



New Zealand Biosecurity Institute

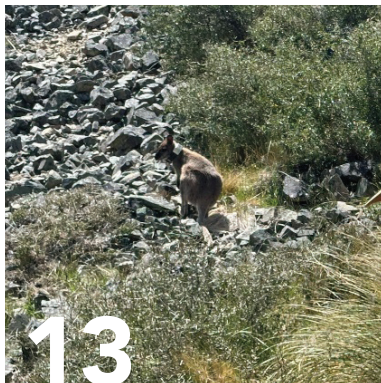
the magazine of the NZBI Summer 2023/24

Protect

PROTECT SUMMER 2023/24



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New Zealand Biosecurity Institute

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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.



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Aerial Application (CSL Required)	✓	✓
Bait Station Application Available to Public	✓	×
Pellet & Liquid Formulations Available	✓	✓
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YOUR PREDATOR AND PEST FREE PARTNERS

■ FROM THE EDITOR

New tech, stealth and cunning

Getting on well with landholders is as essential today as it ever was. That's one of the key points in a tribute story in this issue.

We meet some new Crown Ministers as well as farewell some senior Institute members.

We learn that the reports of the death of Weedbusters have been greatly exaggerated in a story that brings us up-to-date with the new structure, and familiarises us with the entity known as Te Uru Kahika.

We salute a member who found an international hitchhiker and did the right thing, and wonder how many people know to do the same.

Wallabies and caulerpa continued to make news over the summer. There are updates on both of these projects involving new technology, stealth and cunning, the backbone of a good thriller.

Read on, and continue the ingenuity.

CHRIS MACANN
EDITOR

■ FROM THE PRESIDENT

Harnessing the Experience

The Exec Committee team is keen for any suggestions, at any time, on how the NZBI can better provide value for its members.

A recent initiative the team are excited about is the launch of a Mentoring Scheme being coordinated by Vice-President Rowan Sprague. Rowan is an experienced knowledge broker, so we'll see if that translates to professional match-maker! **The initiative is intended to support early career members and harness the many years of experience held by our longer-standing members.** The old dogs may also learn some new tricks too! Applications for mentors and mentees closed at the beginning of March and the matching up of mentors and mentees will be taking place. Thank you to everyone who has submitted an application, and please let us know if you have any feedback!

Over the 2023/24 summer season, the importance of our work has been highlighted with the media through battles with the likes of exotic Caulerpa and wilding pines. It is a reminder of how vulnerable our ecosystems are to biosecurity threats both in the short and long term.

On the marine front, this last summer MPI reported a drop in biofouling issues on international vessels at the border and in particular, the cruise ship industry. We know the marine pest game (or any of our biological battles) is never a 100% game, with a residual threat always present. Well done to all the members who have contributed to this great trend.

It goes without saying that summer is always a busy one for our members from those at the border over the holiday season, to the wide range of activities our members are tackling from the mountains to the sea and all the special places in between. All too soon the days will get shorter so I implore you to take any chances you can to get together with our NZBI peers outside your 'bubble'. It can be very refreshing just to hear or see something a bit different.

Lastly, the finalists were announced on 1 March from the delayed 2023 Ko Tatou This is Us NZ Biosecurity Awards. I had the privilege of being involved on the judging panel for this round of the awards and they are a great way to showcase the excellent work being done by so many. I'd encourage all our members to take a close look at entering when they come around next.

JONO UNDERWOOD

NZBI PRESIDENT

A TRUSTED MENTOR:

Keith Briden Retires

Long-time Institute member and one of DOC's long serving technical advisors Keith Briden retired in May 2023 after more than 32 years with the Department.

Keith joined DOC in 1989 on a contract where he contributed to a new marine inventory for the Marlborough Sounds, in which his diving, skippering and navigation skills were well used. He moved from Marlborough into more terrestrial roles, in Wellington and then Napier. A long and varied career followed, ending after many years in Canterbury.

Keith led DOC's thinking in many areas of animal and plant pest control. He was a fundamental driving force in the recognition of wilding conifers as a national pest, leading to the establishment of the national wilding conifer programme.

He has been involved in national responses to new organisms, has led the development of DOC's policy on deer and wild animal recovery, and has supported huge steps forward in DOC's management of weeds nationwide.

Keith has mentored and guided many technical advisers and rangers.

Keith encouraged those who were opposed to chemical use to get down on their hands and knees and do the job.

He famously adapted a fishing rod and tackle to control boxthorn and boneseed on loess bluffs at Taylors Mistake on Christchurch's Port Hills. Keith's **colleagues describe him as a trusted mentor for the next generation of technical advisers and rangers.**

As an enthusiastic supporter of NZBI he was also active in Weedbusters and the Wilding Pine Network.

He attended and presented at many NETS conferences, and was on the organising committee for two Christchurch NETS.

He coordinated DOC weed meetings at the same time as NETS so DOC staff could attend NETS and become members. He also helped get DOC's animal pest staff incorporated into NZBI, enabling them to attend NETS.

He was the instigator and key driver in the Canterbury/West Coast branch's weedbusting and native tree planting project at Taylors Mistake.

He will be sorely missed by his team and across the Department. Colleagues report that crayfish, deer, thar and fish will now have Keith as a foe 24 hours a day.

Adapted from tributes posted on DOC's Intranet.



Keith Briden.



Beware of unwanted hitch hikers this summer

The Institute prepared this article to help all members with their work and promote their activities over the summer.

Keep an eye out for unwanted hitchhikers.

That's the appeal from the NZ Biosecurity Institute (NZBI) to everyone on the move this summer holiday season.

NZBI is the networking organisation for people working or involved in all aspects of biosecurity in Aotearoa New Zealand.

NZBI President Jono Underwood said, "Now that New Zealanders are beginning to travel again and the borders have opened up, it is more important than ever to keep an eye out for invasive species that may arrive from overseas or be spread around the country once they have arrived."

NZBI is asking people travelling overseas and around the country to check they do not pick up and transport sneaky stowaways. This could be aquatic weed fragments on their boats, bugs or seeds in their returning overseas baggage, or even within parcels sent from overseas.

Mr Underwood said one of the NZBI's own members recently found the unwanted brown marmorated stink bug in a parcel sent from overseas.

"It is extremely fortunate that this person knew to capture it and inform the Ministry for Primary Industries immediately.

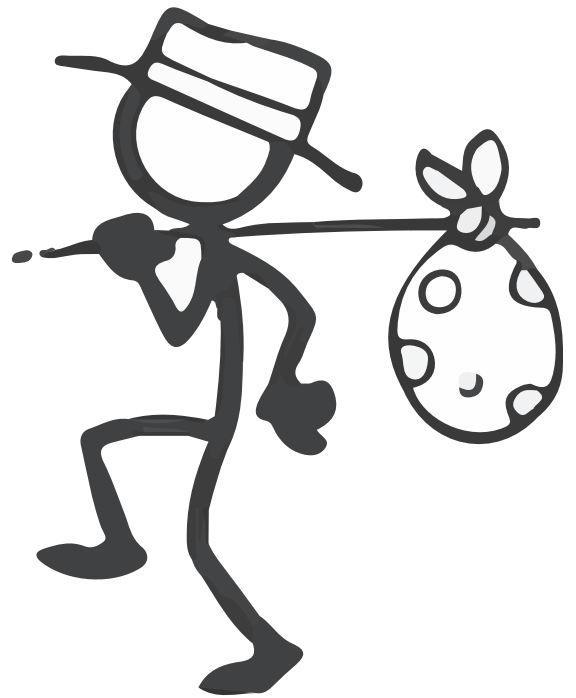
"Should the brown marmorated stink bug become established here in NZ, it would be devastating for numerous food crops, as well as giving off an unpleasant odour.

"This would make it a double whammy for the likes of our wine industry. It is definitely one invasive species among many we really do not want to establish in NZ," said Mr Underwood.

He said examples of recent undesirable arrivals are the invasive freshwater golden clam in the Waikato region and the invasive *Caulerpa* seaweed species in isolated areas off the coastal waters of the Northland, Auckland and Waikato regions.

"For these freshwater and marine invasive species, the key focus is not to give them any more of a helping hand to get around and infest new areas."

NZBI also has a request for kiwi's who are staying put these holidays.



"Over the summer season, many of those pretty garden plants or aquarium species can turn invasive when disposed of improperly. There is a long history of this occurring, so let's learn that lesson and dispose of that garden waste and aquarium contents responsibly. Additionally, check your boots and outdoor equipment and give them a good clean before and after exploring somewhere new."

Mr Underwood said these are all very simple actions everyone can take to help make life easier for all people involved in keeping the country safe from invasive species this holiday season.

"Every year NZBI members spend thousands of hours controlling or managing the risks to the economy and the environment from the effects of invasive species.

"Money and time spent on biosecurity is an investment that protects our economy, environment and way of life, and prevents significant costs and impacts from invasive species," Mr Underwood said.



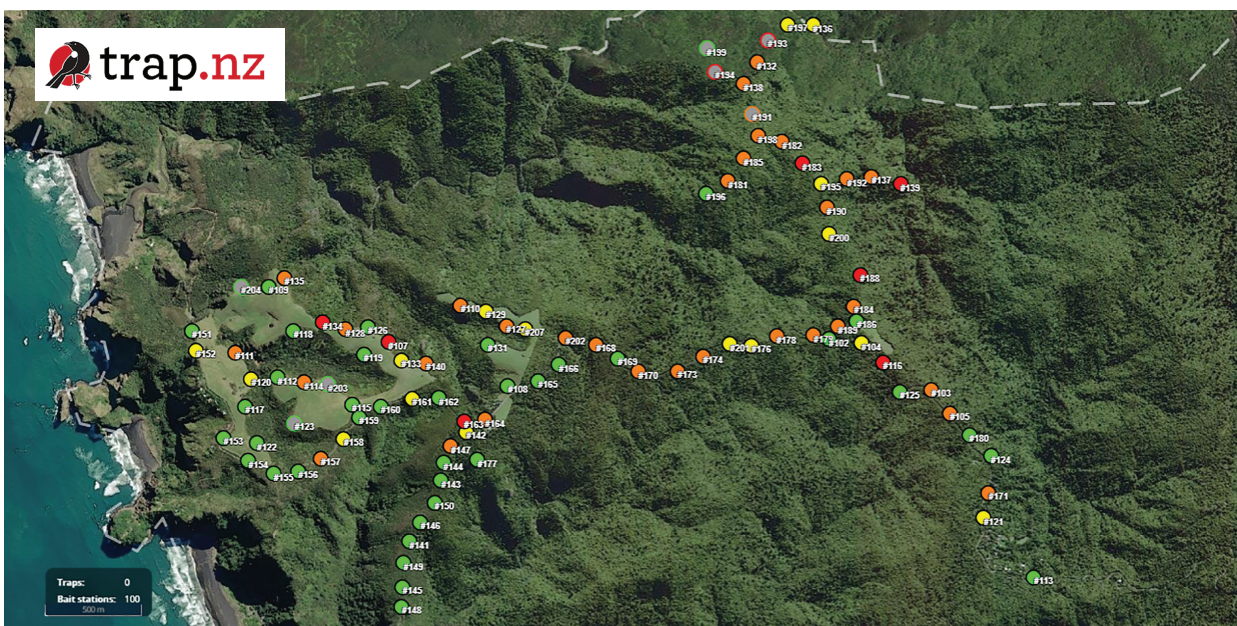
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Getting on with landowners is the key

REMEMBERING KEN MASSEY: 11.9.1942 - 9.2.2024

Former Biosecurity Officer and long-time Institute member Ken Massey died this year. Ken was a member of the New Zealand Biosecurity Institute for 17 years, was secretary for the Northland/Auckland branch for two years, and branch executive representative for three years. He was National Treasurer for two years in 2002 and 2003. He was born at Paparua on September 11 1942, and grew up in Waipua. He retired in June 2010 after more than 25 years fighting pest plants throughout the region.



Ken in his element at work in the field, tackling a wild ginger infestation at Waimamaku

Here is an extract from a profile of Ken in his own words from the 2002 Autumn issue of Protect Magazine:

In May 1984 I was employed by the Whangarei County Council as a nassella tussock ranger, under the direction of the Inter-Departmental Nassella Tussock Committee, and subsidised 75 percent by MAF. These duties included inspecting all nassella infestations in the North Island and reporting to the MAF committee. After about eight years of nearly sole nassella ranging (and being satisfied that no other nassella sites occurred 2km from the then known infestations,) I took on extra duties of weeds for the new Northland Regional Council, and completed a Certificate of Proficiency.

The change over to the biosecurity structure around 1990 involved more changes, and interesting training in biocontrols, detection of a wider range of plants and then, computers!!!!!!! Office moving occurred regularly at this time, and finally settled down after about a year of upheaval. I am continuing to use my knowledge and determination in an effort to eradicate nassella tussock from Northland and have reduced the seven areas of infestation, covering 600ha, from many thousands of plants in 1984 to 130 in 2001. Of the 29 properties ranged, about 13 have had no plants present for three years, and hopefully these are on the eradicated list.

Here are comments from an article prepared by Northland Regional Council on Ken's retirement in 2010:

Ken said he's walked thousands of kilometres over the years.

"In the course of the nassella work I walked all the area that lay within three kilometres of

known sites in the North Island so it involved a lot of walking and grubbing out plants by hand."

As a result of the travel, he spent a lot of time away from home, which was hard on his family, particularly his three young children.

"I could be away up to two weeks at a time but I usually tried to get home for the weekend as much as possible."

Government funding of the nassella project ended when the newly formed regional council incorporated the eradication of the pest plant into its role.

"The new council was tasked with putting in place Pest Management Strategies, something I was heavily involved in. It really changed the way pest management was carried out."

"In terms of planning and management, the shift to the regional council completely changed the way things were done. Management became far more intensive – during the county council days there were only a limited number of plants included on the list and boundary control was limited to gorse and ragwort."

Staffing changes and greater numbers of pest plants saw Ken involved in even more travel around the region, particularly controlling ragwort, gorse, nodding thistle and Bathurst burr. He has also guided large community-driven programmes to control wild ginger, and other environmental weeds including, in recent years, toxic lantana.

"The key to the job is to keep landowners informed so they know what to look for and how to control invasive plants."

Ken said the development of lifestyle blocks has also added a new dimension and made the job harder.

"Land that was once grazed and weed controlled can become a problem with rank infestations of all pest plant species, which is very expensive and time consuming to control for the unaware owner."

He said it is easier for landowners to plant natives that will shade out most weed problems eventually, with landowner assistance to control unwanted species while they establish.

He said he always found it easy to connect with farmers because of his farming background.

Herbicides are another major change he has seen with both the sprays and the way they are handled and applied becoming much safer and more effective.

"Many herbicides were mixed in a 44-gallon drum – a beer bottle full to a drum – and people would mix it without any form of protective clothing. Things have definitely changed for the better."

Biological control has also become more widespread during his time. The ragwort flea and gorse spider were two of the most extensively spread and effective biological agents that Ken was involved with.

Tributes

Ken was always willing to share his wealth of knowledge and was really easy to get on with. Even in retirement he was still very interested in these topics. As a fresh-faced uni graduate starting in the pest plant game, I am very grateful for the support provided by experienced biosecurity officers like Ken. Great role models!

Shane Hona, formerly Manaaki Whenua-Landcare Research and Bay of Plenty Regional Council

Ken was very helpful in my early years inviting me to Northland to visit some pest plant sites. He showed me how they were dealing with them. Especially with Manchurian wild rice, English broom, nassella tussock, lantana and boneseed. Ken was an expert on spotting nassella tussock from a great distance and came down to Auckland several times to help us out. Ken was a great team man always willing to pass on his knowledge and expertise. He was always the same, very humble, and got on well with landowners, farmers, and his biosecurity colleagues.

Greg Hoskins, retired Biosecurity Officer, Auckland Regional Council



CATCHING THEM EARLY:

Christchurch Christmas catch up

Around twenty Christchurch members from the Canterbury Westland branch met for a Christmas gathering late last year, courtesy of hosts Boffa Miskell.

Morgan Shields from Environment Canterbury introduced himself, and discussed his work in the relatively new role of Biosecurity Advisor for Invasive Species:

“Regional biosecurity has previously been focused on managing legacy pests, predominantly upon request of the community because it’s what they observe,” he said.

“However, while this raises important issues, it is very costly for often little gain due to widespread establishment and spread for example gorse.

“Therefore, **our future focus is to use the finite resources available strategically to predominantly prevent the establishment and spread of the future major threats** when feasible i.e. the next gorse or wilding conifer. These are invasive species early on their invasion curve (low incidence or absent) of which there are hundreds of species, and the issue is only going to intensify with new naturalisations and climate change.

“Based on this future-focus approach, **my role was created to assess invasive species throughout Aotearoa New Zealand and provide recommendations for the prioritisation of management** in Waitaha/ Canterbury and how a feasible objective might be achieved given the current information. This work directly supports Canterbury’s upcoming



Morgan Shields talks about his work as Biosecurity Advisor for Invasive Species at the Canterbury branch Christmas gathering in Christchurch

regional pest management plan review and is intrinsically linked with contributing to ongoing and future surveillance, pathway management programmes and sharing information with other councils. Furthermore, the role is well positioned to tap into ‘sleeper weed’ scientific research projects, that focus on detection, prioritisation and future impacts, many of which involve my former colleagues from previous roles. I am fortunate to also be involved with programmes like weed biological control to address some of those legacy issues.”

Branch chair and NZBI vice president, Rowan Sprague thanked Boffa Miskell for its continued support of the Institute, and for hosting the gathering.

Read more about Morgan and how he came to the role, in the profile section later in this issue.

Finalists finally

Biosecurity NZ announced the 2023 New Zealand Biosecurity Awards finalists at the beginning of March 2024. The announcement and presentation were delayed from late last year. Winners will be announced in April. The finalists are:

BioHeritage Challenge Community Award

- Banks Peninsula Conservation Trust – Feral Goat Eradication
- Ōkārīto GorseBusters Charitable Trust – Ōkārīto GorseBusters
- Tākaka Hill Biodiversity Group Trust – Restoring and Protecting Tākaka Hill Ecosystems

Te Uru Kahika Māori Award

- Aki Tai Here – Creating space for the regeneration of taonga, fauna and flora in Northland
- Te Whakahononga - Saving kauri and myrtles from two devastating pathogens
- Viki Heta and Arana Rewha – For taking a key role in the community response to Caulerpa

Biosecurity New Zealand Science Award

- AgResearch – Animal Health Solutions Team
- Marine Biosecurity Toolbox Research Programme
- Ngā Rākau Taketake – Saving Our Iconic Trees from Kauri Dieback and Myrtle

GIA Industry Award

- Aquaculture New Zealand – A+ Biosecurity Standards
- Sails for Science NZ – Northland Students United in Marine Pest Detection
- Veritag – Bringing the Private Sector into the M. bovis Programme

Eagle Technology Local and Central Government Award 2022-2023

- AsureQuality Ltd – Black-grass Response
- National Institute of Water and Atmospheric Research - Caulerpa Biosecurity Response Team
- Waikato Regional Council – Kauri Protection Programme

Biosecurity New Zealand Kura (School) Award

- Maeroa Intermediate School – Gully Restoration Project
- Waitaria Bay School – Pest Free Playground
- Western Springs College – Ngā Puna o Waiōrea – Waititiko Awa Restoration

Mondiale VGL Innovation Award

- Auckland Council – Ruru Conservation Information System
- EcoNet Charitable Trust – EcoNet CAMS Weeds Toolkit
- Te Ara Hikoi (Predator Free Franklin) – Tāwhiti Smart Cage

AsureQuality Emerging Leader Award

- Bevan Morgan – Community Pest Control in Te Tai Tokerau
- Keeley Grantham – Te Arawa Lakes Trust
- Reema Chawla – Harman Impex NZ Ltd

KO TĀTOU THIS IS US



New Ministers to the Biosecurity Sector



Minister for Biosecurity,
Andrew Hoggard



Minister for
Conservation, Tama
Potaka

The new Minister for Biosecurity is ACT Party MP Andrew Hoggard, a minister outside cabinet.

He said he believed people underestimated the importance of biosecurity: "Our country's economy is based around exporting to the world, so we have to maintain biosecurity."

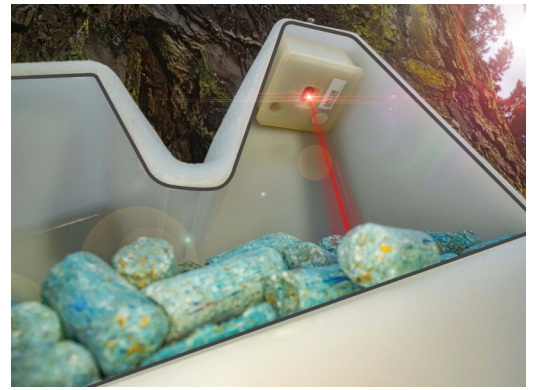
One of the first issues he wants to tackle is developing a foot-and-mouth disease response plan.

He is a Manawatu dairy farmer and former president of Federated Farmers.

One of his early announcements has been a \$5 million boost to accelerate the development of removal techniques for Caulerpa, in February 2024.

The Minister of Conservation is Hamilton West MP Tama Potaka, who was chief executive of Ngāi Tai ki Tāmaki before entering Parliament.

The Minister of Agriculture is Rotorua National MP Todd McLay who has a diplomatic background.



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As part of PF2050's P2P initiative, eTrapper are pleased to bring to market BaitSense™ – a low cost, multi-purpose sensor that reports on the volume of bait (incl. prefeed and toxin) within a bait station e.g. mini Philproof, therefore allowing the operator/user to identify predator activity across bait stations within a project area. Data is supplied from the BaitSense™ device sensor via an IoT network to the Trap NZ platform which displays a dashboard that maps the fill levels of bait stations (in near real-time), thereby allowing operators to make timely servicing decisions that drive productivity and remove labour servicing costs, helping to accelerate predator eradication outcomes. Further information can be found on eTrapper's website: www.etrapper.co.nz

First spy wallaby hunt successful

Boffa Miskell project manager Brent Barrett releases a seeker wallaby



The release of ten 'seeker' or spy wallabies fitted with satellite GPS collars into sites in Waitaki and Mackenzie districts last year marked a New Zealand first in the fight against Bennett's wallaby.

In early February Otago Regional Council (ORC) announced it had completed its first surveillance operation looking at whether spy wallabies will lead hunters to other wallabies.

One of the ten spy wallaby has travelled 42 km from Canterbury into Otago and is still moving.

The Otago Regional Council is leading the project with support from Environment Canterbury and the Tipu Mātoro National Wallaby Eradication Programme. It is hoped the two-year research programme testing the usefulness of spy wallabies will provide a new tool in the battle against the fast breeder.

Early this year, ORC's aerial hunting team located nine of the ten spy wallabies, where they found and destroyed 18 other wallabies. "While the results from this first hunt are encouraging, **further hunts are still needed before we are able to fully assess whether this technique works,**" says ORC's Project Delivery Specialist - National Programmes, Gavin Udy.

"This first run is about getting out there and locating and eliminating any other wallaby around the spy wallaby and testing our methodology, and then integrating any improvements identified into future hunts. The first hunt went very successfully, and the team are looking forward to the next one in a month's time," Mr Udy said.

The spy wallabies will continue to be monitored by a hunting team over the next 11 months to see if they lead the hunters to other wallabies. Those other wallabies will then be shot, leaving the spy wallabies to continue to seek out more wallabies until no more individuals can be found.

The ten spy wallaby was not pursued as it was considered too close to nearby dwellings to hunt the area safely. Since its release though, this wallaby has moved an incredible 42 km from its release site and is now in Otago.

Why spy wallabies?

"Finding wallabies across large landscapes and difficult terrain where there are few present is labour intensive. Any wallabies that go undetected allow small breeding populations to form and grow and become established over time. This is why it is critical that we develop new cost-effective tools to find wallabies in these environments."

Using spy animals as a method of pest control is common in feral goat and tahr control. **If this technique can be used successfully for wallabies, which are moderately gregarious, it will make a significant difference to efforts to eradicate Bennett's wallaby** from Otago and South Canterbury, particularly in areas where we have very low wallaby numbers.

"Tipu Mātoro's research programme is all about improving existing wallaby detection, surveillance and control methods, and finding new ones to address the pest wallaby problem," said Mr Udy.

ORC is investing \$110,000 over two years in the field work component of this research, the potential benefits of which will far exceed that investment in terms of protecting Otago from wallaby spread and the damage they do to native bush, farms, crops, commercial forestry, and our biodiversity.

As part of the research, the Tipu Mātoro National Wallaby Eradication Programme is contributing an additional \$100,000, while another programme partner, Environment Canterbury, is supporting the research through landowner consultation, DNA sampling and supplementary control work.

The research is being conducted under approved permits from the Ministry for Primary Industries (MPI) and the Animal Ethics Committee at Lincoln University, and permission granted by landowners to release the wallabies.

There has been an increase in reported wallaby sightings in the past year which is good news. People are asked to keep an eye out and report wallaby sightings, dead or alive, and wallaby kills; as the more eyes on the ground the better to prevent wallabies becoming established in Otago.

Adapted from material supplied by Otago Regional Council, February 5, 2024



UPDATE:

Weedbusters website - same mission, new home

Twenty years after having first launched in New Zealand, Weedbusters has completed its transition from the Department of Conservation (DOC) to Te Uru Kahika - the regional/unitary councils' umbrella brand.

The transfer, finalised in December 2023, signals a new era for Weedbusters, emphasising collaboration and community engagement while also aligning with the regional sector's vision for biosecurity.

Step one of the changes began with the formation of the Weedbusters Collective in May 2023. Comprising a diverse group of individuals with varying skill sets, the collective brings together experts in technical weed management, community engagement, and public/media communications. Leading the collective is Michael Beech, Team Leader Pest Plants at Horizons Regional Council.

Michael explained how one of the first tasks was to define values for both Weedbusters and the collective itself.

"By working collaboratively, the team has agreed on some common themes centred around empowering communities, sharing knowledge about pest plants, monitoring for innovative approaches, and committing to continuous improvement."

"We're currently undertaking several projects aimed at enhancing Weedbusters' functionality. This includes a comprehensive review of species fact sheets, ensuring that the information provided is up to date and accurate. Efforts are also underway to update all community group information, with a focus on identifying and incorporating new groups into the Weedbusters network which is where regional councils can directly get involved."

Individual regional councils are being asked to reconfirm Weedbusters contacts in their respective regions and to help in updating community group information. It is hoped that taking this approach will strengthen the collective's outreach and foster a sense of shared responsibility in successfully managing invasive plant species.

The existing Weedbusters resources previously provided will continue to be available, and the intention is to build the momentum in supporting the various existing groups operating under the initiative across the country.

Looking to the future, one exciting project underway is looking at how to incorporate mātauranga Māori into the Weedbusters offering. It's hopefully one of many enhancements that will help ensure Weedbusters is even more valuable for those looking for advice and support with pest weed control. Michael concluded by saying that input from the wider biosecurity community is vital.

"Weedbusters is alive and well and the collective are highly receptive to fresh ideas from those who operate in the pest plant space. Whether it's suggestions for the Weedbusters website, proposals for profiling specific species, or requests for additions to the list, the collective is eager to hear from the community. We're always open to new and refreshing ideas."

With a renewed focus on knowledge sharing, and community engagement, Weedbusters is well positioned to continue its vital role in preserving and protecting our natural environments.

This article was prepared by Weedbusters.

So, what is Te Uru Kahika?

Te Uru Kahika is also known as Regional and Unitary Councils Aotearoa

New Zealand has 16 regional and unitary councils. As a collective, Te Uru Kahika – Regional and Unitary Councils Aotearoa works together to apply its expertise and local knowledge for the wellbeing of New Zealand's environments and communities.

These 16 councils are charged with, among other things, the integrated management of land, air, and water resources, and supporting biodiversity and biosecurity. Environmental science and local knowledge underpin their work.

The world's biggest underwater vacuum cleaner

Imagine the world's biggest underwater vacuum cleaner, with a nozzle the size of a small car and a bag with a 250-tonne capacity.

That, more or less, is what is being trialled in the Bay of Islands.

The locally designed and built suction dredge is the newest weapon in the battle against caulerpa, an exotic seaweed that has been described as the world's worst marine pest.

Northland Regional Council Marine Biosecurity Manager Kaeden Leonard said caulerpa had the ability to grow quickly and form a monoculture that smothered anything in its path, outcompeting and displacing native species.

Existing control strategies included placing mats on top of infestations, dosing it with chlorine, or sending in divers with suction hoses, but those methods were slow and labour intensive.

A suction dredge built by Russell marine company Johnson Brothers should remove as much caulerpa in minutes as a diver could in a day.

Trials of the dredge started in February at Omākiwi Cove, ground zero of the Northland infestation.

Leonard said he had not seen anything like it before.

"It's definitely a New Zealand first, and most likely a world first. It's really scaling up what we've been able to do in the past. We've been able to get in there with diver-assisted suction hoses, but this is a mechanical approach."

Once the trial was complete, divers would study the area to make sure the caulerpa had been thoroughly removed, damage to the sea floor was minimal, and the seaweed pest did not come straight back.

Leonard said, in February that the signs so far were good.

"It's very, very, very promising. We've all been encouraged by the initial testing. It is able to get through a large area and really take that above-ground biomass and the below-ground rhizomes or root system, stopping its ability to regrow," he said.

Johnson Brothers founder Andrew Johnson said **he was not immediately convinced of the seriousness of the problem, until he took a look for himself.**

"When I dived on it and had a look, I could see it actually is a real problem. When you have a mat that completely covers the benthic environment, that's up to a metre deep in some locations, there's no way anything under that can survive."

The dredge used a pair of counter rotating road sweeper brushes to break up the seaweed and its roots, which were then sucked up through an eight-inch hose by a pump with a capacity of 400 cubic metres per hour.

The caulerpa ended up in a dewatering bag which allowed seawater to drain out while the plant material was trapped inside.



The Caulerpa dredge in action. Photo Peter de Graaf RNZ

The barge could carry about 250 tonnes before it had to be emptied.

Johnson said **biosecurity regulations meant the caulerpa could not be transported out of the area, so it was buried in a bunded area set back from the beach.**

In future he hoped it could be put to use, for example for producing fertiliser.

The two hectare, \$650,000 trial was run by Northland Regional Council but funded by Biosecurity NZ.

Johnson Brothers founder Andrew Johnson (right) runs through the suction dredge controls with Biosecurity NZ readiness and response director John Walsh. Johnson says it feels good to be part of a local solution to a local problem. Photo: RNZ / Peter de Graaf

Biosecurity New Zealand readiness and response director John Walsh said suction dredging was not new but the scale of the Bay of Islands trial was.

"The scale of the infestation here is significant. We need something that can remove large volumes of caulerpa, quickly. We've run a suction dredge trial at Aotea Great Barrier Island that was diver assisted, which means divers moving the hose around. That probably has some applications for certain conditions but it's slow, and we're hoping this is going to be a heck of a lot faster," he said.

"We were looking for innovation, and these guys have brought really good innovation." he said.

Adapted from information provided by Biosecurity NZ and an article by Radio NZ, February 9, 2024



More money to fight caulerpa



The battle to contain the fast-spreading exotic caulerpa seaweed has received a \$5 million boost to accelerate the development of removal techniques, Biosecurity Minister Andrew Hoggard announced on February 23.

“The time is now to really lean in and build on the work of Biosecurity New Zealand, mana whenua, communities and local authorities to understand the pest and prevent its spread.

“The extra \$5 million is an investment in technology to contain caulerpa and then eliminate it where possible from those affected areas.

“This funding increase will enable further development of suction dredge technology, which I recently visited in Northland.

“No other country has been able to adequately control or eradicate such a large infestation of exotic caulerpa.

“We want to continue to improve the technology so it can operate at pace with increased efficiencies and see if elimination in certain places is actually possible.

Where will the money go?

Advancing the suction dredge technology currently under testing in Northland – with a view to potentially eliminate exotic caulerpa at Omākiwi Cove.

Running an advanced trial to further test local elimination at Iris Shoal near Kawau Island.

The formation of a national steering group to seek stakeholder and community input into future management, strategy and decision making.

Addressing perimeter management at Aotea Great Barrier ahead of potentially larger scale suppression work there.

Enhance public awareness through various media campaigns and targeted signage.

Carrying out detailed surveillance at Ahuahu Great Mercury Island to better understand what appears to be a relatively small incursion.

Undertaking operational research to improve surveillance to locate any new areas of exotic caulerpa. Any testing will occur at Waiheke Island, and this will put us in a better position to suppress or eliminate the widescale incursion there.

Based on material prepared by Biosecurity NZ

Kauri Protection Gains Wheels?

Since the last update, the Waikato Regional Council's Kauri Protection Team have completed the construction of their custom made kauri protection trailer, another resource designed to deliver kauri protection messages. The trailer doubles as housing and transportation for the other unique kauri protection resources, including Kauri Pou Kaitiaki the (kauri virtual reality (VR) experience) and the Wētā Workshop Kauri Tree Model, which have been rolled out widely into communities across kaurilands.



The roadshow trailer



The real thing, or is it?

Kauri Pou Kaitiaki is still proving to be a popular and captivating resource with ten different groups, trusts, agencies, regional councils and organisations borrowing the VR headsets for events in the community, industry and iwi spaces in the Waikato, Bay of Plenty and Northland regions.

To date, over 1,310 people have experienced Kauri Pou Kaitiaki, with many of these engagements from our developing schools programme.

In a joint initiative with Enviroschools, a kauri protection education programme has been developed. The aim of this is to support understanding of kauri protection in schools and communities around the Waikato region and empower people to do their bit to protect kauri. The programme consists of a brief presentation, four educational activities completed in a rotation - (including the VR, measuring kauri giants, a kauri ecosystem activity and a boot cleaning activity) with a quiz to conclude.

After the pilot sessions, Biosecurity Coordinator - Kauri Protection, Breeahn Munns, said "We have noticed an improvement in the knowledge, connection and curiosity the students have for kauri, in particular the safety of kauri on their school grounds, as they are often located near play areas." This knowledge is also being shared at home. One student commented that "I learned so much about kauri trees, then when I got home and told mum and dad we decided to go on an adventure to check them out ourselves. I told them all the things we need to do in the bush, and how clean our shoes need to be!"



BIOSECURITY WITH A FUTURE FOCUS

Dr Morgan Shields, Biosecurity Advisor for Invasive Species at Environment Canterbury



Dr Morgan Shields, Biosecurity Advisor for Invasive Species at Environment Canterbury

What motivates you to be involved in biosecurity?

Having a direct positive impact on the environment and local communities and contributing to the values I care about.

What has been your career path to your current position?

I had always been interested in insects and the natural environment, so I studied ecology and entomology at Lincoln University where I became a post-doctorate researcher in insect biological control and ecosystem services. I've since dabbled in teaching aspects of pest management, lecturing in biosecurity at the University of Canterbury and working with the pastoral and horticultural industries.

Despite loving science academia and publishing multiple scientific papers, it became an increasingly challenging sector to secure funding and the peer-review process was evermore draining. It also became clear that most of my research was not being utilised in Aotearoa/New Zealand.

I was very fortunate to have the opportunity to jump ship to regional biosecurity with a future focus. **This was a breath of fresh air where our contribution has direct benefit to protecting native biodiversity and the livelihoods of local communities.**

What makes up a normal day for you?

My day usually consists of making recommendations for the management of an invasive species by conducting initial biosecurity assessments, responding to community and agency enquiries, discussing new weed research projects with science colleagues or investigating sites of regional incursions and naturalisations.

What do you enjoy the most about your job?

Supporting an incredible group of like-minded people to benefit Waitaha/ Canterbury and that my contribution has a noticeable impact on the ground, sometimes within days.

Do yourself: Aerial spraying



Now you can apply herbicides or pesticides from the air without paying an expensive contractor or even taking your feet off the ground. All that is needed is wind of at least five knots and the capital to buy an ingenious kite designed by an R.A.F. officer in the UK.

A steerable kite, described as a "flying machine", has been around for some time. A bigger version (about 3 m across) has been modified to carry a small spray rig which can deliver ultra low volume spray, with controlled droplet size. The capacity of the tank is sufficient to spray about 5 ha, taking two hours to do the job. Depending on the direction and speed of the wind the kite can be flown 1 m to 10 m above the crop.

Spray delivery can be controlled so that when the kite traverses in one direction spray is on, and on the return trip it is off. Also, movement up or down can be arranged to actuate the shut off valve. **Another ingenious feature is a tube connection down to the operator which can be used to replenish the kite's spray tank**, if higher volume sprays are needed.

Protect Magazine April 1979

(As reported in the NZ Farmer, March 8, 1979)

Retired but not out of action

Recently retired Biosecurity Advisor Kevin Gallagher made a small but maybe significant contribution to our fight against invasive insect incursions recently.

While unwrapping an online purchased he noticed a large bug hitchhiking in the purchased backpack, pun intended. Being a good biosecurity citizen, he immediately identified it as a stink bug, pounced on the critter and potted it up for ID. This also included an immediate very close inspection of the rest of the packaging and the backpack for potential fellow hitchhikers or eggs. A very good magnifying headset with a built in LED was just the tool for the job, normally reserved for Californian thistle extraction from fingers. Seeing no other sign of more intruders, Kevin contacted MPI and got an immediate response advising him to place as much of the contents and packaging in a freezer as possible. **MPI identified the bug as a yellow spotted stink bug, a close relation of the brown marmorated stink bug**, and definitely an unwanted organism. The YSSB has spread from SE Asia to Albania and Brazil, and any warm climates are highly suitable for its preferred habitat, where it would feast on our horticultural crops such as apples, cherries, pears and kiwifruit.



The ill-fated hitchhiking yellow spotted stink bug.

