

WHAT'S BUZZING?

News from the World of Pest Management



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VICE PRESIDENT'S PEN – MIKE COLLINS

Hello members,

Spring has arrived and the office phone is starting to ring. Notably Borer enquires and a continuation of pesky rodents taking a spring break in roof voids.

I was out fishing in the Haurakai gulf yesterday - a 'mental health' day and we chased down the birds working baitfish at Midday. Yes, bright sun in the sky, and we nailed 6 nice size Kawahai which have now turned into a fish curry.

The tide is turning as the Spring weather patterns take hold. This is the time our Industry starts to crank up as the temperatures start rising along with humidity and longer sunshine hours.

I have spent some time in Fiji last month and in particular the Yasawa Islands. Two things that I noticed in particular. The first, the lack of Mosquito activity around the resorts and the reduction of noisy motor blowers at Dawn and Dusk. In my working days in Fiji we would fog twice a day seven days a week; now it would appear less frequent application with a safer and effective chemical group appears to be working well.

Yes, we have lost a lot of our armament over the years, however, thankfully our suppliers have kept up with product development and research. The second interesting thing I noticed was the regeneration of coral which has brought about abundant reef fish activity. Scuba Diving and snorkeling is a great way to check out what conservation can do for our spot in the universe. Well done to our friends in Fiji - a great place to take a break.

Interestingly, I have been asked to be part of a Rotary group in East Auckland behind Pest Free NZ 2050. The concept is to mobilize community groups to take out pests such as rodents within their environment, schools and our own backyards. This is primarily wooden trap boxes containing snap traps. There are a number of communities around New Zealand where this pilot scheme has been operating and the results have been staggering.

Close to home my brother and his wife work with a voluntary group in a forest north of Auckland that check and set traps during the weekend, to take out rats and stoats so that our Fauna and Native birds can flourish and yes the Kiwi are back populating the forest Floor.

Conservation by volunteers does work. However, there is the challenge with our Industry. If volunteers are taking out rodents in suburbia; are they in fact depriving the Pest Industry the opportunity to provide a service for reward. The short answer is yes, however, I firmly believe we can work together on a Pest Free New Zealand. We may miss out on some opportunities in a domestic market, but the awareness of pest issues will be increasingly highlighted, which in-turn will create a greater awareness within commercial buildings to become more proactive in Pest Control.

If you are approached to get behind this project then as a professional Pest Manager you should take up the challenge as we all have the knowledge, ideas and expertise to make a difference.

Sandra will be back for the next Presidents Pen please enjoy the read and continue to promote PMANZ as our industry organisation.

Best wishes

Mike Collins

CONFERENCE VENUE AND DATE

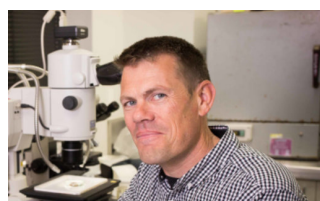
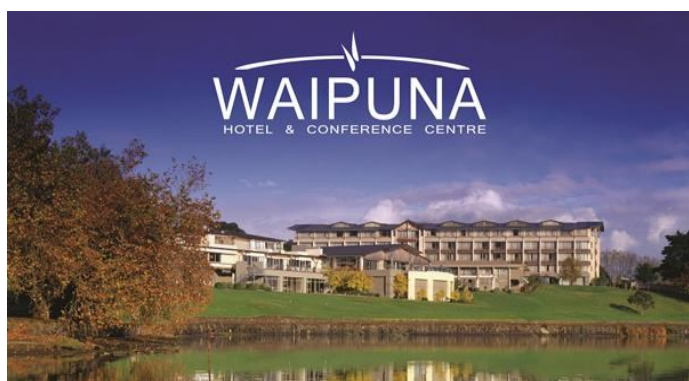
Waipuna Hotel and Conference Centre is one of New Zealand's largest and most comprehensive conference facilities and is only 15 minutes from Auckland's city-centre and the international and domestic airports.



**PMANZ 2019 Biennial
Conference and AGM**



Where: Waipuna Hotel and Conference Centre, Auckland
When: 22nd – 23rd August 2019
Be there...



Dr Cor Vink, Curator Natural History, Canterbury University.

Cor's main research interest is the systematics and taxonomy of New Zealand spiders, but he also worked on spider ecology, biosecurity and biological control. Cor is an Adjunct Senior Lecturer in the Ecology Department at Lincoln University.

Dr. Helen Blackie, Boffa Miskell, Biosecurity Consultant, Principal Auckland
She has over 13 years practical experience in ecology and more than 20 peer reviewed publications in leading international and national ecological journals. Helen has received over 10 awards for her contribution to the ecological and research sectors.

BE THERE!



FROM THE EDITOR



Spring has sprung and new life abounds around us, from beautiful flower blossoms, new buds, butterflies, birds, and a myriad assortment of other insects and creepy crawlies. A sure sign that summer is not far off.

“So what”, you say, “this is what happens every year.” Why should this year be any different. Well for a start, there's talk about an [El Nino](#), meaning a drought scenario, which is great if you are a beach lover, but not good for the farmers, gardens and other of us that enjoy our tradition New Zealand weather.

The question you should be asking yourself is, “Will this affect my business, and if so how?” Well, I don't have the answer for you either, but you had better be prepared for it!

Did we learn anything from last years dry summer that we can take into this coming one. There are probably some...

Probably a good time to reflect on this with your team or your colleagues, and decide what went well and not so well for your business last year, and make some

plans to avoid a repeat of the bad things and get better at the stuff that went well.

Some of the things that I do recall was the fierce and plentiful fly season, flea problems, and early rodent season that caught some of us unawares in late February/early March. Is that likely to happen again, and are you ready for it?

There is a lot going on in the world of pest management, and to perhaps help you along the way you will find some interesting articles in this edition of the newsletter to guide you.

One of them, is cats. Love them or hate them, but how many of you are aware that cats are seriously hyperallergic to Pyrethrin's, Permethrins and Pyrethroids. They can become seriously ill or die if they come into contact with even small amounts of wet spray. Read the article on page 5 for more information.

We have just had confirmation that our own New Zealand Dr Cor Vink and Dr Helen Blackie will be in attendance to address the conference next year. See more on their profiles on our website.

Looks like we should have an interesting conference next year—be there!

Happy Spring

Peter

Send all comments or suggestions to Peter Barry on peter@pestconsultancy.co.nz

Fair Use Reporting

Articles provided in "What's Buzzing" are drawn from a number of sources. The source of the material is quoted, either by author, publication and/or organization, in line with the practice of 'Fair Use' reporting of news or information to PMANZ members for their ongoing education. The information contained in this newsletter is for member information only, and does not necessarily reflect the official views or opinions of the PMANZ Council and/or its members.



MPI have issued a warning to all Pest Operators

What you need to know about drowning traps!

Rodent traps which rely on the use of a preserving solution (such as EkoFix solution used in the Ekomille trap system) may have been offered for sale within NZ recently.

We would like to advise that pest control operators cannot use these traps, as the solution is currently not registered as a Vertebrate Toxic Agent (VTA) as required under the Agricultural Compounds and Veterinary Medicines (ACVM) Act.

For any queries, or to make an application to register, please contact approvals@mpi.govt.nz. More information can be found here: <https://www.mpi.govt.nz/processing/agricultural-compounds-and-vet-medicines/vertebrate-toxic-agents/>

We would also like to advise that these traps must not be used with water only, as drowning is considered a prosecutable offence under the Animal Welfare Act.

Where the traps are used dry, they are a live-capture trap and require daily inspection as required under the Animal Welfare Act.

Please also note that from October 2018 you can be fined \$300 for failure to inspect live-capture traps.



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Permethrin Sprays & Cats



PMANZ have had a number of reports over the last year of cats dying from unknown causes but, coincidentally shortly after pest control treatments have been carried out for spiders and/or ants.

Insecticidal sprays that contain permethrin, pyrethrin or pyrethroid base, as the primary ingredient, eliminate a wide range of insects and can be highly effective, however, it can be very toxic to cats if they come into contact with the wet spray.

Prior to spraying, notify neighbours and get your client to bring their feline friends indoors to prevent them from getting the spray on their fur.

Some additional information follows that may help us get a better understanding of this potentially unique problem that initially manifested itself with common 'spot-on' flea treatments.

Permethrin

Permethrin is a synthetic insecticide known as a pyrethroid, a type of chemical used to kill and repel disease-carrying insects like fleas, ticks, mites and mosquitoes outdoors.

Permethrin kills insects and other garden pests by paralysing their nervous systems and lasts for up to 12 weeks after application.

Cats and Permethrin

Cats lack the ability to metabolize permethrin when they come into contact with it through their skin or when they lick it off of their fur while grooming, according to the Veterinary Support Personnel Network.

This makes it highly toxic to them and should never be applied to their skin or in an area where they might encounter it.

Signs of permethrin poisoning in cats include seizures, tremors and muscle spasms, usually appearing within 48 hours of exposure to the toxin according to the ASPCA (American Society for the Prevention of Cruelty to Animals) National Animal Poison Control Centre.

Treatment Options

If you suspect your feline friend has encountered permethrin spray while outdoors, wash the skin and fur with dish soap to remove as much of the toxin as possible. After washing, bring the cat to a veterinarian for treatment immediately.

Quick treatment can prevent a possible tragedy, according to a study published in the June 2008 issue of the "Australian Veterinary Journal."

When storing permethrin spray, as with any garden insecticide, keep it in a secure cabinet away from any pets in your home, especially felines.

Proper Usage

Before spraying with permethrin, bring cats inside and close the windows to the rooms where they are. Get your customer to speak with their neighbours to let them know when and where you'll be spraying the permethrin so they can keep their cats indoors as well. Once the insecticide is dry, it's safe for kitties to come out again.

Article continues after the advert



Rain on mosquitoes' parade



**Aqua
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Aqua-K-Othrine is an internationally proven and recognised adulticide space-spray featuring the unique anti-evaporant system called FFAST™. Aqua-K-Othrine is designed for dilution with water and can be applied through thermal fogging, ULV or misting equipment. The use of Aqua-K-Othrine reduces reliance on hydrocarbon solvents and the application of pollutants into the environment compared to traditional oil-diluted sprays.

Technical Enquiries: 1800 804 479
www.environmentalscience.bayer.com.au

The Signs of Pyrethrin and Pyrethroid Toxicity in Cats

Cats that have been exposed to a large amount of pyrethrin/pyrethroid-based insecticides will often have whole-body tremors.

Other signs resulting from pyrethrin/pyrethroid toxicity often include:

- Excessive salivation/drooling
- Agitation or restlessness
- Vomiting
- Loss of coordination
- Difficulty jumping, standing or walking
- Shaking, twitching, muscle tremors (often mistaken for seizures)
- Difficulty breathing

If left untreated, pyrethrin/pyrethroid toxicity can be fatal to cats.

Clinical signs and diagnosis

Clinical signs are normally noticed immediately after exposure, but can be delayed for up to 72 h. In mild intoxications, paraesthesia induced by direct contact with the substance may result in paw flicking, ear twitching and uncontrolled contractions of the cutaneous trunk muscles.

Grooming of a contaminated body area can result in hypersalivation and vomiting. Severe muscle tremors, seizures and/or depression are normally seen only in severe intoxications.

Laboratory detection of pyrethrins/pyrethroids is not readily available and haematology, biochemistry and other findings might be normal.

One of the principal differential diagnoses is organophosphate/carbamate toxicosis.

Where available, measurement of cholinesterase levels may be helpful in distinguishing between the two groups of toxins — with levels being unremarkable in pyrethrin/pyrethroid toxicity and most likely decreased in organophosphate toxicity.

Treatment and prognosis

Dermal decontamination should be instituted at the earliest possible opportunity. Bathing of the patient is generally indicated and the use of a hand- or dishwashing detergent might enhance the cleaning process.

Hypothermia may potentiate the effect of pyrethroids on ion-channel activity and, therefore, bathing the patient with cold water and/or prolonged sedation should be avoided.

Conversely, bathing in water that is too warm might enhance resorption through the skin due to hyperaemia and should also be avoided. The patient should be actively dried and, if transport to a veterinary facility is delayed, owners can be advised to wrap it in a warm towel.

Products that Contain Pyrethrin

- Allethrin,
- Bifenthrin,
- Cyfluthrin,
- Cypermethrin,
- Cyphenothrin,
- Deltamethrin,
- Esfenvalerate,
- Etofenprox,
- Fenpropathrin,
- Fenvalerate,
- Flucythrinate,
- Flumethrin,
- Imiprothrin,
- lambda-Cyhalothrin,
- Metofluthrin,
- Permethrin,
- Prallethrin,
- Resmethrin,
- Silafluofen,
- Sumithrin,
- tau-Fluvalinate,
- Tefluthrin,
- Tetramethrin,
- Tralomethrin,
- Transfluthrin.

Information comes courtesy from the following sources:

<https://www.preventivevet.com/cats/safe-cat-flea-treatments-the-danger-of-pyrethrin-and-pyrethroid-toxicity>

<https://icatcare.org/permethrin/vet-info>

<https://homeguides.sfgate.com/permethrin-yard-sprays-cats-56775.html>



Scientists fear non-pest insects are declining



A staple of summer — swarms of bugs — seems to be a thing of the past. And that's got scientists worried.

Pesky mosquitoes, disease-carrying ticks, crop-munching aphids and cockroaches are doing just fine. But the more beneficial flying insects of summer — native bees, moths, butterflies, ladybugs, lovebugs, mayflies and fireflies — appear to be less abundant.

Scientists think something is amiss, but they can't be certain: In the past, they didn't systematically count the population of flying insects, so they can't make a proper comparison to today. Nevertheless, they're pretty sure across the globe there are fewer insects that are crucial to as much as 80 percent of what we eat.

Yes, some insects are pests. But they also pollinate plants, are a key link in the food chain and help decompose life.

"You have total ecosystem collapse if you lose your insects. How much worse can it get than that?" said University of Delaware entomologist Doug Tallamy. If they disappeared, "the world would start to rot."

He noted Harvard biologist E.O. Wilson once called bugs: "The little things that run the world."

Scientists are noticing fewer flying insects that aren't really pests, like moths, fireflies and butterflies. A variety of reasons are suspected but they all lead back to what humans are doing to the environment, especially landscapes.

The 89-year-old Wilson recalled that he once frolicked in a "Washington alive with insects, especially butterflies." Now, "the flying insects are virtually gone."

It hit home last year when he drove from suburban Boston to Vermont and decided to count how many bugs hit his windshield. The result: A single moth.

WINDSHIELD TEST

The un-scientific experiment is called the windshield test. Wilson recommends everyday people do it themselves to see. Baby Boomers will probably notice the difference, Tallamy said.

Several scientists have conducted their own tests with windshields, car grilles and headlights, and most notice few squashed bugs. Researchers are quick to point out that such exercises aren't good scientific experiments, since they don't include control groups or make comparisons with past results. (Today's cars also are more aerodynamic, so bugs are more likely to slip past them and live to buzz about it.)

Still, there are signs of decline. Research has shown dwindling individual species in specific places, including lightning bugs, moths and bumblebees.

One study estimated a 14 percent decline in ladybugs in the United States and Canada from 1987 to 2006.

University of Florida urban entomologist Philip Koehler said he's seen a recent decrease in lovebugs — insects that fly connected and coated Florida's windshields in the 1970s and 1980s. This year, he said, "was kind of disappointing, I thought."

University of Nevada, Reno, researcher Lee Dyer and his colleagues have been looking at insects at the La Selva Biological Station in Costa Rica since 1991. There's a big insect trap sheet under black light that decades ago would be covered with bugs. Now, "there's no insects on that sheet," he said. But there's not much research looking at all flying insects in big areas.

Article continues on next page

THE EVIDENCE

Last year, a study that found an 82 percent mid-summer decline in the number and weight of bugs captured in traps in 63 nature preserves in Germany compared with 27 years earlier. It was one of the few, if only, broad studies. Scientists say similar comparisons can't be done elsewhere because similar bug counts weren't done decades ago.

"We don't know how much we're losing if we don't know how much we have," said University of Hawaii entomologist Helen Spafford.

The lack of older data makes it "unclear to what degree we're experiencing an arthropocalypse," said University of Illinois entomologist May Berenbaum. Individual studies aren't convincing in themselves, "but the sheer accumulated weight of evidence seems to be shifting" to show a problem, she said.

After the German study, countries started asking if they have similar problems, said ecologist Toke Thomas Høye of Aarhus University in Denmark. He studied flies in a few spots in remote Greenland and noticed an 80 percent drop in numbers since 1996.

"It's clearly not a German thing," said University of Connecticut entomologist David Wagner, who has chronicled declines in moth populations in the northeastern United States. "We just need to find out how widespread the phenomenon is."

THE SUSPECTS

Most scientists say lots of factors, not just one, caused the apparent decline in flying insects. Suspects include habitat loss, insecticide use, the killing of native weeds, single-crop agriculture, invasive species, light pollution, highway traffic and climate change.

"It's death by a thousand cuts, and that's really bad news," Wagner said.

To Tallamy, two causes stand out: Humans' war on weeds and vast farmland planted with the same few crops.

Weeds and native plants are what bugs eat and where they live, Tallamy said.

Milkweeds, crucial to the beautiful monarch butterfly, are dwindling fast. Manicured lawns in the United States are so prevalent that, added together, they are as big as New England, he said. Those landscapes are "essentially dead zones," he said.

Light pollution is another big problem for species such as moths and fireflies, bug experts said. Insects are attracted to brightness, where they become easy prey and expend energy they should be using to get food, Tallamy said.

Jesse Barber of Boise State is in the middle of a study of fireflies and other insects at Grand Teton National Park.



He said he notices a distinct connection between light pollution and dwindling populations.

"We're hitting insects during the day, we're hitting them at night," Tallamy said. "We're hitting them just about everywhere."

Lawns, light pollution and bug-massacring highway traffic are associated where people congregate. But Danish scientist Høye found a noticeable drop in muscid flies in Greenland 300 miles (500 kilometers) from civilization. His studies linked declines to warmer temperatures.

Other scientists say human-caused climate change may play a role, albeit small.

This article was shortened—Ed

Source - Associated Press . Follow Seth Borenstein on Twitter: @borenbears . His work can be found here .

The Associated Press Health & Science Department receives support from the Howard Hughes Medical Institute's Department of Science Education. The AP is solely responsible for all content.

Taking Care of Nature— what we can do!

EPA (Environmental Protection Authority) has tasked us with protecting our environment in their 2017 Notice

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If a **class 9.4** substance (**most synthetic Pyrethroids**) is applied to a plant, and it is in a form (i.e. spray) that non-target invertebrate pollinators are likely to be exposed to either during, or after, its application.

A person must ensure the application does not include any—

- (a) bees that are foraging; or
- (b) plants (including trees and weeds) that—
 - (i) are likely to be visited by non-target invertebrate pollinators; and
 - (ii) are either—
 - (A) in flower or part flower; or
 - (B) likely to flower within the period specified

This does not apply if the application plot is indoors, and the substance is contained within the facility.



**REPORT A
BUTTERFLY**

Get the family in-volved and report a sighting of any butter-flies and moths you see in New Zealand to the **Monarch Butterfly Trust**—great project for the kids this spring and summer holi-day—link below.

Monarch Butterfly New Zealand Trust

THE UNIVERSAL MONARCH

There are few things more beautiful in a garden than the Monarch Butterfly lazily flaunting its colours. And anyone can have them, all that is needed is one or more Swan plants in a sunny corner.

The Swan plant is so called in New Zealand, because the green seed pods shaped like a swan, the stem being the long neck. The more common name is Milkweed, the sap being milky-white. In some countries it is also called the cotton-weed because the inside of the ripe pod is not unlike a cotton ball, each seed being attached to a white feathery filament. This, presumably is to aid the dispersation of the seed by the wind. The plant is a native of America, but has been spread around the world.

It is not known how it reached NZ, though possibly some seeds were in straw or similar material used for packing goods imported from overseas, or it could have been brought in deliberately. It has not spread as a weed in NZ, and appears to exist only as a cultivated plant. When the Monarch arrived, its host plant was waiting for it.

The Monarch provides one of the romances of natural history. It spread from South America near the River Amazon, into North America, even as far as the Arctic snows; eastwards to Bermuda, and reached England, France and Spain, though it has never established itself in England. Others spread westwards across the Pacific, reaching Queensland in 1870, and Melbourne in 1872. The spread continued through the Malayan Archipelago, and may have met up with the eastward flight, thus encircling the world.

It is not known definitely when it reached NZ but there is talk of them being sighted in Auckland at the beginning of this century. Apparently, though, it is only comparatively recently that it has been established itself here. And new arrivals come across the Tasman each year.

Source <https://www.monarch.org.nz/species/monarchs/the-universal-monarch/>

Join the Trust <https://www.monarch.org.nz/join/>

Treatment Tips for a Senior Facility



Some of our senior clients are very tech savvy. But what they may not know is where to find correct information. As a result, much of the service can be taken up by correcting misinformation found by the residents online. Taking the time to communicate the correct information to the client is an integral part of providing top-notch service. The difficulty for you is repeating the information a hundred times to each of the residents in the facility. It is time consuming, it can hamper the efforts of the technician who is trying to get the job done and it is frustrating to the residents when they find out the information they were looking at was incorrect.

At most accounts, technicians focus on the client's immediate concern. What we may miss in our rush to move on to the next account is the human aspect of what we do. Nowhere is that more important than in retirement living facilities.

Be prepared to present a "green" option. It is common to have residents who have a variety of sensitivities to lots of different things. Even if the resident is dealing with an insect issue they may not want pesticides used in their home. Practice your IPM strategy and use insect monitors generously.

Always read your label if applying material. Be sure to adhere to any restrictions regarding occupancy during treatment. Also note the length of time the resident must be away while the material dries.

Show compassion toward each resident. Remember, every person living in the facility is your client.

Prep sheets should be kept short. Simple instructions are much more likely to be followed. In many cases, the resident will want to help, but may not be physically able to do so. Keeping your prep list simple will help to invest the resident in the process and encourage cooperation.

Communication is key! No matter what type of service you are providing, the property manager, the resident and the technician must always be on the same page.

It is always a good idea when dealing with a retirement facility that has a large number of residents onsite to offer an educational class on the topic of concern. The technician must stop the spread of misinformation as quickly as possible. The technician must be smart, knowledgeable, compassionate and patient. Time must be given so that he/she can address all resident questions and concerns.

When selling services at a retirement living facility, the pest manager also should be aware of the specific challenges involved in treating these homes. The service will take longer and it will cut into the production of the technician. But that does not mean the job is not profitable. Creating loyalty by building positive relationships with each tenant (as well as management) certainly will lead to a long and productive association.



NEWS BITE

Researchers have a bee in their bonnet about wasps' bad reputation

Wasps have long been reviled by humanity, and even made Charles Darwin question his faith because he could not see why a beneficent God would create such nefarious creatures.

But scientists at University College London (UCL) are trying to rehabilitate their image to prevent them from dying out.

Far from being the picnic-sullyng, sting-happy nuisances which ruin many a summer gathering, conservationists argue that the insects are crucial for pollination and should be given the same respect as bees.

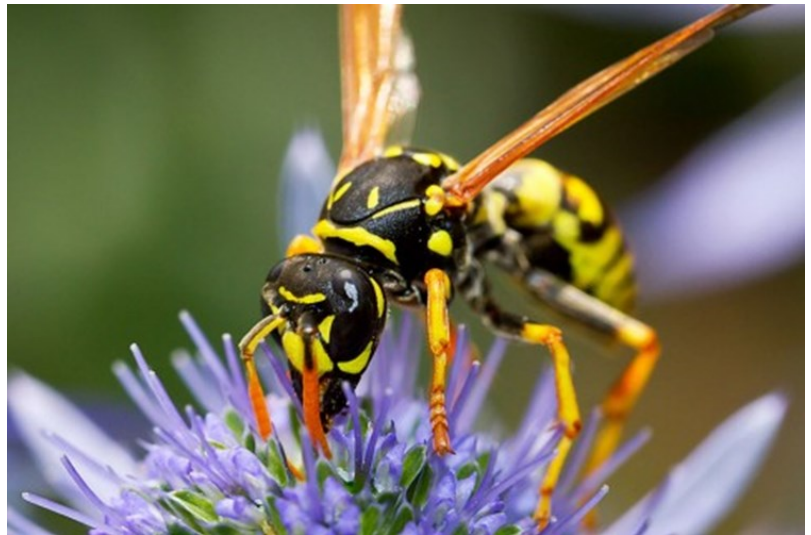
The team want people to live with wasp nests rather than calling in exterminators and plant "wasp friendly" gardens with plenty of shelter and long grass.

"It's clear we have a very different emotional connection to wasps than to bees - we have lived in harmony with bees for a very long time, domesticating some species, but human-wasp interactions are often unpleasant as they ruin picnics and nest in our homes," said Dr Seirian Sumner, one of the study's authors from UCL.

"Despite this, we need to actively overhaul the negative image of wasps to protect the ecological benefits they bring to our planet.

"They face a similar decline to bees and that is something the world can't afford."

Wasps, like bees, help to fertilise flowers and crops, and keeping down pests and insects that carry dis-



eases. But like bees, populations of wasps have collapsed due to pesticides and disease.

A survey of more than 700 people by UCL found that while bees were much-loved, wasps were universally despised. The top three words used to describe bees were "honey", "flowers" and "buzz", while for wasps people chose "sting", "annoying" and "pain".

The study also found that wasps were an unpopular choice of insect for research. Of 908 published scientific papers on the two species since 1980, 2.4 per cent were about wasps, while 97.6 per cent were about bees.

The dislike of wasps, the researchers said, was shaped by yellowjackets and hornets that were most likely to come into contact with humans. The majority of wasps - in excess of 75,000 species - are solitary. The UCL team said simple actions could increase wasp survival.

"Avoid killing them!" said Dr Alessandro Cini, co-author of the report, published in the journal *Ecological Entomology*. "If you have a nest, try to live with it rather than killing it. Kill the nest only if it is really a danger for you or other people.

"Do not use insecticides in your gardens; do not cut the grass too much. Old and hollow trees are good for wasps to build their nests in hidden and safe places. Global concern about the decline of pollinators has resulted in a phenomenal level of public interest in, and support of, bees. It would be fantastic if this could be mirrored for wasps."

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Q&A Experts share the real facts on 1080



"The case of 1080 use is well established and it works - where it is used our native species are recovering, where it is not they die, it really is that simple." Photo / File

NZ Herald

*Ahead of protests against the use of 1080 poison planned for this weekend, experts have again set out the hard science around the pest-busting tool. Toxicologist **Dr Belinda Cridge(BC)** and AgResearch chair in reproduction and genomics **Professor Neil Gemmell (NG)**, both of Otago University, and Auckland University conservation biologist Associate Professor **James Russell (JR)** fielded these questions from the NZ Science Media Centre.*

What are the persistent concerns people have about 1080?

BC: As I understand it, the ongoing concerns are around non-target species toxicity and water contamination.

Non-target species toxicity means that species that are not being targeted by the poison drop consume the poison and die. Common concerns centre on deaths concerning other native species, such as birds and fish, and hunted species such as deer and pigs. There is debate about how many of these deaths are directly caused by 1080 exposure as compared to other causes.

1080 is toxic to all species - as a toxicologist, actually everything is toxic if you are exposed to enough of it so 1080 isn't novel in this regard. However, birds and reptiles seem to have a degree of tolerance.

In contrast, mammals are very susceptible to 1080 toxicity and so in New Zealand where all mammals, except sea lions and a bat species, are introduced, 1080 is an important pest control tool.

The other concerns are around 1080 leaching into waterways and causing a range of effects to wildlife and humans.

Scientifically, the understanding is that the original 1080 compound is broken down quickly in the environment and that 1080 doesn't persist in the environment or water like many other toxins.

This makes it unlikely that it will accumulate in waterways and cause down-stream poisonings.

Have there been any new developments in research into its effects over recent years?

Article continues on next page

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BC: Scientific work has slowed down on 1080 as most recent research efforts are focused on finding alternatives.

Many people will be aware that New Zealand is fairly unique in its large-scale use of 1080, this is because we are in the privileged position of having few native mammals.

Therefore, we are uniquely placed to use 1080 in pest control.

Since 2014 only 400 articles on 1080 have been published worldwide in scientific journals, so around 100 per year.

Many of these are case studies of poisonings - 1080 is used in other countries, just not to the same scale - or studies that are referring to 1080 in comparison to other toxins.

We understand the mechanism of toxicity of 1080 fairly well and New Zealand scientists, in particular, have done a lot of work on the toxicity and environmental fate of this compound over many years.

Are there any areas of uncertainty that more research would be helpful to resolve?

BC: From my own interests, I would like to understand more about how 1080 is detoxified in the body as this may give us clues as to why dogs and kea and have a unique sensitivity to the compound.

But, this is because this is my area of expertise.

I think overall we actually have a very good handle on what the toxin does and at what doses.

Developments in targeted application using GPS have improved the overall safety of the compound as it is much less likely to be found in non-target areas.

These type of technological advances are much more important for the ongoing use of 1080 and to improve its overall use and safety.

With that said, I suspect the public will remain sceptical of 1080 due to its history of use in this country.

This creates many issues that are not able to be resolved by scientific evidence alone.

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Currently, aerially delivered 1080 is the optimal tool for mammalian predator pest control over most of New Zealand, costing \$12-16 per hectare, being relatively humane, and achieving conservation goals.

Looking to the future, scientists such as those working in the Biological Heritage National Science Challenge are investigating all three types of tools.

They are developing new lures to make trapping more efficient, new toxins which are more humane and only harm the targeted pest species, and investigating the potential of genetic editing as a form of biocontrol.

They are also considering the bioethics of predator control, so that the social, cultural and ethical issues of pest control are incorporated into decision making.

Gene editing is one of the novel pest control tools with most potential, as it could be a non-lethal tool that allows pest populations to breed themselves humanely to extinction.

However, such a novel tool would require New Zealanders accepting gene editing, and is yet to be even developed, let alone proven as efficient and cost-effective.

What kind of timeframe might there be for new pest or predator control tools to be used in New Zealand?

JR: New Zealand scientists, engineers and innovators are always making incremental improvements in pest control tools to achieve better biodiversity outcomes through more efficient, humane and cost-effective tools. These include modifying existing tools and in-

venting new variations of old tools.

This work is happening every day and government, private landowners and community groups are already using the improved tools across the country.

Entirely novel tools, particularly those in the area of biocontrol, require extensive laboratory development, testing and regulatory approval to demonstrate safety and efficacy before being trialled in the field.

Gene editing as a pest control tool is likely to be over a decade away from deployment in New Zealand, if it is even proven to be viable.

Our wildlife cannot wait until such new tools are developed and approved, and so until then, we must continue to use the most optimal tool we have, which is aerial 1080.

What genetic tools might be useful for future pest or predator control? What kind of timeframe might we expect for these to be in use?

NG: Pest control with current technologies over significant spatial scales is possible, but it's time-consuming and expensive.

The best tool we currently have for large-scale pest control is 1080. It is aerially deployed, with precision, at the lowest amounts required to keep pest species in check so that our native birds and other species stand some chance of survival, and it rapidly breaks down in the environment.

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The case of 1080 use is well established and it works – where it is used our native species are recovering, where it is not they die, it really is that simple.

While 1080 is the best tool we currently have in our ongoing battle with mammalian pests, we are constantly seeking improvements to our pest control toolkit.

As a nation, we are currently investigating approaches that are more humane, species-specific, and that provide persistent control across large areas without the ongoing cost of deployment.

Among this list of new tools, genetic control technologies are promising approaches that might help us meet that goal.

The most direct approaches currently being explored are species-specific toxins.

Essentially, we look for genetic or biochemical features unique to the species we wish to control so that we might identify toxins that will only work only on that species or its close relatives – think of it as a biochemical Achilles heel.

To date, there are promising "species-specific" toxins identified for stoats and rats.

However, it will likely take many years before such substances can be proven to be specific and approved for use in our environment.

If we are serious about Predator Free 2050 and wish genetic technologies to be part of the solution we need to step up the conversations, increase our investment, and start planning out what the workflow for this project would look like over the next decade plus.

If we start today we need months to plan, several years in the lab, and years for controlled field trials, before eventual deployment at landscape scales.

It will take massive effort and years to achieve eradication of possums, rats and stoats - recent models on some hypothetical, ideal, gene drives suggest 20 years from deployment to eradication.

This is the New Zealand version of the Space Race and we need commitment and resource aplenty if we are to achieve it. It can be done, but whether we have the resolve to resource this appropriately and see this through to completion remains uncertain.

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Waiheke Island set to become predator-free by 2025



Eliminating rats and stoats would make Waiheke Island world's largest urban safe haven. Photo / Michael Craig

Waiheke Island is set to become the world's largest predator-free urban island under a bold new \$11 million plan to rid the Hauraki Gulf Island of rats and stoats.

Millions of passengers visit the Auckland tourist destination each year and the head of Fullers ferry company says it will be extremely difficult to introduce biosecurity measures similar to those imposed on other pest-free islands which involve checking visitors' gear, ensuring food is in sealed bags and cleaning footwear.

Conservation Minister Eugenie Sage will today announce plans to make the island, which is already free of possums, free of other pests by 2025.

This would enable North Island kākā, kākārīki, kererū, tūī, korimako or bellbird, piwakawaka or fantail, tūturiwhatu or New Zealand dotterel, ōi or grey-faced petrel and kororā or little blue penguins to breed safely and increase in number on Waiheke, she said.

Successful eradication of stoats and rats from Waiheke would make it the world's largest and most populated island predator eradication project

The plan is not without its challenges, including how to impose biosecurity checks on 2 million visitors - returning residents as well as tourists - who travel to and from the island by ferry each year, plus those from thousands of recreational boats.

Waiheke Island, which covers 9200ha with a permanent

population of about 9000 residents, is a jewel in the Hauraki Gulf and named one of the world's best regions in Lonely Planet's Best in Travel 2016.

"Successful eradication of stoats and rats from Waiheke would make it the world's largest and most populated island predator eradication project," Sage said.

The first stage of the project is focused on removing stoats by traps, followed by a trial on rats to prove the methods will work before they are scaled up.

One environmentalist, who did not want to be named, questioned whether trapping could eradicate stoats and rats over such a large area. It would be better to trap predators in the urban west of the island and carry out an aerial poison drop in the rural east, said the environmentalist.

Sage said traps have been used to eradicate stoats on islands the size of Waiheke in Fiordland. Rat eradication had not occurred in urban centres like Waiheke, but a similar project was planned in the Orkney Islands in Scotland on a bigger island but nowhere near a major city like Auckland, she said.

Sage said a predator-free Waiheke will see the return of native birds from neighbouring predator-free islands.

"We are already starting to see this happen with the recent return of North Island kākā to Waiheke," she said in a statement.



Biosecurity measures for millions of ferry passengers travelling to and from Waiheke are still to be worked out.

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The project, Te Korowai o Waiheke: Towards Predator Free Waiheke, will be launched at Piritahi Marae on Waiheke today.

Auckland Council, Predator Free 2050 and Foundation North are providing the bulk of the \$10.9m funding for the project. Other funding, current services and in-kind support is coming from community groups, existing Department of Conservation and Auckland Council programmes and Waiheke landowners.

"The Waiheke project is a wonderful example of how agencies and the community are working together to reduce predators with the goal of freeing New Zealand of possums, rats and stoats," Sage said.

The project will not seek to deprive Waiheke residents of pets such as dogs and cats, despite their ability to kill native wildlife.

"It encourages residents to be responsible pet owners and wholeheartedly supports the organisations on the island

working in this area including Hauraki Gulf Forest & Bird and Waiheke Island Society for Care of Animals," Sage said.

Visitors to the island will also not notice any changes until the project reaches a point where the predator-free status needs to be protected.

"Most boaties support the Treasure Islands campaign, which is a joint initiative between DoC and Auckland Council to help protect conservation islands in the Hauraki Gulf. This campaign is well-known to the boating community and helps to ensure we all play our part to guard these special places.

"In terms of the ferry, the team will work with the council and operators when it gets to a point that measures are needed," Sage said.

Fullers chief executive Mike Horne said the ferry company is keen to be part of the predator-free solution, but it presents a few challenges that need to be worked out.

He said Fullers already undertakes full biosecurity measures on trips to Tiritiri Matangi and Rangitoto islands that involves checking visitors' gear for pests, ensuring food is in sealed plastic bags and cleaning footwear and clothing to remove soil and seeds.

Imposing those measures on Waiheke would be extremely difficult with 2 million passengers going back and forth to the island every year, most of whom are residents, he said.

Horne said there are many ways to reach the island and the hard part to control is recreational boating that requires education.

Spring Bird Guide

Birds are an important component of our natural environment. As predators, they feed on insects and other arthropods, fish, and countless undesirable animals. Most people see birds as adding beauty to our environment, in their looks, flight and song; thus, they are highly protected by public sentiment, laws and regulations.

Although their contributions are evident, birds can also be a hazard to our environment through:

- Roosting or nesting around human habitations.
- Carrying diseases or ectoparasites affecting man.
- Causing hazardous or unpleasant walking or working conditions.
- Contaminating foods.
- Displacing desirable birds.
- Feeding on crops, newly seeded lawns, sprouting buds, and plants.
- Colliding with aircraft.

It is therefore our obligation to educate the public and our paying customers on these hazards, and on the bird management programs we have available to reduce or eliminate these pest bird populations.

I am sure you will all find the following most beneficial when dealing with your customers.

House Sparrow



- Introduced 1860 now found in most habitats except heavy bush and alpine areas; prefers artificial habitats.
- Most common bird in many urban centres; not a true sparrow but belongs to the weaver finch family.
- Adult is approximately 150mm long, small, brown and chunky; male has a black bib under its beak in breeding season, smaller in winter, white cheeks, chestnut mantle around a grey crown and chestnut-coloured feathers on

upper wings; female and young have a plain, dingy-grey breast, greyish-white under parts distinct buff eye stripe.

- Feeds on insects, weeds and seeds of grains, but eats almost any available food.
- Can contaminate animal feed, cause considerable damage to crops, and aggressively drive other birds from their nesting sites and feeding grounds
- Droppings can deface buildings and nests can cause short-circuits and fires in electrical substations
- Populations may live and breed within buildings such as stores and warehouses, where they contaminate food products and other merchandise
- Not protected by law

European Starling



- Found across NZ in rural and urban areas. Introduced for pasture insect pest control in 1862; migrates from rural trees to warmer city buildings in winter
- Adult is approximately 200mm long, stocky and short-tailed with short legs
- Colour is seasonal; black with iridescent green-purple sheen and a yellow bill during breeding season spring and summer; heavily speckled with white and gold with a dark bill during winter (sexes similar) non-breeding birds spotted white with dark bill)
- Feeds on fruits, seeds, grain, insects, livestock feed, wild fruit and discarded food
- Very aggressive and drives native birds out of their territory
- Considered a nuisance due to nesting, eating and living habits; thousands overwhelm buildings and trees during the flocking phase
- Not protected by law

Article continues on next page

Rock Pigeon



- Most common urban bird pest; found worldwide in urban/suburban areas across New Zealand but does not migrate and is not afraid of people.
- Adult is approximately 350mm long with a stocky body, short legs and neck, a small head and reddish feet; colour varies between grey, white, tan and black.
- Feeds on grains, fruit, garbage, insects and hand-outs provided intentionally or unintentionally by people. In cities they scavenge for scraps.
- Prefers smooth, flat surfaces for resting and feeding; flocks and builds nests on structural ledges.
- 50 diseases and ectoparasites associated with the bird, its nest and acidic droppings.
- Not protected by law



Black Backed Gull

- This gull species is found along the NZ coast and parts of the interior
- Adult is 575 – 650mm long with a black back, yellow bill with a red spot near the tip, black wingtips, and white head and under parts.
- Juvenile is a mottled brown to grey
- Scavenges for fish, crustaceans, insects, rodents and discarded food at dumps, harbours and waste sites.
- Is a nuisance at piers, fields, airports, landfills and parking lots where it causes faecal contamination,

noise and aggressive behaviour, and roosts or nests on roofs.

- May attack people or cause a disturbance by squabbling over food or territory.
- Partially protected by law.

Mynah



- Introduced between 1870 and 1877 now numerous mainly found in the northern farmland, orchards, and suburban gardens. They rarely venture far into forests but can be common on the forest edge.
- Pairs of mynahs stay together year after year. In the breeding season they are strongly territorial. The nest is a cup of dry grass, twigs and leaves, usually in a hole in a tree, cliff, or building roof spaces and cavities
- They are very aggressive birds and will compete for nesting boxes which farmers put out to encourage starlings.
- Except for incubating females, mynahs spend the night in communal roosts, some of which may have 1,000 or more birds. From these roosts they disperse to their territorial feeding grounds each day.
- They are most often seen, however, in rowdy aggressive gangs, bullying other birds over available food supplies.
- Indian Mynas kill the chicks of other birds or destroy their eggs, or build their own nests on top and smother them.
- The Indian Myna poses a potential health risk to humans – from bird mites and faeces dust – due to its habits of closely associating with human activity, for example scavenging at outdoor cafes and eating areas.
- Not protected by law

Technical Hints - Know your NZ cockroaches

Cockroach (Golden) *Drymaplaneta heydeniana*

Kingdom: Animalia
Phylum: Arthropoda
Class: Insecta
Order: Blattodea
Family: Blattidae
Genus: *Drymaplaneta* Wood Runners
Species: *D. heydeniana*
Binomial name: *Drymaplaneta heydeniana*
Synonym: *Cutilia heydeniana*
Common name: Golden cockroach



Drymaplaneta heydeniana is a cockroach which is endemic to Western Australia and adventive in New Zealand. This species was first caught in Auckland in 1972 but was not recognised until 1999. It is distinctive with a pale margin extending the full length down either side and boarded by a thin dark band.



Juvenile

more than a membership
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