



New Zealand
Biosecurity Institute

the magazine of the NZBI Winter 2023

Protect

PROTECT WINTER 2023



inside

NZBI Contacts 2

Editor's Note - Technology has always been a hot issue 4

Executive News - Kia ora e te whānau 4

NZBI News

Canterbury / West Coast METS 5

Canterbury / West Coast Chair Rowan Sprague reports 8

Sector News

Biosecurity Bonanza 2023: Landcare shares its science 9

Animals

Wallaby update 10

Feral cats' lucky escape 12

Cook Island rats 13

Skinks return 14

A serious look at cats 14

Plants

Gorse and broom pathway control 16

Weeds in Australasia 18

Marine

Pest fish 21

Unwanted clams 22

Pathogens and diseases

It's virtually a kauri 23

At the border and responses

New chief for B3 24

Busy at the border 25

Profile

Adam Ross wildings man 26

From the archives

Fighting mad over pesticide bans 28

The Tail

Pest destruction exhibit at an A & P Show 30



New Zealand
Biosecurity Institute

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

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The New Zealand Biosecurity Institute can be found on the web at www.biosecurity.org.nz

SAFER, SMARTER RABBIT CONTROL



Rabbits have reached plague proportions in some areas and cost the country millions of dollars through lost production on farmland as well as through attempts to control them. Rabbits have a significant effect on the ecosystem and cause large areas of land to become eroded and native vegetation to change. When rabbits are seen active during the day this indicates a high population.

Pindone is a first-generation, slow-acting anticoagulant poison in a cereal-based pellet, designed for the control of rabbits in rural and urban areas. It needs to be consumed over several days to be effective, around twenty-one pellets need to be consumed by a 1.5kg rabbit before death occurs. It is important to keep the bait stations filled as death occurs 4–11 days after bait consumption. Very few rabbit carcasses will be found as rabbits return to their burrows to die.

Pindone Rabbit Bait must be used in bait stations. In cases where there is concern about bait being accessible during the daytime, the NoPests Multifeeders bait station can be closed off to stop nontarget species accessing the bait. If large areas need to be treated then consider using aerial or ground applications using a registered applicator, this will allow baits to be spread on the ground.

SMARTER THAN 1080

	PINDONE	1080
No Pre-Feed Required	✓	×
Stock Re-Entry Time	28 Days	90 Days
Dog Antidote Available	✓	×
Ground Application (CSL Required)	✓	✓
Aerial Application (CSL Required)	✓	✓
Bait Station Application Available to Public	✓	×
Pellet & Liquid Formulations Available	✓	✓
Rate per Hectare	Up to 18kg	Up to 15kg
No Clean Up Required. All Bait Consumed.	✓	×
Type of Vertebrate Toxic Agent	Multiple Feed	Single Feed



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YOUR PREDATOR AND PEST FREE PARTNERS



■ FROM THE EDITOR

Technology has always been a hot issue

Wallabies have been a public focus this quarter, with criticism of costs in the case of difficult-to-locate wallabies. As well, the cat's tail has been tweaked in an issue which has fast become a media monster.

There are items on both in this issue.

As well, a new aquatic pest has appeared, and there are items on this and other aquatic challenges.

Themes in this issue continue to highlight the importance of collaboration amongst agencies, and support from the public, and the importance of community groups.

A look back into the archives shows **what a hot issue new technology has always been over the years** and how far we have come in terms of the use and non-use of this technology.

There is an item on rare native skinks returning to their home thanks to successful predator control - a reminder that there are many biosecurity success stories, and the reasons Institute members do what they do.

Noho ora mai.

Stay safe and well.

CHRIS MACANN
EDITOR

■ FROM THE PRESIDENT

Kia ora e te whānau,

Well, I'm sure many of us are looking forward to NETS2023 in a very beautiful and historical part of the country. Like many beautiful places though, invasive species still lurk, so the field trips and local speakers are always great in telling the local stories. Traditionally aligned to NETS is Biosecurity Week. I hope members will get behind it and use it as an opportunity to promote the good work we do.

On the NZBI admin front, the Executive Committee has worked on a governance guidance document aimed at helping those keeping the community cogs turning behind the scenes. Talking of cogs turning, the Executive Committee had a general business meeting online on 21 June. The NZBI as an incorporated society is in a good position and has a healthy membership base. Full details will be presented at the AGM on 27 July at NETS.

Lastly, a reminder that the NZ Biosecurity Awards are open for nominations through to 31 July (www.thisisus.nz/news-events/biosecurity-awards/). Between the national awards, and the range of legacy awards presented by NZBI, there are now many ways amazing people in our community, our industry and/or within NZBI can be recognised.

Nga mihi nui

JONO UNDERWOOD
PRESIDENT, NZ BIOSECURITY INSTITUTE

Together from afar: mini-NETS for Canterbury / West Coast

In May the Canterbury / West Coast branch hosted a mini-NETS.

It was a good opportunity to catch up and enjoy a large range of interesting and very relevant presentations. Branch secretary Paige Lawson acknowledged those who had travelled a significant distance to take part, particularly those from Kaikoura and the West Coast.

Frances Schmechel from Environment Canterbury spoke about multi-agency landscape-scale weed programmes. She said core long-term funding was important but budgets are looking to decrease post Jobs for Nature. In the climate of reduced funding, how do we prioritise? She introduced the concept of "Benefit Area". This takes into account areas not yet infested that are protected by controlling adjacent weeds. This is helpful to demonstrate the cost benefit across the area that is protected from the control, rather than just the control area. She noted the important role played by landcare groups.

Luke McIver from Environment Canterbury brought attendees up to date on the activities carried out under the umbrella of Tipu Mātoro – Wallaby Free Aotearoa. Some of the more recent methods of wallaby control include using helicopters and night vision glasses, thermal scopes and cameras.

Rory McNamara from Christchurch City Council and Katy Leeds from the Department of Conservation spoke of eradicating feral goats from Banks Peninsula. They noted the challenges of monitoring goat numbers and working around farm operations, and in terrain difficult for mustering. The programme is broken into three phases: observation, mustering and hunting. The programme is now shifting its focus onto community awareness and response.

Kevin Gallagher from Toitū Te Whenua Land Information New Zealand spoke of work in neighbouring Otago on land managed by the agency, including work on gorse and broom free areas, and rabbit control, although some of the areas managed are not as highly prone as previously. Old man's beard control is important. Predator trapping to protect endangered birds and ongoing wilding conifer work are also areas of activity.

Adam Ross, from the National Wilding Conifer Control Programme at Biosecurity New Zealand, gave an update of the control programme. There have been a lot of gains under the Jobs for Nature programme and the challenge now is to build on the existing system and relationships. **"There has been a lot of control done, we now face maintenance"**. A clear message was that collaboration works.

Erin Gillespie, from the Ministry for Primary Industries, presented a plant incursion and investigation update. E-commerce continues to be a problem when preventing the arrival of unwanted organisms. **MPI is asking offshore platforms not to sell to New Zealand, rather than attempting to control sales, because the platforms are unlikely to be able to do so.** "We are a net not a wall". She gave examples of deliberate mislabelling and accidental imports.



Banks Peninsula Southern Bays goat muster.



Mass-rearing of old man's beard sawfly larvae by Manaaki Whenua Landcare Research.



A parcel containing 12 Hoya plants from Indonesia was falsely declared. A warrant to remove the plants for destruction was issued when they were not voluntarily surrendered.

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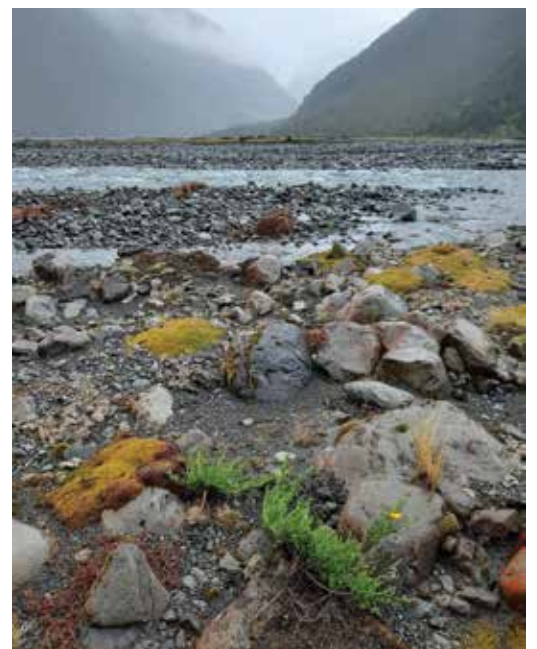
The view from Mount Te Kinga on the West Coast.

Laurence Smith, from Environment Canterbury, spoke about the concept of geospatial artificial intelligence and the potential applications for biosecurity. He noted the technology had potential for higher accuracy, cost savings and health and safety benefits. **It would enable organisations to provide better information for farmers, which may in turn encourage their support. If that's the case, "you're onto a winner already"**. There is potential for monitoring gorse control compliance. He noted the high degree of accuracy for identifying nassella tussock, which would be useful for finding unknown sites. He acknowledged there were privacy issues.

Professor Philip Hulme, from the Centre for One Biosecurity Research, Analysis and Synthesis (COBRAS) at Lincoln University, spoke about establishing an integrated foundation for plant, animal, human and environmental health at a time when there are challenges from urbanisation, climate change and agricultural intensification. He used a military metaphor. The regiments, for example CRIs and regional councils, are all separately asking for what they want, rather than using one single approach as the army does.

Some of Philip's sentiments were echoed later by Duane Peltzer from Manaaki Whenua Landcare Research when he discussed weeds and invasions. Duane commented that there had been a lot of progress, especially with the Jobs for Nature scheme, so there is a lot to celebrate. He noted that funding for wilding conifer control will drop this year, which will be a challenge, so collaboration across all agencies is important to sustain these efforts and attract future funding. **"Boom and bust funding is not a good thing,"** he said.

Mike Steenhaur, from Weed Free Tai Poutini, managed by MBC Environmental Services Ltd, spoke about weed control on the West Coast and the challenges of working with a group of people with varying life experiences under the Jobs for Nature programme. He said **for many the reward was just being outdoors and staying fit as well as the opportunity to learn new green skills**. He said challenges on the West Coast were the high range of habitats and microclimates, high rainfall, rugged terrain, and large elongated areas of public conservation land bordering on private land. He noted there are opportunities to be weed-free(ish) because of lots of areas of native vegetation.



Remote broom bushes, now controlled, in the upper Rakaia River catchment. Photo Pete Caldwell, Boffa Miskell.

Ted Howard, from the Hutton's Shearwater Trust in Kaikoura, spoke about the many and varied threats to these rare birds. The population was affected severely by the 2016 Kaikoura earthquake. The birds only breed at Kaikoura. There are now only two natural breeding sites at around 4000 feet and one created breeding site at the end of the Kaikoura peninsula. Threats to the birds include predation by stoats, cats and possums, and burrow damage through trampling by goats, deer, chamois and humans. The birds fly out to sea for food. Threats include rising sea temperatures, disorientation from lights and boat strikes. A safe future for the birds needs organised predator control and monitoring.



Some of the Canterbury / West Coast branch members: From left: Douglas Rushton, Terry Charles, Rob Kent, Laurence Smith (Treasurer), Laura Williamson, Rowan Sprague (Chair), Beth Williamson, Paige Lawson (Secretary), Rich Langley, Kevin Gallagher, Arnaud Cartier, Robyn White, Ian Hankin, Chris Macann, Lauren Piket.

Jourdan Lethbridge, from Boffa Miskell, spoke on Canterbury aquatic weed management. The primary target is lagarosiphon. Other pests are hornwort which is not in the Waitaki, egeria which is only at Kerrs Reach on the Avon River, as well as elodea. Lake Ruataniwha is at risk because it is a rowing lake, but there is no infestation at the moment. He said there is potential for savings to be made using boats with cameras.

Doug Rushton, from Environment Canterbury, spoke about yellow bristle grass in Canterbury. The pest plant is most likely to affect intensive farming, like dairying and cropping. It is spread by stock and maize movement, mowers, effluent spreaders and roadworks

Shanti Morgan, from the West Coast Regional Council, spoke about Predator Free Te Kinga, a mainland possum eradication programme on the West Coast. Access to affected areas is an issue so helicopters are used a lot. There is a need to monitor other animals because of the complex ecosystem. The programme really needs self-setting and remote sensing traps because of access. Maintenance will need possum detecting dogs and thermal imaging cameras. A key to this success has been building relationships.

Rowan Sprague, from CarbonCrop, explained what biosecurity has to do with carbon forestry and the Emissions Trading Scheme (ETS). Of the 540,000 ha of forest registered in the ETS, 448,000 is exotic and perhaps could present a wildings risk. In terms of pest control, deer and ungulates munch on small trees, but this may not affect forest carbon. Maintaining biosecurity in forests managed for carbon credits is also a significant consideration.

Arnaud Cartier, from Manaaki Whenua Landcare Research, spoke about progress in Canterbury with biocontrol agents, in particular, a recently reintroduced sawfly and a new mite for old man's beard. Damage from these agents has been monitored, and mites have quickly spread more than 65km from the original release sites. These biocontrol agents will be released all over the country in collaboration with the National Biocontrol Collective.



Networking and much more

Chair's Report for the Canterbury/ West Coast Branch

This has been a busy year for our Canterbury/
West Coast branch, mainly due to the NETS
Conference last August. The conference and
field trips went so well, and I think everyone
enjoyed seeing each other and reconnecting
again after a few years. Huge thank you to
our Organising Committee for pulling it all
together: Rich Langley, Laurence Smith, Paige
Lawson, Laura Williamson, Sarah Thwaites,
Jemma Hippolite, Ronny Groenteman, Sam
Brown, Kevin Gallagher, and Keith Briden.

Our branch also held a volunteering day pulling
up wilding pine seedlings at Craigieburn with
the North Canterbury Forest and Bird branch. It
was a great day out, and please send me your
ideas and suggestions for other volunteering
activities you'd like to see our branch organise.

We have also organised METS again this year.
We had an excellent line-up of speakers and
I've really enjoyed catching up with you all
again. Thank you to Rich Langley, Paige Lawson,
and Laurence Smith for organising METS, and
thanks to our speakers as well.

Looking on to the year ahead, I'm keen for
our branch to hold more networking and
volunteering events if there's interest. I'd like to
try to involve members across our branch (so
not just those of us in Christchurch). Any ideas
or suggestions, please let me know. Finally,
thank you to Paige Lawson and Laurence Smith
for your work as secretary and treasurer for
our branch, and thank you to you all for your
involvement in the NZBI and your support of
biosecurity.

Ngā mihi, Rowan Sprague

24 May 2023



**“ I'd like to try to involve members across
our branch (so not just those of us in
Christchurch).”**

Biosecurity Bonanza 2023: Landcare highlights its research

Around a hundred interested biosecurity practitioners, researchers and managers joined some of Manaaki Whenua Landcare Research's staff at Christchurch's brand new Te Pae Convention Center, for Landcare's annual Biosecurity Bonanza at the end of May.

Landcare's researchers shared their findings on weed and predator control.

Angela Bownes updated those gathered with the successes and current research in biological control of weeds. With funding from the National Biosecurity Collective and MPI's Sustainable Food and Fibre Futures, **Manaaki Whenua is currently working on eleven weed targets to introduce new biocontrol agents, and four mature programmes to assess the effectiveness of the agents already released.**

Sze-Wing Yiu explained research into non-lethal methods of managing cats in urban environments, where **lethal control is not feasible and keeping cats indoors receives low public support.** To mitigate this conflict, Sze-Wing is leading a project that explores non-lethal control methods, through manipulating cat behaviour using fear of larger predators.

Paul Peterson spoke about the impacts of gorse seed feeding biocontrol agents and explained the way this was measured. His research aimed to quantify seed predation in detail at two New Zealand sites to determine if joint predation of the gorse seed weevil and gorse pod moth is sufficient to influence gorse persistence on vulnerable landscapes.

Graham Hickling explained the challenges of experimenting with bait stations for wallabies, and the modified approaches needed when testing similar stations to those used for possum control. At sites near Rotorua and in South Canterbury, researchers used trail cameras to record behaviour of wallabies and other wildlife at four non-toxic bait feeder 'treatments' (ground strikers, raised strikers, Marley hockey-stick pellet feeder, and modified Philproof pellet feeder).

Duane Peltzer shared his insights on the future of landscape-scale management of wilding conifers. He noted the knowledge and **approaches developed to understand and manage wilding conifers provide general insights into other large-scale long-term biosecurity and conservation efforts.** Reliable funding and co-operation are important he said.

Dave Latham explained the intricacies of teaching dogs how to search for wallabies when they are at low numbers. He presented findings of trials on searching for dama wallabies in the North Island using a detection dog and handler searching for faecal pellet groups in native forest, pine forest, and pasture adjacent to forested habitats.

Andrew Veale enthused his audience about using genomics at a landscape level, and how it could be the future for evaluating pest management programmes. He used examples of mustelid studies over landscapes in Taranaki and Waiheke Island.

Alana den Breeyen explained the drama, disappointment, and eventual success of a decade-long project to bring approved agents from Argentina to New Zealand for biological control of Chilean needle grass.

Mandy Barron updated all present on the latest findings in rabbit responses to predator removal. Mandy used data from ten years of research to compare two different areas in Hawke's Bay.

Lynley Hayes brought all assembled up to date with the latest biosecurity and biocontrol happenings in the Pacific. Manaaki Whenua Landcare Research is leading a Natural Enemies – Natural Solutions programme for weeds under the Pacific Regional Invasive Species Management Support Service. Lynley shared highlights from a recently completed five-year programme in the Cook Islands, and progress from an ongoing seven year project to tackle pasture weeds in Vanuatu, and outlined future work.

Organiser Tiffany Day said as well as the 100 people in the room, 338 people joined virtually via Zoom.

"The ten presentations covering our weed biocontrol and predator control research were received well and had lots of engagement from the audience. In total, we received over 600 registrations for the hybrid seminar."

All presentations as well as those made at previous Biosecurity Bonanzas are available for online viewing from Manaaki Whenua Landcare Research.



Controlling New Zealand's Pest Wallabies

Contributed by the Tipu Mātoro National Wallaby Eradication programme, May 2023

Released for hunting in the late 1800s, dama and Bennett's wallabies have become two of New Zealand's most damaging pests, wreaking havoc on our native forests, farmland, and iconic landscapes.

Populations of this largely unknown pest are continuing to grow, with wallabies spreading into new areas outside of the Bay of Plenty/Waikato and South Canterbury/North Otago areas where they are known.

However, the Tipu Mātoro National Wallaby Eradication Programme – a partnership between central and local government, Forest & Bird, Federated Farmers, local iwi, farmers, and landowners – has wallabies and a wallaby free Aotearoa firmly in its sights.

"Population estimates set wallabies at more than one million, but as they are nocturnal and excellent at hiding, knowing where the wallabies are is vital to managing the spread. That knowledge relies on the collective effort of many," says Sophia White, Biosecurity New Zealand's Team Manager, Pest Management Programmes.

Over the summer, a three-month campaign to build awareness of wallabies' presence and the damage they do asked New Zealanders to report wallaby sightings and learn more about these pests. The result was nearly double the number of sightings being reported compared to the previous summer.

"Wallabies cause millions of dollars in damage each year and if left unchecked, by 2025 that damage could cost New Zealanders around \$84 million* a year and over the next 50 years, they could spread through a third of the country," Ms White says.

The programme's investment in wallaby detection and surveillance is crucial, as the economic and environmental damage of any new population detected can be curbed significantly. The level of confidence needed to ensure no wallabies exist in an area requires intensive surveillance.

The results of the recent campaign indicate that New Zealanders want to contribute to protecting farms, forests, native bush, and wildlife and are supporting the programme by reporting sightings for follow up.

When a sighting is reported it goes direct to the Tipu Mātoro Programme's Wallaby Information System (Wall-IS) and dedicated regional council teams are notified and investigate it immediately. Sighting details such as size, gait, location, and length of view of the sighting are all checked to assess the presence or otherwise of a wallaby, and a plan of action is made.



Bennett's wallaby, found only in the South Island. Photo Jason Hawker, Environment Canterbury.

Follow up of a reported sighting may include specially trained wallaby detector dogs to pick up scent or scat, and any scat found may be DNA tested. Installing trail cameras is another step that helps identify the location and number of wallabies in an investigation area. An appropriate plan can then be made to control the wallaby or wallabies.

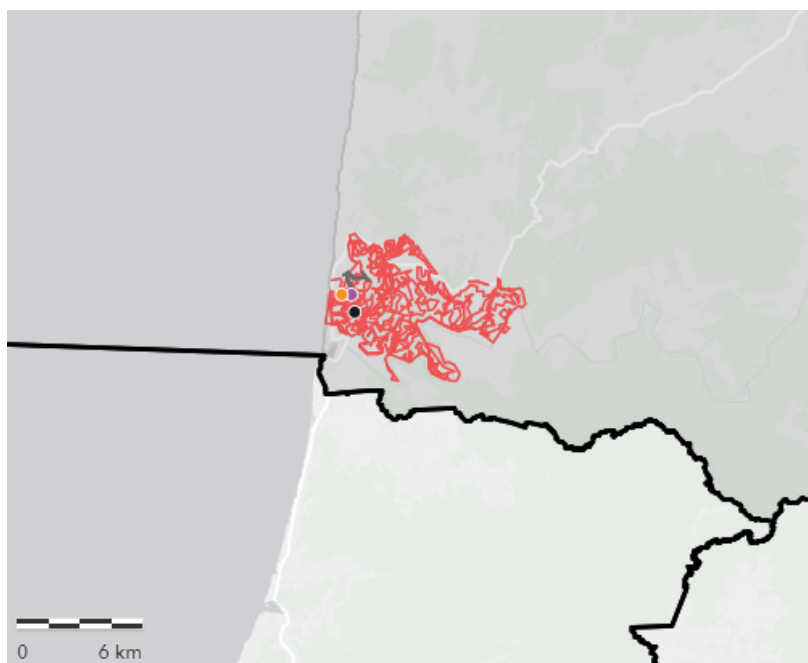
While cases of mistaken identity are not unknown, the programme would rather deal with those cases, than have people fail to report. Not reporting a sighting could lead to a new population establishing to cause even more environmental and economic damage.

Since January 2023 there have been more than 700 sightings reported from around the country to Tipu Mātoro's WALL-IS system. All sightings have been followed up in the bid to prevent wallabies spreading.

Anyone, anywhere in New Zealand is urged to report any wallaby they see in the wild – dead or alive – or any signs such as scat or paw prints to www.reportwallabies.nz

Learn more about controlling pest wallabies and the Tipu Mātoro Aotearoa New Zealand Wallaby Strategy at <https://mpi.govt.nz/wallabies>

** Review of current and future predicted distributions & impacts of Bennett's and dama wallabies in mainland New Zealand, MPI, March 2016*



Dama wallaby, found only in the North Island. Photo Steve Pilkington.

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Figure 1. A wallaby sighting location and follow up activity as logged in the Tipu Mātoro Programme's Wallaby Information System (Wall-IS). The orange dot shows the specific location of the wallaby sighting with red and black indicating follow up surveillance and detection activity.

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Figure 2: In a closer view the red lines track the area covered by contractors on foot in steep, scrubby terrain to ensure no further wallabies were present in the area. Black lines indicate where trail cameras were placed as part of the follow up plan.



Feral cat hunting competition shot down

Organisers of the annual North Canterbury Hunting Competition announced in mid-April that a new category for the most feral cat kills will be withdrawn, following public objections.

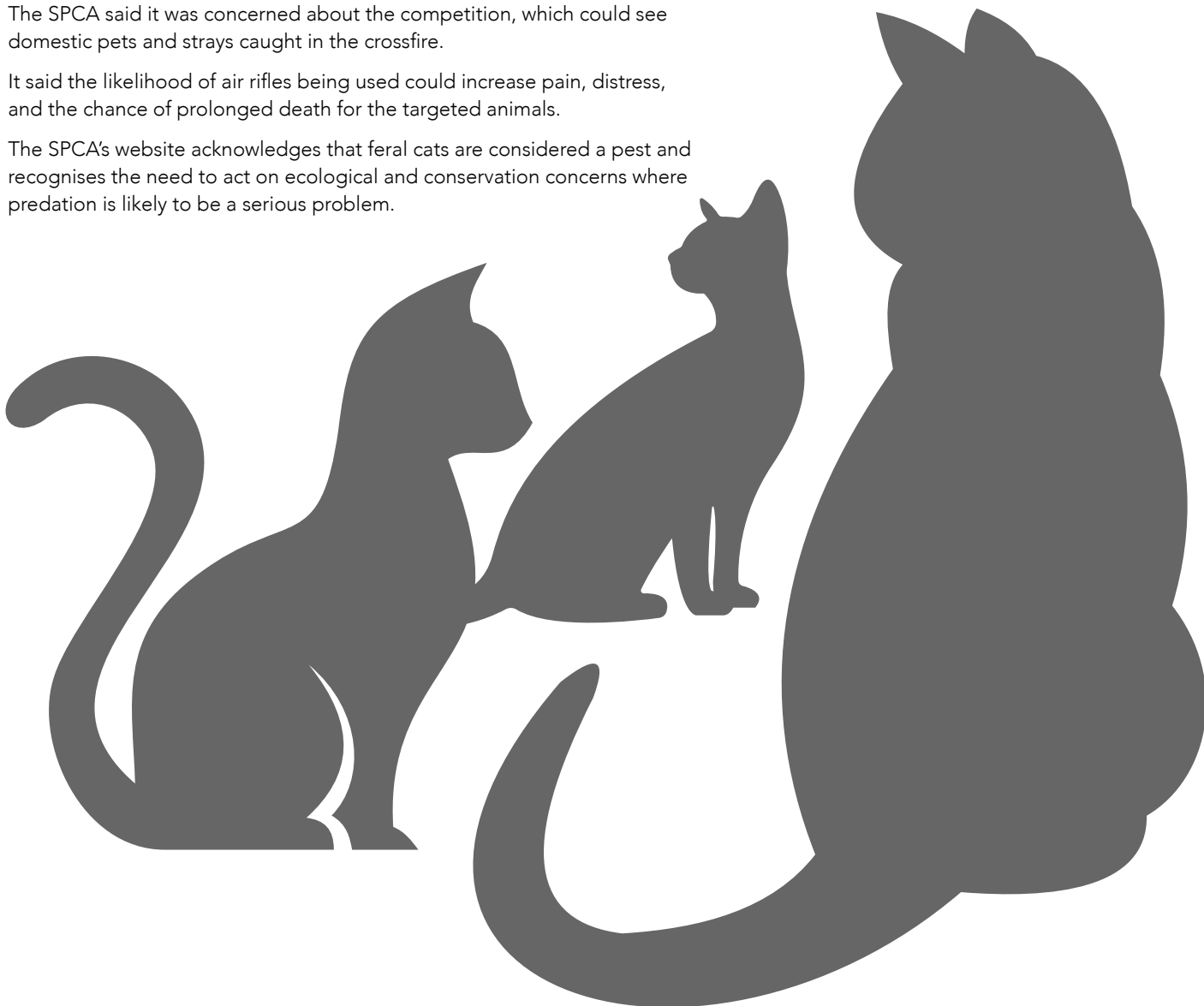
The category gave young hunters from April 15 until late June to kill as many feral cats as they could as part of the community fundraising competition.

Objectors expressed concern that most people, let alone children, would not be able to tell the difference between feral and non-feral cats.

The SPCA said it was concerned about the competition, which could see domestic pets and strays caught in the crossfire.

It said the likelihood of air rifles being used could increase pain, distress, and the chance of prolonged death for the targeted animals.

The SPCA's website acknowledges that feral cats are considered a pest and recognises the need to act on ecological and conservation concerns where predation is likely to be a serious problem.



'Aere ra' to rats on Cook Island atoll

Rats on the Cook Islands' Palmerston Atoll could be gone for good by year's end, making a massive difference to the island's community and biodiversity.

At the request of the community, a full-scale rat eradication will take place mid-2023. New Zealand's Department of Conservation will lead the operation in collaboration with Palmerston's community, the Cook Island's National Environment Service, the Ministry of Agriculture, and the local NGO, Te Ipukarea Society.

Pacific rats arrived on the motu from early Polynesian voyaging. Ship rats most likely arrived in the 20th century on copra trading vessels. Rats have been a problem ever since.

Palmerston's Executive Officer Arthur Neale says rats are a real menace to both community wellbeing and ecosystems.

"Rats destroy our wildlife, ruin crops, steal food from pantries, and even eat our clothes."

Palmerston Atoll's council commissioned a natural resources study in 2018, which laid out the extent of the rat problem.

"The findings showed we had very little birdlife on islets where rats were present. By eradicating rats, hopefully our birdlife can come back to our island," Arthur Neale says.

Palmerston has a fluctuating population of around 40 people who live on the atoll's only occupied islet. The atoll is 400 km away from Rarotonga and because of its isolation, locals rely heavily on locally grown and harvested food.

Palmerston is also a nesting site for many seabirds including brown booby, frigate birds and the red-tailed tropic birds as well as its only land bird, the Pacific pigeon. Plants include coconut, tamanu/Pacific mahogany and a few citrus and pawpaw trees.

Invasive species **like rats can overwhelm ecosystems and make communities more vulnerable to the impacts of climate change, by destroying indigenous plant communities as well as competing for food production.**

In November 2022, Em Oyston and Finlay Cox from DOC's National Eradication Team travelled to Palmerston and ran a three-week feasibility study with Cook Island agencies and the Palmerston administration team, known collectively as the RAT team.

Research included identifying the distribution of rats, determining the amount of bait needed to eradicate the rats, and identifying social issues such as the impact of the eradication work on people's daily activities.

Em Oyston says it was great to see the progression and transfer of knowledge between the RAT team members and the Palmerston community.

"We look forward to returning to Palmerston in July, when we'll kick off the eradication. Successfully removing every single rat will require hard work and everyone's input, but the benefits for the atoll's wildlife and community will be significant."

Em Oyston says the project will help advance DOC's knowledge in island eradications, making it a win for New Zealand's Predator Free 2050 programme as well as Predator Free Pacific – a programme of the Pacific Regional Invasive Management Support Service (PRISMSS).

Elizabeth Munro, Manager Environmental Department, Cook Islands National Environment Service, says the Cook Islands is happy to be working with New Zealand's Department of Conservation on the rat eradication program.

"Palmerston is one of our most remote islands. The removal of rats will provide benefits to biodiversity and food security on the island. We look forward to declaring a rat-free island and 'aere ra e te rats'."

This work is funded by the New Zealand Ministry of Foreign Affairs and Trade (MFAT), and is delivered through the Pacific Regional Invasive Species Management Support Service (PRISMSS).

The New Zealand Department of Conservation, the Secretariat of the Pacific Regional Environment Programme (SPREP), and Manaaki Whenua Landcare Research have joined forces to support Pacific Island countries and territories to take stronger action against invasive species, and thereby build resilience to climate change.

Department of Conservation, 04 April 2023



Skinks return to predator free home, with a new name

Twenty-one Kapitia skinks were relocated from Auckland Zoo to their home habitat on the South Island's West Coast in April.

The skinks are only found in a one kilometre coastal strip near Hokitika. When Cyclone Fehi struck the area in 2018, DOC moved 50 of them to Auckland Zoo for safekeeping. There they bred successfully, almost doubling their numbers.

DOC Hokitika Operations Manager Owen Kilgour says this is the third and final translocation of these skinks.

"The predator free reserve has been a great success and the skinks in there are thriving. As well as threats to their habitat from storm damage, **the Kapitia skinks are vulnerable to predators such as rats and mice, which attack them if they are too cold to move and eat them alive.**"



Kapitia skink. Photo Lynn Adams DOC.

Kapitia skinks were formerly known as Chesterfield skinks, referring to the locality in which they were found. Māori know the area as Kapitia. In November 2020 the skinks were named the Kapitia skink.

A serious look at feral cats: Feral cat aggregation and patrolling around AT220 traps

Environment Southland last year added AT220 traps to complement existing animal pest control networks operating on council controlled lands and selected QE2 covenants. The habitat types are remnant native beech and lowland mixed podocarp, kamahi and manuka regeneration. Some forest habitats are linked to larger DOC forest/wetlands or fragment into islands surrounded by farmed grassland.

AT220 traps slowly dispensing mayonnaise offered great trail camera monitoring sites. Possum densities on council controlled lands are currently very low (at the last monitor 0% RTC). However adjacent QE2 covenants have high possum populations (77% WTI, approx. 20% RTC equivalent). AT220 traps on council controlled lands routinely caught rodents and the occasional possum. AT220 traps on adjacent QE2 covenants caught mainly possums.

Feral cats soon learned that a free feed was to be had at AT220 sites and began to patrol the traps. Even when traps were moved or others added the feral cats would quickly track them down. Often the first animal to be recorded at an AT220 site would be a feral cat.

Feral cats seem to inherently know that the traps are dangerous and often peer into the traps without engaging them. Only one feral cat has been captured by an AT220 trap during our operations. This trap was brand new and first time installed to site at a low set height (the AT220 traps are not set on running boards as there are no kiwi or weka present).

Having feral cats aggregating/patrolling AT220 trap sites, however, does provide an opportunity to control them with other techniques.

This is where things become interesting considering all the debate that arises as soon as feral cat control is mentioned. From a biosecurity point of view feral cats pose a real and consistent threat to native birds, reptiles, invertebrates and bats. They predate game bird species and reduce the environmental productivity for mahinga kai. The parasite *toxoplasmosis gondii*, spread by cats, costs livestock farmers millions in lost productivity and vaccine costs. It also contaminates catchments with oocysts that enter the marine environment and cause mortality to Hector's and Maui dolphins. *Toxoplasmosis gondii* also infects humans causing a range of health impacts particularly to pregnant woman, children and immune compromised individuals.

It is highly likely that feral cat aggregation/patrolling around AT220 traps happens wherever these traps are set up in feral cat home ranges. This does provide an opportunity to control feral cats at these locations. Remember domestic cats are protected by law and cannot be harmed by feral cat operations. This can make things challenging for some biosecurity operations. **The whole cat control issue can become a media monster** quite quickly these days as we have seen recently. But facts are facts, feral cats have significant biosecurity, biodiversity, environmental, economic and health impacts across Aotearoa and New Zealand's land and marine area.



Feral cats can grow fast on a possum-rich diet. These kittens have doubled in size in two months (Mum in the foreground).

Cats will often peer into the AT220 traps but seem to know they're dangerous.

The AT220 trap is an automatic self-resetting possum and rat trap manufactured by NZ AutoTraps.

By Raoul Thomas



Maintaining a Gorse and Broom Free Zone

The Tasman Nelson Regional Pest Management Plan has a designated zone in the Howard-St Arnaud district where two pest legumes, gorse and broom, are controlled under a sustained control programme. There are now few regions in the South Island where gorse and broom are largely absent, and this reflects the ease with which these two species are able to spread via various means.

Both species have an explosive seed mechanism which is capable of spreading seed up to five metres from the parent plant, but machinery, particularly forestry vehicles with tracks, can transfer seed-contaminated soil to other areas where gorse and broom have previously been absent if they are not washed down beforehand. As a result, fire breaks and forestry tracks, exotic forests and skid sites are often prime locations for gorse and broom incursions. Water movement along riverbeds is another significant carrier of seed, along with road metal from quarries that have gorse and broom present in the immediate vicinity of the quarry. Material extracted from these quarries can contain seed that is then transported to other places along the road network.

Less is known about how animals spread gorse and broom seed. In the Tasman district, broom is undoubtedly spreading at a more rapid rate than gorse. This is probably because the softer stems and shoots of broom allow easier, incidental ingestion of seed pods by browsers, which may not tend to happen to the same degree with its pricklier cousin, gorse.

Some seed is likely to stay viable after passing through the gut of ungulates, particularly feral pigs, and seed in soil trapped in animal hooves and fur will also have the ability to spread. To what, if any degree seed is spread by possums, hares and rabbits is not well understood.



Broom gall mite site - 23 Nov 2016.



Broom gall mite site - 24 Nov 2021.

The crops of Californian quail and pheasants are often found packed with broom seed, but how much remains viable in their faeces is also questionable.

With so many ways for gorse and broom to enter the Howard-St Arnaud control zone, keeping it free of these pest plants is no easy feat. **Broom gall mites have been successfully introduced at various points around the gorse and broom exclusion zone, and the spread of this biocontrol agent, particularly on the eastern side of the zone has been a phenomenal success.**

Road chip for re-sealing requirements along SH63, which passes through the middle of the zone, is usually sourced locally from a quarry within the zone. However, after the Kaikoura earthquake closed SH1 in 2016, heavy traffic was diverted along SH63, which was the only route south from Picton at that time. SH63 required an urgent upgrade for the heavier traffic load, and material from the local quarry was not sufficiently rated to allow for its use. Negotiations with Council Biosecurity staff and Waka Kotahi ensued, and conditions were put in place for a quarry near Nelson to be used for sourcing the material. A key requirement was for all quarried chip to be sourced from clean material at the bottom of the quarry. This strategy worked well, as there has been virtually no sign of any new gorse or broom incursions since the completion of the road upgrade.

Seed spread from forestry activities is more challenging to manage, however the two forestry companies contracting out most of the harvesting in the zone are highly supportive of the programme and have been proactive in ensuring that heavy machinery is washed down before entering forestry blocks.

Water blasting the mud from large tracked machinery can take hours to complete and is a significant cost to the forestry owners within the zone, but is necessary given their high potential to carry unwanted seed. Signs have also been erected requiring photos of freshly washed-down machinery to be sent to forestry managers to ensure compliance.

Despite these precautionary measures, some seed does enter the forestry blocks via this pathway, as it is unrealistic to expect that all soil can be completely washed off every surface of large machines. When incursions do occur in newly harvested forestry blocks, they are usually picked up by field staff employed by both forestry management companies to check skid sites and forestry tracks for new plants. This surveillance work is carried out on an annual basis.

Farmers in the zone are also fully supportive of the programme, often alerting biosecurity staff of any occurrences of gorse and broom on their property. Control of gorse and broom within the zone is mostly "cut and paste gel" work, with herbicide spraying only required in a few places.

Toitū Te Whenua Land Information New Zealand actively control gorse and broom along the banks of the Buller River where it flows through the zone. This work is currently contracted to DOC.

The Tasman District Council, as the Management Agency for pest management in the zone, carry out property audits to ensure compliance is occurring. **Current practice for the council is to focus on pathway management and community awareness. Getting the community on board with the programme is imperative to its success,** and is working well, with the council regularly receiving reports from residents of sightings of these pest plants from within the zone.

By Lindsay Barber



Howard Valley forestry broom incursion.



Howard Valley compliance sign.



Gorse and broom control zone entrance point Korere – Tophouse Road.

A Weed Odyssey: Innovation for the Future

The 22nd Australasian Weeds Conference

By Shane Hona, recipient of the NZBI Wendy Mead Professional Development Award



Shane Hona at the 22nd Australasian Weeds Conference, held at the Adelaide Oval.

My name is Shane Hona, I am a Rotorua-based Biosecurity Officer with Bay of Plenty Regional Council, and I have been a member of the New Zealand Biosecurity Institute (NZBI) for approximately 15 years. I am passionate about protecting New Zealand's environment, particularly from the negative effects of introduced pests. Working in this field involves ongoing learning and collaboration and I enjoy learning from others and expanding and sharing my knowledge.

I was the successful recipient of the 2022 Wendy Mead Professional Development Award from the NZBI. The purpose of this award 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.

This award assisted with the costs of attending the 22nd Australasian Weeds Conference held in Adelaide, in September 2022. At this conference I presented a paper titled: "A regional perspective on New Zealand's collective funding model for biocontrol of weeds research". **I was very honoured to receive this award as I used to work with Wendy Mead, who this award is named after.**

A total of 320 delegates from across Australia and New Zealand attended the 22nd Australasian Weeds Conference, which covered all facets of pest plants and their research, management, control, and related policy. The conference theme was "A Weed Odyssey: Innovation for the Future". Presentations covered various topics including weed control successes and lessons, herbicide resistance, biological control of weeds, remote sensing, risk assessment tools, weed surveillance and detection technologies, managing weeds in coastal and freshwater ecosystems; and ornamental and nursery weed impacts and strategies.

Some of the conference highlights included:

- New technology on display, such as a wireless GPS and flow monitor that connects to a gun and hose sprayer and automatically records where and how much spray has been applied. It then sends this data to the cloud via an inbuilt SIM card.
- Australia has recently launched a "Gardening Responsibly" scheme where ornamental plant species available for sale have been assessed for the future risk of "jumping the fence" and becoming invasive. Those species with a low risk of becoming invasive are labelled with a green tick so that buyers can be more aware of what they are planting in their gardens. More information on this scheme can be found here:
<https://www.gardeningresponsibly.org.au/>
<https://youtu.be/NOc4gdEhx44>
- A 3D graphic designer has created very detailed digital models of different pests, including alligator weed, sagittaria, largarosiphon, and red-eared slider turtles. These models are very useful for identification and training. They can also be 3D printed into realistic life-sized models of these pests for use at events. Some examples of this interesting work can be found here:
NSW DPI (@dpicomms) - Sketchfab
- Research into nursery catalogues from 1866 - 1992 in NZ has shown that the most invasive environmental weeds of garden origin in NZ made an early entrance into the market and have been sold for an extended period of time. These results suggest that early introduction and sustained propagule pressure through continued marketing and sale increases the likelihood that a species will become an environmental weed.



Gardening Responsibly Scheme.

- There has been a lot of work in recent years on the illegal trade of declared plants online and we heard about the confusion over the identification of *Salvinia* species traded in Victoria. A national internet surveillance programme has shown that the trading of weed species online is frequent and widespread with over 100 species of declared species detected including cacti, aquatic and invasive horticulturally popular plants. Misidentification and use of non-scientific names by traders is common, posing a significant threat to biosecurity across the country.
- We were challenged to guess the source of the bulk of the 248 new weed records in South Australia over the past 13 years. Chris Brodie, of the State Herbarium of SA, showed us that over 86% of these new weeds were of garden origin.
- WeedScan and weed ID App is using machine-learning technology. This tool, under development for launch in 2023 and co-ordinated by the Centre for Invasive Species Solutions, is so remarkable in its technology, that it was even able to successfully identify a lantana cupcake in a recent bake-off.



Wireless flow monitor and GPS tracker for gun and hose unit. Made by Rapid Spray, Australia.



Gardening Responsibly Scheme.

After the conference, I joined a delegation of kiwi biosecurity practitioners from Environment Canterbury and Marlborough District Council for a series of site visits and meetings with Australian biosecurity experts. The primary focus of this work was to learn how invasive weeds that are a serious issue in both Australia and New Zealand are managed across the ditch. The key species that we were targeting were Chilean needle grass (CNG) in South Australia and nasella tussock in Victoria.

We met with biosecurity staff from "Landscape South Australia – Hills and Fleurieu" and other agencies, at their office, then visited several rural properties where CNG is being actively managed. One site of particular interest has a high risk of spread as it is a camping ground with lots of potential for movement across the state and further afield by overlanders and caravaners. We also learned about other invasive weeds that they are battling, such as olives and artichokes. In addition, we visited a protected rare grass ecosystem site on the outskirts of Adelaide which is infested with invasive buffel grass. We learned that a community group has undertaken the unglamorous task of removing this weed from this area via manual grubbing. Their progress was quite impressive.

continued



Conference field trip to visit an ecological restoration site after devastating wildfires.

We then travelled to Bacchus Marsh in Victoria, which is a small rural town located an hours drive west of Melbourne. We met with the "Victorian Serrated Tussock Working Party" which is a government-funded community-led group of stakeholders that help manage this pest. In NZ we know this pest by the name of nasella tussock. We were absolutely gobsmacked to see some farms where the ground was 100% covered with nasella tussock, and the challenges that they face as they do not have widespread compliance powers over all land tenures. We also met some dedicated farmers who with targeted control over a long period of time are successfully getting on top of this invasive pest on their farms, along with dealing with serious flooding too.

Since returning from Australia, I have presented about this trip to my colleagues at Bay of Plenty Regional Council, and to the Central North Island branch of the New Zealand Biosecurity Institute. I would highly recommend NZBI members to apply for the Wendy Mead Professional Development Award, as I am very grateful to NZBI for this support and having the opportunity to attend an event like this has been so rewarding, I have made many useful contacts who work in this field, and I have learned so much. I would also like to acknowledge the support from Bay of Plenty Regional Council which allowed me to undertake this trip.



Farm completely infested with nasella tussock, rural Victoria.



Chilean needle grass control sign, rural South Australia.



Visiting a Chilean needle grass control site in rural South Australia.



Visiting a Chilean needle grass control site on a horse breeding farm in rural South Australia.



Overlooking rolling country infested with a number of pest plant species including olives and artichoke, Adelaide Hills.



Serrated tussock (a.k.a. nasella tussock) control sign, Victoria.

Where they weren't before: koi carp, gambusia and rudd

Department of Conservation rangers are calling on the public's help to report sightings of the pest fish koi carp, gambusia and rudd in Taranaki waterways.



Gambusia



Koi carp



Rudd

This year's cyclone flooding is likely to have helped spread the pest fish around and DOC is keen to minimise the impact on native fish species and our freshwater ecosystems.

Gambusia are small but feisty fish that can attack native fish, biting the fins and eating eggs and juveniles.

Koi carp and rudd can degrade water quality. Koi suck up mud, eat the invertebrates, and blow sediment out muddying the water.

When young, rudd feed mostly on invertebrates (insects, snails, worms), but as adults they feed mostly on plants (macrophytes). Rudd tend to prefer native plants over introduced, so can encourage weedy growth. Both pest fish can affect water quality, native plants, algae, invertebrates, and native fish life.

All three species are fast breeders and can take over an ecosystem rapidly, dominating fish communities.

The DOC freshwater fish team has been monitoring waterways throughout Taranaki, setting traps and monitoring sites to stop the spread of these pest fish in the region.

"These fish can easily move around from a flooded garden pond or overflowing culvert to other waterways," says DOC Taranaki Freshwater Pests and Migratory Fish Ranger Amirah Norhayati. "Once they're in the larger waterways they can spread widely."

"These species are still only present in isolated populations in Taranaki, so we want to target them now before they become widespread and cause irreversible damage to our freshwater environments."

She's asking people to report sightings of pest fish in garden ponds, culverts, lakes, and streams so any pest fish can be properly identified and eradicated.

Anyone finding pest fish is encouraged to contact DOC New Plymouth with photos if possible.



Call for community vigilance as new clam species found in Waikato River

Biosecurity New Zealand and mana whenua for the Waikato River are urging people who work and play in and around the river to keep a lookout for a new to New Zealand clam species that has been found at Bob's Landing near Lake Karāpiro.



Corbicula fluminea.



Corbicula fluminea.



Freshwater gold clam (*Corbicula fluminea*).

The freshwater gold clam (also known as the Asian clam, or by its scientific name *Corbicula fluminea*) is native to eastern Asia but is also widely established in North America, South America and Europe.

Overseas, these shellfish are a pest species because they reproduce rapidly and can clog up water infrastructure such as hydro-electricity plants, municipal water supplies and irrigation systems. They are also potentially a threat to native species, as in large populations they consume a lot of plankton.

Biosecurity New Zealand Deputy Director General Stuart Anderson says **it is not known how the freshwater gold clam will behave in New Zealand conditions**, but overseas it has proved difficult to control and there has been no documented successful eradication.

"We are partnering with Waikato-Tainui, the Waikato River Authority, the Waikato Regional Council, Te Papa Atawhai Department of Conservation and Toitū Te Whenua Land Information New Zealand to understand this incursion and how best to respond to it.

"This includes setting up a panel of technical and mātauranga experts to provide us with management advice," says Mr Anderson.

Initial checks have found the freshwater gold clam present over a 45 kilometre stretch of the Waikato River, from 1.5 km upstream of Bob's Landing, just upstream of Lake Karāpiro, and downriver to Hamilton.

Mr Anderson says the plan now is to search further, both within the Waikato River and in other rivers and lakes that are linked through human activity.

"This wider surveillance will include using targeted eDNA testing.

"To support this science, we're asking people who work around the river, or boat, fish or swim there, to keep a lookout and report any sightings of this new to New Zealand freshwater clam.

"They are a dirty white to yellow or tan and adult ones are 2-3 cm across. They can be found within the water, sitting on top of sandy or muddy surfaces, or buried shallowly within them. They're quite distinctive – there are no New Zealand species that look like this in the river."

Freshwater gold clams are not safe to eat from the Waikato River which is known to have high concentrations of toxins in the river. They filter-feed from the water and accumulate toxins in their gut.

Suspected sightings can be reported to Biosecurity New Zealand on 0800 80 99 66 or report.mpi.govt.nz. It is helpful to note the precise location and provide a close-up photo of the clam as well as one that shows the surroundings. Biosecurity NZ asks that people do not disturb the organism.

Biosecurity NZ, 25 May 2023

A journey through a kauri forest with Kauri Pou Kaitiaki

Kauri Pou Kaitiaki is a new virtual reality (VR) experience we have created to support kauri protection mahi in the Waikato. The VR transports users into a virtual kauri forest to experience the beauty and wonder of mature trees, alongside a fun shoe cleaning game where users earn maximum points for ensuring their shoes are 100% clean and free of dirt.

A group of advisors designed the experience alongside Waikato Regional Council's kauri protection team. The plot tells the traditional story of kauri allowing users to experience it up close and personally using this incredible immersive technology.

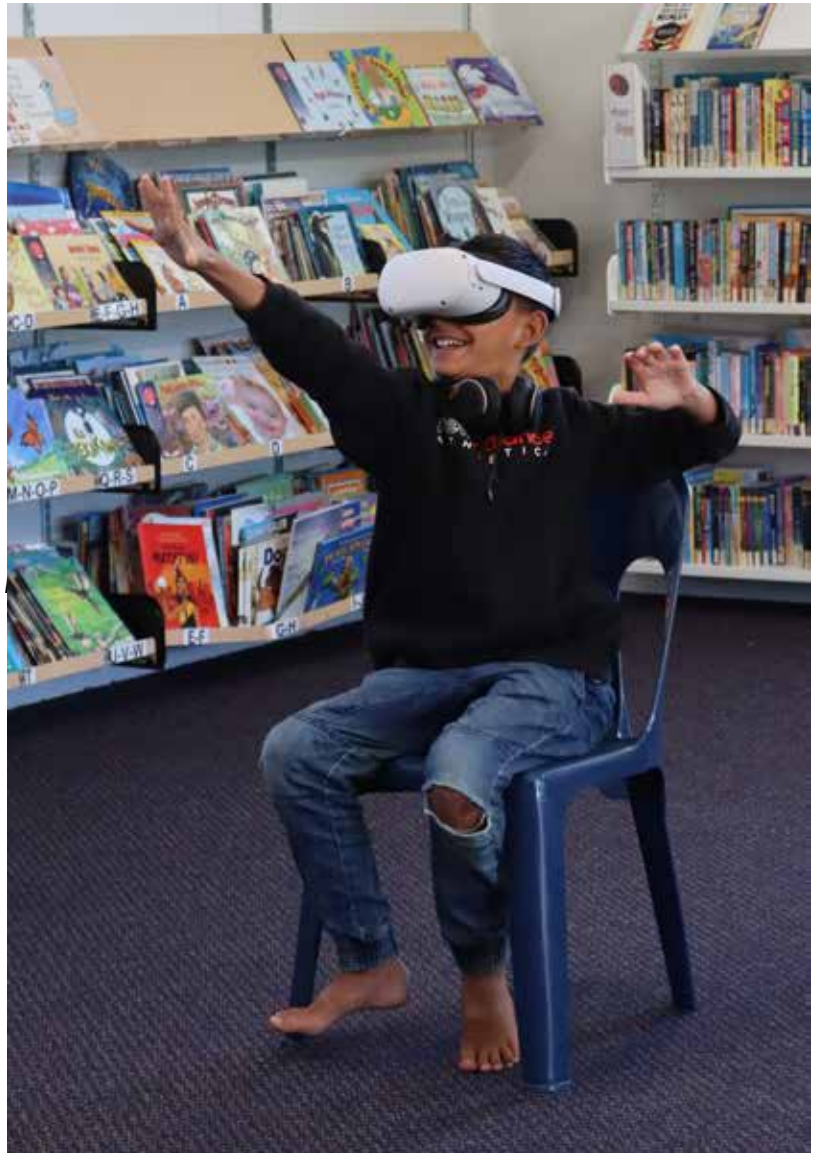
The team has also worked closely with ecologists to ensure that the kauri forest's ecology is represented authentically, including the presence of associated species and creatures such as epiphytes, the giant wētā and kōkaha (kauri grass).

The WRC kauri protection team has so far received overwhelmingly positive feedback and the tool has proven a popular and useful resource at schools and kura, events such as Fieldays, and for advocacy work with landowners and community groups around kaurilands.

"This experience allows us to spread our message in an interactive way that removing dirt from footwear is the most important action people can do for kauri," says Darion Embling, Team Leader Pest Plants at WRC.

The VR experience is available for selected kura, school and community events alongside the Wētā Workshop kauri model in a mobile 'kauri classroom', a custom-made trailer that can transport the resources to site.

Contributed by Waikato Regional Council



Getting Maximum Value: B3's new chief

Desi Ramoo is the new Director of B3 (Better Border Biosecurity).

Over the past decade Desi has worked at the Ministry for Primary Industries, Ministry for the Environment, the government-funded Biological Heritage National Science Challenge, and with private companies in research innovation, commercialisation and community engagement roles.

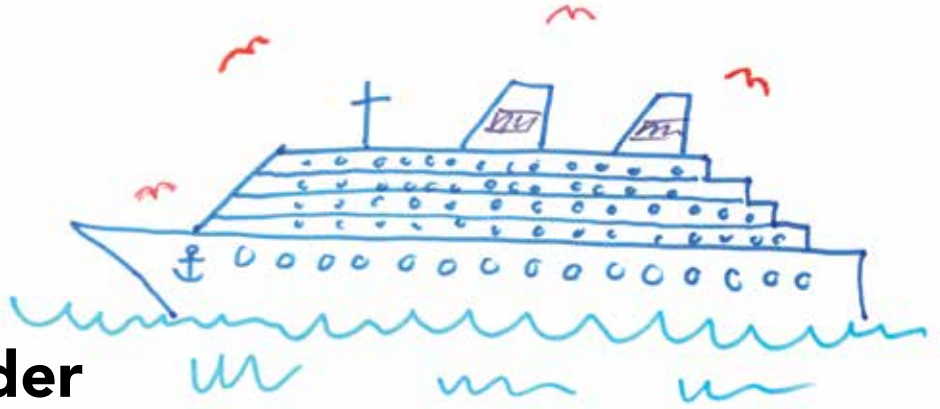
Previously he worked as a physicist applying his knowledge to enable innovation in areas such as radically improving the way the internet can process research data.

B3 said his skills will be valuable as it enters a new funding environment with Te Ara Paerangi Future Pathways programme focused on the future of New Zealand's research, science and innovation system. Current investors are the Crown Research Institutes, among others.

"The challenge now is to broaden this support and funding to get maximum value out of the B3 investment," B3 said earlier this year.



New B3 chief Desi Ramoo



Busy at the border

Biosecurity New Zealand's officers screened 1,391,641 arriving air passengers in the first three months of 2023, compared with 97,810 for the same period in 2022.

There have also been more cruise ship passengers following the reopening of maritime borders last year – more than 100,000 between January and March.

Mike Inglis, Biosecurity New Zealand's northern regional commissioner, said officers seized 24,677 risk goods from arriving air passengers in the first quarter of 2023, including 2,347 undeclared items.

"Our officers issued 1,693 infringement notices (\$400 fine) – 46 were issued between January and March last year. We have been working vigilantly to ensure the strong rebound in passenger traffic does not lead to the entry of damaging pests or diseases like brown marmorated stink bug, Queensland fruit fly, or foot and mouth disease (FMD)," said Mr Inglis.

"To manage these risks, officers continue to screen every passenger who arrives as part of our multi-layered biosecurity system, which includes questioning by officers, checking of baggage, use of x-rays, and dogs."

Fresh produce was the most commonly seized undeclared item in the first quarter of 2023 (1,318 items). Animal products, including meat, was the next highest (237), followed by used equipment such as footwear and tents (186).

"One of the more unusual seizures involved a passenger from Australia who declared a bag of live yabbies (freshwater crayfish) at Auckland Airport."

Mr Inglis said Biosecurity New Zealand is working with border agencies to introduce a range of measures to ensure passengers are processed as quickly as possible on arrival while maintaining strong biosecurity protection.

The measures include introducing express lanes for arriving passengers who are assessed as a low biosecurity risk.

"Last year, 64 new officers started nationwide, and we plan to introduce nearly 50 new officers to the Auckland region this year," said Mr Inglis.

Other initiatives to streamline passenger flows include increasing the number of risk assessment podiums at Auckland Airport, redesigning biosecurity lanes to allow more efficient processing of low-risk passengers, rostering more officers to deal with unaccompanied/mishandled baggage, and specific measures for direct flights from Bali to prevent foot and mouth disease entering New Zealand. The FMD measures include using a dedicated biosecurity lane and baggage carousel at the airport, and footbaths to disinfect footwear.

"We will continue to assess and balance the needs of protecting New Zealand from biosecurity risk against traveller processing and make adjustments where required. The international travel system continues to face challenges related to baggage handling (including higher rates of mishandled items), more late plane arrivals (and aircraft arriving at the same time), and greater loadings on planes than pre-COVID-19.

"Last month at Auckland International Airport, **the average wait time for inbound passengers to get through the biosecurity process, (from entering the queue to exiting the arrival area), was 13 minutes and 10 seconds.** While that may vary at times because of challenges across the arrival system, we must remain focused on strong biosecurity controls."



A true wilding at heart

Meet Adam Ross - Senior Adviser for the National Wilding Conifer Control Programme at Biosecurity New Zealand

The National Wilding Conifer Control Programme (NWCCP) is a cross-sector programme led by Biosecurity New Zealand. It is one of Biosecurity New Zealand's major long-term pest management programmes and relevant to both forestry and primary production.

Adam Ross looks after control operations in Te Wai Pounamu, the South Island, and lives in Christchurch.

"Every day as a part of my job, I protect my own backyard from wilding conifers," says Adam.

"Due to New Zealand's isolated position, we have rare native plants and animals that can't be found anywhere else in the world. Wilding conifers threaten the very things that make us so unique."

The NWCCP helps co-ordinate and support the efforts of people working to tackle wilding pines in their communities. As a valued member of the team, Adam brings passion, knowledge, and a fresh perspective to this significant national problem.



Adam during a drone flight over Flock Hill in Canterbury, to survey regeneration following previous wilding control activities.

Starting out

In 2018, Adam joined MPI in Wellington through the graduate development programme. During the 18-month programme he spent time in the Diagnostics and Surveillance Services directorate within Biosecurity New Zealand where he worked on National Biosecurity Surveillance Programmes and with incursion investigators, responding to potential biosecurity threats.

For his final rotation in the graduate programme, Adam moved to Christchurch to work with the Indigenous Forestry team promoting sustainable forest management. This experience proved to be a great stepping stone for when he joined the wilding control programme in 2020.

Why wilding control?

"My connection to wildings goes back much further than university. My father worked as a culler for the Forest Service in Marlborough. Part of his role was planting the trees which we are now trying to control – a small irony he takes great pleasure in telling anyone who will listen!" says Adam.

After graduating from Lincoln University in 2016 with a Bachelor of Science in Conservation and Ecology, Adam went on to gain a post-graduate Diploma in Applied Science, specialising in plant protection. During the summer holidays, he worked as a Conservation Ranger for the Department of Conservation Te Papa Atawhai (DOC).

"My role with DOC involved monitoring asset species including leading a team working on long-tailed bat (*Chalinolobus tuberculatus*). I also did a lot of pest and weed management where I got a chance to get a good understanding of the on-the-ground work required in pest management," says Adam.



Adam showing off a wilding conifer that he "hunted."

Lover of the outdoors

It's no surprise that Adam loves the outdoors and spends his free time hunting, diving, and fishing. Often during these activities, he pulls out any small wildings that cross his path.

"A lot of people don't know that when enjoying the outdoors on public land, they can pull out small wilding pine seedlings or cut small trees close to the ground," says Adam.

Wilding conifer control really is about 'a stitch in time saves nine,' meaning it is better to fix a problem when it is small rather than to wait and let it become bigger."



Fighting Mad over Pesticide Bans

"OUR AGRICULTURAL CHEMICALS WORLD IS SLOWLY BUT SURELY UNRAVELLING AT THE SEAMS. BUT PERHAPS I SHOULDN'T BE SO ANGRY AND FRUSTRATED ABOUT IT."

This from Mr D.A. Watkins, formerly chairman of directors of Ivan Watkins-Dow Ltd, when addressing the 1978 conference of the New Zealand Weed and Pest Control Society.

"After all," he went on, "**we are just a tiny portion of the world of chemistry fashioned by nature.**" Does it really matter if we go down the drain?

You and I know it does matter. World food-needs are going to triple in the next 25 years and meeting these needs will require the extensive use of agricultural chemicals. Will these continue to be available? I wish I could be sure.

"Ten thousand years ago life was short, nasty and brutish. As one of nature's creations, we got equal treatment with all the rest and spent our limited existence in a continuing bitter struggle for enough food and shelter to survive.

Balance of Nature

"Afflictions of one sort or another came early, caused enormous suffering and were seldom curable. We were, with a vengeance, an integral part of that so called balance of nature.

"Fortunately, by chance or divine intervention, we acquired the ability to accumulate and preserve knowledge for future generations. Even more important, we converted this knowledge into useful technology that ensured for many of us longer, healthier, more comfortable and enriched lives. **We became relatively free from the clutches of the natural world and we feel sorry for the hundreds of millions of people who still have not achieved this kind of liberation.**

"Thus, it is strange that powerful elements in our modern industrial societies seek not just to control the growth of technology, particularly chemical technology, but to abolish it.

"There is a senseless yearning to reincorporate with nature. It is an old malady that doesn't afflict the people of developing countries who are striving desperately to escape the balance of nature and gain control of their destiny. Unlike some of us they recognise clearly that the growth of technology is the underlying base for health, for wealth, and for all improvement in the human condition.

"What is surprising is how suddenly the malady developed. In 1910 our life expectancy was about 47 years. Today it is about 72 years. The growth of technology was the essential ingredient that gave us that remarkable improvement and chemical technology was one of the star contributors.

"Can we have forgotten so soon? Don't we believe any more in that marvellous slogan "better living through chemistry"?

"The trouble is the public are being led to believe that all man-made chemicals are hazardous and that naturally occurring chemicals are not when, in fact, **no chemical is hazardous if properly managed.**

"The public is being deceived when it is told that chemicals in nature are any less toxic or potentially less hazardous than man-made chemicals.

2,4,5-T

"The dioxin contaminant in 2,4,5-T and other compounds has been branded as a chemical of incredibly high toxicity, and indeed it is. After all, it is a thousand times more toxic than our most toxic pesticide. But did you know that the botulism toxins that can be formed in improperly canned foods are at least 50,000 times more toxic than our most toxic pesticide?

"We ingest about 40 mg of pesticides every year, an amount about equivalent to the tip of a lead pencil. If we drink coffee, we ingest about 40,000 to 400,000 mg of caffeine each year, depending on whether we drink one or ten cups a day. Caffeine is not innocuous. It takes a dose of about 10-20 grams to kill you, which is the amount in about 100-200 cups of coffee. Also, it is mutagenic, teratogenic and carcinogenic, just like a host of other toxic natural products that we consume in greater quantities than pesticides every day.



Nicotine

"Are you a smoker? The average smoker inhales about 1 mg of nicotine and 10 mg of tar into his lungs every time he smokes a cigarette. That adds up to about 40-160 mg of tar every year, depending on whether you smoke half a pack or two packs a day.

"Nicotine has an acute oral toxicity to rats of about 50 mg per kg more toxic than most pesticides. It only takes a dose of about 2.5 to 5 grams to kill you. This is the amount in the smoke from 125-150 packs of an average cigarette. Tar contains potent carcinogenic compounds. Heavy smokers of an average cigarette inhale about a third of a pound into their lungs each year.

"The problem is that neither the news media nor the public agencies are accurately informing the public on the distinction between toxicity and hazard and the relationship of toxicant concentration to expression of toxicity.

"Who would be foolish enough to predict devastation by a genetic breeze from observing the impact of a hurricane? But that is the kind of prediction being done with many types of agricultural chemicals.

Voices of Chaos

"The voices of chaos are a mixed bag and much too noisy.

Who are these people? What are they like? Well, there are the fearful, the ignorant, and the superstitious who see demons in the form of pesticides around every corner; the antitechnologist who promotes the fear of pesticides to hasten their demise; the scientist who promotes the fear of pesticides in hopes of gaining funds for support of his research; the fear of pesticides for political gain and power.

"The voice of chaos is having an impact. A number of major pesticides have been banned or withdrawn from the marketplace. An initial working list of 45 pesticides that may be considered too dangerous for use are scheduled for rebuttable presumption hearings - in short, guilty until proven innocent.

"It is not my intention to paint a picture so bleak that you get discouraged and give up. I would rather have you fighting mad. We, in the pesticide industry, have an enormously important job to do and that is to control pests, improve health, and increase food and fibre production.

"A lot of misguided, cynical and self-serving people are getting in our way. Every one of you needs to make sure that your pesticide house is in order by any reasonable standards.

"And you need to keep raising your voice until it is clearly heard in the press, on television, in the courts, by our public agencies and most of all, by the long-suffering public."

The Marlborough Express 1978 A&P Show Supplement

As re-reported in Protect Number 8, April 1979



Pest destruction exhibit at an A & P Show (alongside a road safety exhibit)

