 6195 (124/m$^2$) |
| 2018/19 | 953 (3.8/m$^2$) | 4008 (80/m$^2$) |
| 2019/20 | 897 (3.6/m$^2$) | 4260 (85/m$^2$) |

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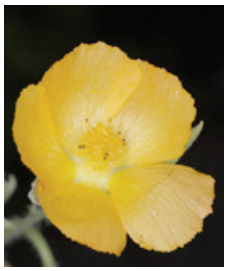
### Velvetleaf look-a-like

On two occasions this year (Palmerston North and Hamilton) we have had to identify a velvetleaf look-a-like plant (photos below) This plant turned out to be hairy Indian mallow (*Abutilon grandifolium*). This species is a perennial woody shrub but has leaves, flowers, pods and seeds which are very similar to those of velvetleaf. The give away diagnostic is the very hairy stems.

*Velvetleaf-like plant beside Waikato River, in Hamilton.*



*Flower, seed pod and stem.*

For further information on velvetleaf research contact:

Trevor James, AgResearch.
Trevor.james@agresearch.co.nz

# How much for that attractive plant?

**What's the cost of plants got to do with biosecurity in New Zealand? Possibly quite a lot according to Lincoln University Plant Biosecurity Distinguished Professor Philip Hulme.**

A research project headed by Professor Hulme intends to investigate why some non-native ornamental plants become environmental weeds, and aims to help forecast and prevent future biological invasions.

The Government announced in November, a $798,000 boost for the project over the next three years through the 2020 Marsden Fund.

Prof Hulme and his team will look at whether the prices of non-native ornamental plants, as well as their popularity with gardeners, contribute to them becoming invasive.

**"It's not well understood why some non-native species escape from cultivation to become invasive weeds when others don't.**

"This project will research factors that affect demand for garden plants: gardener preferences for particular biological attributes, as well as plant prices."

A clearer understanding of the behavioural and economic drivers of ornamental plant invasions will underpin the development of more successful methods to manage potentially invasive plant species.

Professor Hulme said **current approaches to managing invasive garden plants are based on sales and import bans but a broader plan is needed.**

FROM A LINCOLN UNIVERSITY ANNOUNCEMENT

# Number eight wire key to Whakatipu Māhia possum eradication

**Moving from predator suppression to eradication requires huge adaptability in your planning and mindset. Innovation and adaptability becomes the name of the game, and for the Whakatipu Māhia team it's resulted in some truly number eight wire innovative solutions.**

Hawke's Bay Regional Council's first forays into landscape scale predator control began a decade ago with the Poutiri Ao ō Tāne project, followed by Cape to City in 2015. Following the announcement of the Predator Free 2050 vision and associated funding, the largest mainland farmland possum eradication programme Whakatipu Māhia - Predator Free Māhia - was launched in July 2018 with on the ground work kicking off in March 2019.

The main tool to initially reduce possums is an intensive sentry bait station network aimed at 1 bait station per hectare. Starting at the southern tip of the peninsular and working in a rolling front northwards the team encountered their first barrier – no habitat. Certainly not enough to achieve 1 bait station per hectare. The solution was to attach battens to existing fencelines in order to install the bait stations.


*Possum accessing bait station raised on batten. Photo credit: Pouri Rakete-Stones.*

There was some reservations whether this would work but trail camera footage has shown that both possums and rats readily access these stations, while keeping out of reach of curious stock.

Forestry blocks presented the complete opposite challenge – plenty of trees, but bait stations couldn't be nailed to them because they would mark the trees. The team had to use bait stations secured with bungee cords, so as not to mark the trees but still strong enough to hold the baitstation in place. An additional benefit is the colourful bungee cords offers a visual aid around the entire tree, attracting possums from all angles.

With any bait take the question is: possum or rat? Apart from the fact that rats tend to leave behind tell tale sign all through the bait station there was otherwise little to tell which species had been eating the bait. A small strip of white velcro attached to the front of the bait station was a simple way to collect dirt and hair from the animals giving the team further indications of what was accessing the bait stations.

*Pouri Rakete-Stones attaching bait station on bungee and lured trail camera. Photo credit Natalie de Burgh.*

*Possum fur on velcro. Photo credit Shane Diphoorn.*

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Following the bait station layout, a variety of trapping networks are installed. Wirelessly monitored legholds are our key monitoring tool to determine if any individuals remain after knockdown. This network is infilled with lured trail cameras in more inaccessible locations – about 100 of them. PodiTRAPs and wirelessly monitored cage traps are installed to target feral cats and mustelids with the aim to reduce numbers by 90%. Mop up tools for remaining possum individuals include night shooting with thermal cameras, possum master traps at key locations, and detection dogs.

Hedgehogs, as in many places around the country, are the most commonly caught species. While they have their own impacts, they do tend to clog trapping networks, particularly labour intensive live capture traps such as cages. To get around this the field team raised cage traps on legs to prevent hedgehog access but allowing access for our target species. Hedgehogs are still caught in podiTRAPs, but checking this kill trap network is less critical than live capture traps which need to be checked each day.

*Cage traps raised on legs to prevent hedgehog access. Photo credit: Kaya Cooper.*

Whakatipu Māhia is about to enter an exciting phase, monitoring for proof of freedom from possums in Phase 1, a 5500 hectare area. Manaaki Whenua – Landcare Research modelling suggests that our network requires eight weeks of zero possum detections to reach 95% confidence of achieving this goal. Any detection effectively resets the clock, and the eight weeks begin again.

*More innovation? Certainly a creative way to carry your bait stations. Photo credit Shane Diphoorn.*

We've put together a neat 3 minute video with plenty of drone footage that gives a nice overview of the landscape at Māhia which really puts the project in a bit of perspective! - pfhb.nz.


As a side note, the the line up of tools and techniques currently being funded for development by PF2050 Ltd makes for impressive reading – and some excitement for tools that will be available in the near future – check out products to projects (https://pf2050.co.nz/products-to-projects/).

# Maungakiekie Songbird:

# A thriving habitat within central Auckland

**Local groups across the nation are complementing the work of Councils and conservation authorities such as DOC, in the drive to a predator free New Zealand. Here is the story of Maungakiekie Songbird, a community-led project in Auckland city, as told by its initiator Iain Hook.**


*Maungakiekie Songbird launch day.*

Maungakiekie Songbird came to life in late 2020 with the goal of creating a thriving habitat within central Auckland around Maungakiekie (collectively the parks of Cornwall Park and One Tree Hill) for not only native birdlife but other native species as well. I presented my ideas in late 2019 to both Cornwall Park and the Tūpuna Maunga Authority to get their administrative support and then was able to secure funding support from Auckland Council, Department of Conservation and the Maungakiekie-Tamaki Local Board. This support has allowed the project to provide a range of resources free of charge to residents in the defined halo areas (surrounding streets around the perimeter of Maungakiekie).

I was fortunate to speak with quite a few established community groups across the country and get an understanding of what worked, and what didn't, for these groups in terms of project setup, administrative and operational issues and engagement with the local community, and this understanding has really helped shape our approach.

First and foremost is to have alignment with partners. Our partners are amazing, not only do we have a shared goal but the commitment and support they have given has enabled us to establish the project really quickly. Please therefore allow me to acknowledge Cornwall Park Tūpuna Maunga Authority, DOC, Auckland Council and the Maungakiekie-Tamaki Local Board".

Secondly, it has to be easy for residents. We offer industry standard monitoring tools such as wax tags and chew cards for residents to help understand what predators they have. With regards to traps for predator suppression, our focus is to provide two quality, easy-to-use traps. We selected Envirotools Supervisor Max as the multi-rodent trap as we understand this is designed specifically for home and backyard applications.

We find this to be a compact, effective, and easy to use trap that with its unique automatic safety latch system doesn't allow access inside the trap when set – so it's safe for not only the user, but importantly in an urban environment, both pets and children. Our second trap is Envirotools Flipping Timmy which is for possum control. Again, our key consideration was selecting a user-friendly and effective trap designed for all ages and capabilities; one that is clean, safe to use, and requires no handling of the catch. An added benefit is that not only are both traps employing the latest innovations in trap design, they have also been engineered and manufactured in New Zealand; something that is important to our project as a supporter of New Zealand businesses, in these COVID impacted times.

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Maungakiekie Songbird
CREATING A THRIVING ONE TREE HILL HABITAT

Thirdly, to encourage the enhancement of the habitat we have provided residents with a range of native trees for planting in their backyard gardens. Sourced from Cornwall Park nursey our range in 2020 included Kōwhai, **Pōhutukawa, Kānuka, Karo and Whararikī, while for 2021 we are now planning a wider range and also more mature trees.**

**We have (and continue) to attract residents through targeted communications. For our launch we ran an event in One Tree Hill domain which we estimated over 400 people attended. "We had all our partners supporting us so it was a really impressive and educational display for the residents".**

The result has seen more than 275 households join the project within the first 6 weeks of our launch, representing around 25% of households in the halo area. This represents a strong, engaged, local community base for us to build the halo.

So where to from here we asked ? "We aim to have 40% of residents or more within the halo join by mid-2021. Additionally, we are now talking with local businesses and organisations about how they can be a part of the project. And importantly we have already started discussions with local schools to help develop curriculum activities for their 2021 year commencing in term 1, which to date involves 12 local schools. So, we are really excited going into 2021 with plenty on our roadmap ahead.

For more information on Maungakiekie Songbird visit **www.maungakiekiesongbird.nz**

# Aerial traps?

**DOC and Predator Free 2050 Ltd are backing the development of a biodegradable rat trap that can be distributed by air to contribute to a predator free Aotearoa, Minister of Conservation Kiri Allan has announced on December 10th.**

The aerial micro-trap, which will be co-funded and designed by conservation technology company Goodnature, stands to be a game-changer in predator control.

"Traps are an important predator control tool, but current technology limits the use of traps in the backcountry or over large areas, due to their costs and servicing needs," Kiri Allan said.

"The aerial micro-trap is a new concept that is non-toxic and humane, and potentially cost-effective for suppressing rats over large areas and in remote and difficult to access locations. **The shuttle-cock-sized trap, still at concept stage, would be dropped by helicopter or drone** to target ship and Norway rats across the landscape. After single use, it would then biodegrade into the environment.

Goodnature will design, build, and test a prototype for the micro-trap, in collaboration with DOC. Following this process, the trap would be produced and sold by the company.

Government funding of $1.3 million over five years for the development of the micro-trap will come from DOC's Tools to Market programme ($965,000) and Predator Free 2050 Ltd's Products to Projects fund ($335,000), backed by the Provincial Growth Fund. Goodnature will also significantly invest in the project.

The micro-trap joins two other projects funded through the Tools to Market programme earlier this year – a specially designed drone to apply cereal baits for predator control and a long-life lure targeting rats, mustelids, possums, and feral cats.

### The Tools to Market programme and the Products to Projects fund

The Tools to Market programme invests in the development of smarter, safer and more effective predator control tools and technology to help achieve Predator Free 2050 goals.

Seven other projects have been funded through Tools to Market since 2017 and are in development including a long-life rat lure, now at a commercial phase, and an automatic pest detection device (PAWS®).

Predator Free 2050 Limited established Products to Projects in early 2019 with an initial $6.5 million investment supported by the Provincial Growth Fund.

# Predator Free Wellington boost

**Predator Free Wellington is expected to be achieved much more quickly, thanks to a funding boost announced in early September.**

Government company, Predator Free 2050 Limited will provide an extra $7.6 million to Predator Free Wellington. This matches similar investment over the next five years by Wellington City Council, Greater Wellington Regional Council and the NEXT Foundation.

"This investment will supercharge the incredible amount of work by volunteer groups who have been out in force around the city encouraging backyard trapping and returning birdsong to the city," said then Conservation Minister, Eugenie Sage

"The project will repeat the methods used on Miramar Peninsula over the past year to remove rats, stoats and weasels. The next stage of control will be done across 19 suburbs – from Kilbirnie around to Island Bay and through to the CBD, home to approximately 60,000 people.

**The new investment enables traps and bait stations to be established on a comprehensive grid pattern to maximise the likelihood that every target pest in the area will encounter them.**

Teams of community liaison and field staff will be recruited, trained and managed as part of the project, helping create jobs to off-set jobs lost through the COVID-19 economic slow-down.

Over five years additional phases of control work will be done from Wellington Port via Zealandia to Te Kopahou, from Kaiwharawhara to Makara, then north to the city boundary at Porirua.

## A bit more on Who's Who

**Predator Free Wellington**

Predator Free Wellington is a charitable company supported by Wellington City Council, Greater Wellington Council and the NEXT Foundation. It received initial funding of $3.725 million from Predator Free 2050 Limited in August 2018. Its vision is to create the world's first predator free capital city where communities and native biodiversity thrive.

**The NEXT Foundation**

The NEXT Foundation administers an up to 10-year, $100 million programme of strategic philanthropy in education and environment projects. Environment projects supported are those that significantly protect and sustain New Zealand's natural elements, habitats and species, including research and innovation, conservation and community participation in ways that enhance the relationship between people and nature.

# Should have known better

A South Canterbury farmer who is also a farm machinery importer, was fined in November for making an erroneous declaration about dirty footwear and where he had been when he returned to New Zealand.

The man was returning from a work trip to the United Kingdom in December last year, when a quarantine officer noted he had skipped a section of his passenger arrival card.

The official repeatedly asked him to say what countries he had visited in the previous month, but he replied: "I've just been overseas … I'm from New Zealand."

Inspection of the man's bag revealed his shoes to be contaminated with plant material and with soil.

**MPI said the man was very experienced on biosecurity matters, particularly given his job as a farm machinery dealer.**

He was fined $400 and ordered him to pay $30 in court costs and $500 to MPI.

"Working with officers instead of against them might work in your favour," the judge said.

**Adapted from an item in the Christchurch Press November 27.**

# Reducing the cost of research and development

The NZBI Executive Committee received a request from Institute member, Craig Morley for advice, and support for lobbying for a reduction in the cost and barriers to research and development.

The NZBI is not setup or resourced to lobby, however it is in a position to facilitate informed comment to enable open, healthy debate.

If members have thoughts then it is appropriate to air them.

Historically, Protect Magazine and its predecessor publications have been loaded with passionate debate.

It is important for the Institute to acknowledge such concerns. It is also why we are careful to have a balance on the Executive for example an MPI and a vertebrate pest representative.

The NZBI encourages biosecurity innovation that benefits our environment and economy and supports actions that help to broaden the range of tools that the industry has to protect them.

Chris Macann
Protect Magazine Editor

## Hurdles to backyard inventors

By Craig Morley, Associate Professor of Resource Management, Toi Ohomai Institute of Technology, Rotorua

There are a whole lot of backyard inventors trying to make products to reduce diseases and pests in New Zealand but they face several hurdles in doing so.

The first obvious hurdle is finance. It seems to be that when organisations allocate money, significantly large amounts go to a few large companies, corporate's and to the CRI's, and the backyard inventor gets very little look in - and yet in New Zealand we have this Number 8 wire mentality where people are coming up with some very interesting solutions - but they never get a chance to really promote and manufacture these.

The costs for NAWAC to test a kill-trap are incredibly high and the costs to re-register a slight change in the use of a toxic bait is also incredibly high, but worse, it can take an incredibly long-time for a decision.

New Zealand grew up on the back of the Number 8 mentality but now it is being hindered by risk-averse decision-makers.

I'm not suggesting by-passing these costs and regulations but I am seeking a reduction in the costs and for a quicker decision-making process to encourage more innovation and to help speed up pest control efforts. At present, it is only the "big-boys" who can afford to do this and they don't always have the best solutions.

My question is: ***How do we develop a level playing field to get some of these inventive and innovative ideas out there to be trialled and tested?***

Often what people think is that there is a possible commercialisation pathway, so if people put up an investment at the beginning, then they might get some money at the end. This may be true to some extent, but we are also missing a lot of people who do not have the financial wherewithal to do the start-up at the beginning, so how do we address this?

So, my question is: ***How do we encourage the backyard inventor, the Kiwi entrepreneur, or the young inspiring scientist?***

Some have said, competitions are a good way to breed inventiveness. This is true but I've also seen exploitation of ideas in such circumstances as well. What I would propose is a fund for some initial seeding funding for prototypes so these ideas can be in developed and tested using NAWAC approved standards, and then if they pass this muster, the additional funding can be used to assist them on the commercialisation pathway.

Thus, I suggest having a funding pool set aside for our backyard developers, as this would help remove these roadblocks to development. It would also eliminate those projects or ideas that do not work right at the very beginning, but at least they have had the option to demonstrate and trial the product.

***In response to Craig's comments, Protect Magazine invited comment from Predator Free 2025 Ltd, the charitable company set up to foster predator control innovation, and from the overarching Predator Free 2025 programme.***

## Enabling innovation

By Dan Tompkins, Science Strategy Manager, Predator Free 2050 Limited

Craig makes the case that enabling innovation is a key need for the achievement of Predator Free 2050. PF2050 Ltd wholeheartedly agrees.

The PF2050 mission was launched with the driving tenet that **business-as-usual predator suppression operations and incremental research developments alone are not sufficient to reverse the ongoing decline in Aotearoa's native biodiversity.**

On the R&D side, **diversity of thinking and approaches gives us the best chance** of making the advances needed to realise national possum, mustelid and rat eradication.

For the backyard innovator and the small developer, this does mean enabling resourcing and support to best ensure that novel valuable contributions to the PF2050 mission are realised and not otherwise lost.

Schemes are now-up-and running to help meet the resourcing need. For example, WWF's '9 wire' initiative is helping innovators and inventors develop their ideas for helping the environment, while our inaugural 'Products to Projects' initiative is funding 10 developers, both large and small, to get more than 15 new and improved products for predator management into the hands of those on the ground.

On the support side, we agree with Craig that permitting and approval costs and processes can be barriers to private inventors and smaller developers. **Considerations such as animal ethics are essential for ensuring that the PF2050 mission progresses in a socially and ethically responsible manner.** Making sure that these necessary elements do not inhibit the value of innovation for PF2050 is an ongoing focus, with discussions in Wellington aimed at streamlining and improving those processes.

Craig's comments are thus completely on the ball, and substantive efforts to help are being made. However, to strike a note of realism, it is a fact that **limits to resourcing will always be reached.** While agencies such as PF2050 Ltd will thus never be able to fund everyone, we continue to strive to provide level-playing field opportunities to those wishing to pursue funding, while running robust assessment processes to allocate available funding to best support the achievement of PF2050.

With regards to PF2050 Ltd, see our website (www.pf2050.co.nz) and subscribe to our 'Target 0' newsletter for the latest Products to Projects investments and upcoming funding opportunities.

Dan Tompkins,
Predator Free 2050 Ltd

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## The tools to market fund

By Brent Beaven, Programme Manager PF2050, Department of Conservation

We realise the system is really hard for small operators.

We have established a fund to support product development called Tools to Market. The fund is $1.4m per year that funds innovation and the development of new tools.

Part of this fund is now looking at covering the cost of NAWAC testing to support trap developers, but also to ensure we have a minimum standard of trap efficacy.

We have an interagency collaborative group established to ensure we are working on the right innovation to deliver PF2050.

I appreciate the Number 8 wire mentality, but it can demand a lot of resource that isn't necessarily aligned to strategic direction. Getting this system right, so we are clear what we need, will ensure that resource is spent wisely.


## Key organisations

### The Predator Free 2050 Programme

Predator Free 2050 (PF2050) has the goal of ridding New Zealand of the most damaging introduced predators. It sits within the Department of Conservation. It brings together communities, iwi, experts, businesses, government and non-government organisations, and individuals who work to achieve the goal.

### Predator Free 2050 Limited

Predator Free 2050 Limited is a Crown-owned, charitable company established to help deliver the government's goal of eradicating possums, stoats and rats by 2050. It provides co-funding to enable predator control and eradication projects at large landscape scale and the breakthrough science needed to underpin them

### The National Animal Welfare Advisory Committee

The National Animal Welfare Advisory Committee (NAWAC) provides independent advice to the Government minister responsible for animal welfare. It advises on, among other things: animal welfare research needs, codes of welfare, traps and devices, and hunting and killing animals in a wild state. It sits within the Ministry of Primary Industries.

### The Environmental Protection Authority

The Environmental Protection Authority (EPA) regulates pesticides, household chemicals and other dangerous goods and substances. It makes decisions on whether to approve new hazardous substances and puts rules in place to manage the risks.

The EPA also assesses and manages the risks of introducing new organisms into New Zealand.

Organisms include, among many: microorganisms (including bacteria and viruses), seeds, plants, fish, and animals.

# From protecting primates to removing rats

### Philip Wisker: Community Engagement Officer with Predator Free Wellington

I currently work as a Community Engagement Officer with Predator Free Wellington, a position I have held for over a year. I feel extremely privileged to be a part of this world-first project to remove rats, stoats and weasels from the Wellington region. The project has begun with the removal of pests from the Miramar Peninsula, then Rongotai then onwards throughout Wellington.

My role is ever-changing. Every day is different from the next.

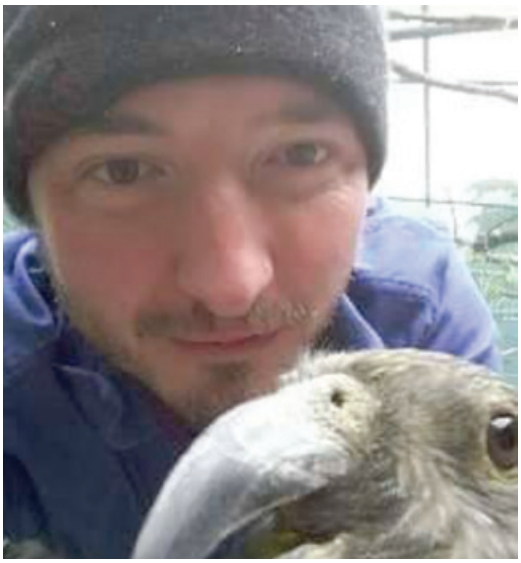
Sometimes I am part of a team speaking to households, businesses and education facilities to see if we can place traps or bait stations on their property. In Miramar this was achieved with great success with over 2000 permissions sought which led to the positioning of over 4000 bait stations and 1500 traps. The traps were checked weekly and monitoring was included later. This all has to be co-ordinated and the records maintained.

*Out-and-about and so close to civilization.*

Another part of my role is talking to the public and dealing with enquiries about the project. This is something I very much enjoy, and it has led me to be able talk to people from all walks of life, all with a story to tell.

The role also leads me to talking to local businesses and schools, and taking groups round trap sites. **Being able to observe the growth of the native wildlife and being able to share it with others is just fantastic.**

My role also takes me into the field where I check bait stations daily. The environment is never the same from one day to the next, for example **one day I could be in the bush surrounded by piwakawaka and the next day I might be checking units in the urban streets of Miramar.**



*Philip Wisker and friend.*

Here I get to hear reports of people seeing wildlife in their gardens, a site not seen before for some. I also hear about the increase in birdsong throughout the area.

My background is in animal husbandry, having been a zoo keeper for 20 years. I began my career as a primate keeper before moving to New Zealand where I got a passion for the native biodiversity. I have been privileged enough to work with kaka, korara, kea, pataeke, kiwi and kakapo. I began to get involved with more field work conservation projects such as kaka and korora monitoring, and through this took an interest in pest activity and how the reduction in pest numbers effects the native biodiversity of New Zealand.

During the lockdown period we have all been busy at Predator Free Wellington working towards the next phase of the project as we move into areas such as Hataitai, Lyall Bay and Mount Cook. The support from the local community has been overwhelming which leads to the overall success of the project.

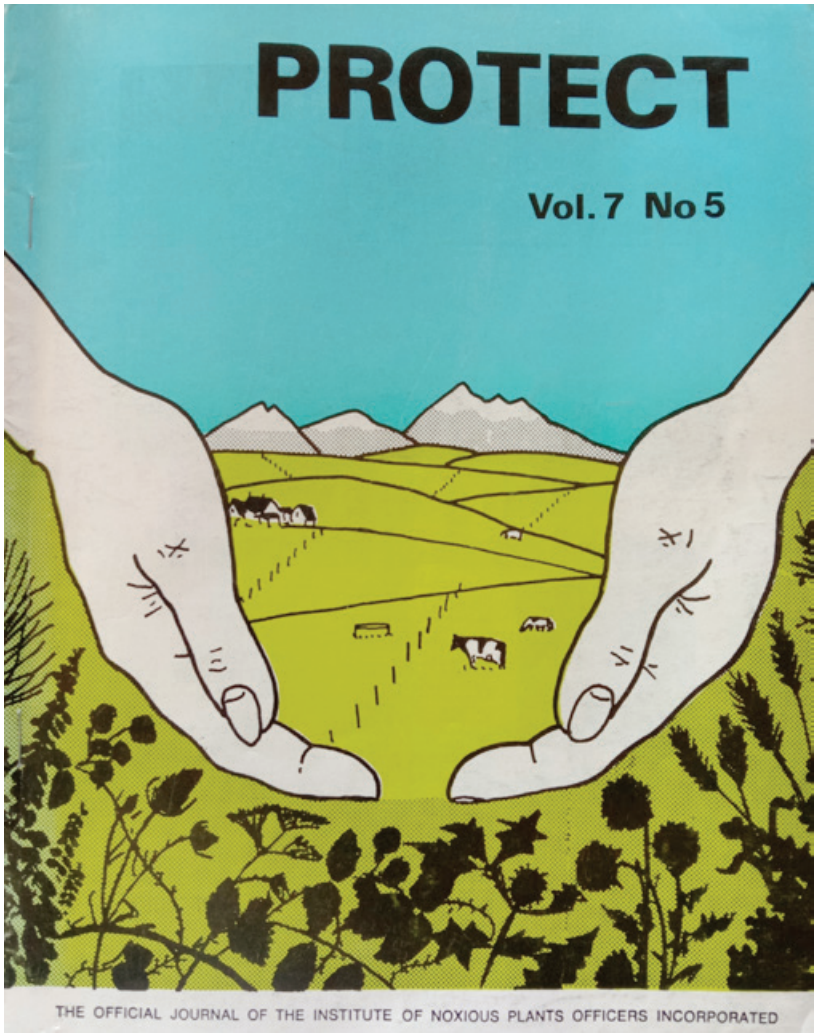
# All about "hindsite"

One of the more amusing incidents at the Conference was the unilateral declaration by a Government employee that the word "site", known and used by millions of English speakers was henceforth to have its meaning altered to "a farm", no matter how many sites per site.

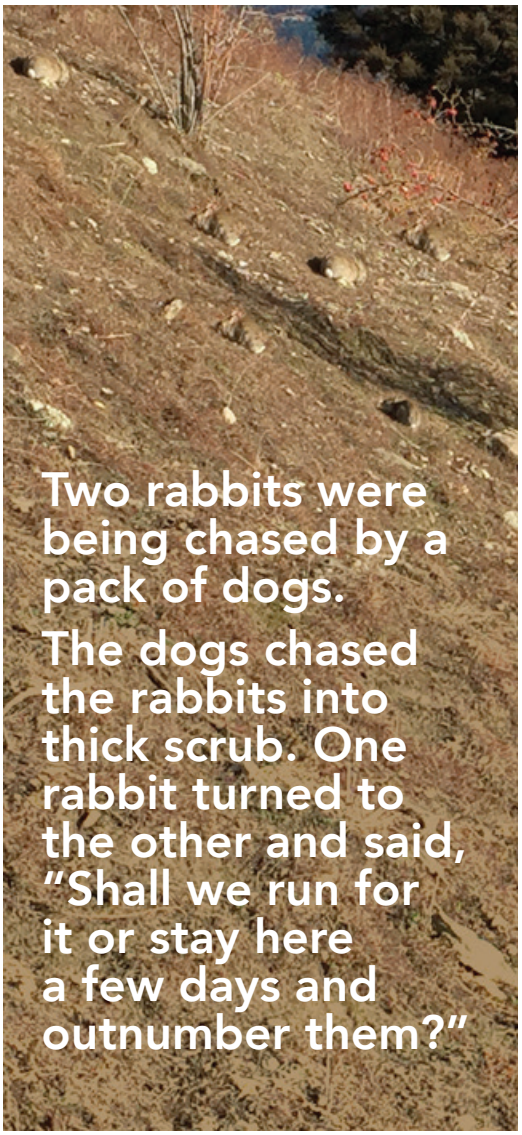
This proposal was hotly opposed by one or two members and the whole business probably sounded like a lot of fuss about nothing to those who are unaware of the important principle involved.

… A footnote to this little rave can be found … in the last Protect where under, of all things, the heading "Points of Clarification", the following two sentences rub shoulders: "A complete property is considered a site", followed by "Here we need a break-down of sites on a property regarding density factor."

PROTECT, VOL 7 NO 5, NOVEMBER 1986




# The Tail

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