

# Flight



ISSUE 191

OCTOBER/NOVEMBER 2024



**The Great Matuku Muster  
Bird flu: NZ on alert  
DU's founding document**

## Insight

Let's ask the question, "Have we Ducks Unlimited (DU), as an organisation, really made a difference in wetland restoration in New Zealand?" The answer, in my view, is a categoric yes.

That difference started 50 years ago, simply with the formation of Ducks Unlimited NZ to stem the tide on wetland habitat loss and the alarming loss of native waterfowl species. This early recognition of these problems, one partly a consequence of the other, was the first difference we made. We were early advocates of the need for restoration!

My comments below cover wetland habitat loss and leave aside the difference made by the pioneering work of DU's captive waterfowl breeding programmes – these covered whio (blue duck) and pāteke (brown teal). DU's Project Gretel also provided nesting boxes for grey teal, an endangered import from Australia.

Back to wetland habitat loss. It was not until almost 30 years after DU's formation that the Department of Conservation (DOC) stated publicly that all Kiwis needed to be mobilised to tackle the enormous environmental degradation that had occurred since humans had arrived in New Zealand.

I recall in the early 2000s being a DUNZ representative at a gathering on a ridgeline in the Aorangi Forest Park in South Wairarapa, when the director-general of DOC first called for that mobilisation. Put simply, DOC had neither the human or cash resources to do the job alone.

The timing for us was opportune as we had been negotiating unsuccessfully with DOC for about two years for permission to restore the Wairio Wetland on the eastern shore of Lake Wairarapa.

Our offer was to use our members' expertise, cash and hard work, not the government's. With DOC's change in approach, we soon signed what was probably the first management agreement to restore a wetland ever signed by DOC!

Nearly 20 years on, biased though we are, we feel the Wairio Wetland is an example, for all to see, of what making an environmental difference looks like. And, it was not just DU folks that were involved as we mobilised other groups and local iwi to join us in this task.

However, restoration work is not without new challenges, the biggest in



**Jim Law planting trees at Palliser Ridge in July as part of the Tonganui Corridors Project, see story, p5.**

my view is a significant brake on that great idea of mobilising all Kiwis, ie myriad regulations that confront folks trying to make a difference.

For example, it took us two years and a fee of about \$3000 to get resource consent to site a bird viewing hide within the Wairio Wetland. Was that ever a box-tickers' delight. Nonetheless, we persevered and made a positive difference to the visitor experience at the wetland (but have vowed to never attempt it again!).

But has DU run its course? We have an ageing and declining membership. We seem to have an aversion to box-ticking, so have fewer projects to progress. Thus, we are now diverting some of our funds to help young master's students with scholarships to study ecological science and restoration technology at New Zealand universities.

I doubt we can reverse that ageing process nor increase membership so those students will have to be the ones who make a difference in years to come.

But while that plays out, we can still make a modest difference by planting a tree or two. As we all know, "It is a great man (or woman) who plants a tree, knowing that they will never sit in its shade."

**Jim Law**  
DUNZ Director

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**Cover:** A bittern hunting at Foxton Beach.  
*Photo Imogen Warren.*

**Back:** A female paradise shelduck, pūtangitangi, Auckland.  
*Photo Stefan Marks. CC BY-NC-ND 2.0*

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**Editor:** Alison Murray

✉ [flightdunz@gmail.com](mailto:flightdunz@gmail.com)

☎ 021 124 8095

🏠 28 Ferry Road, Clive, Hastings 4102

**Printer:** Lamb-Peters Print, 2477 State Highway 2, Greytown 5794

### Editorial:

Contributions, including photographs and letters to the editor, are welcomed. Please send these to the editor before the next deadline, 14 January 2025, in time for the February / March issue.

The editor reserves the right to edit articles for content, length, grammar, style, and readability.



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Maps from the Love Bittern Project, showing where bitterns have been recorded in the nine months ending March 2024.

# DU joins Great Matuku Muster

Ducks Unlimited NZ is joining the Great Matuku Muster, which promises to deliver the greatest amount of information to date about New Zealand's bittern population and distribution.

The Australasian bittern, matuku-hūrepo, is rated as Threatened – Nationally Critical and is a highly mobile species which can travel hundreds of kilometres, dropping into wetlands to rest and feed along the way. This makes counting them challenging.

The best opportunity to estimate the population is to count the males while they are booming in spring. The males boom in strings or sequences of 1 to 10 booms at a time; a series of booms are known as a boom chain.

This year, the muster, organised by the Love Bittern Project's Wendy Ambury and the Bittern Conservation Trust, supported by DOC, has rallied people from around New Zealand to count the number of males 'booming' to females in springtime.

The muster aims to record bitterns on the same day(s) nationwide to avoid double counting, and it is hoped that this will provide the best estimate

of the bitterns' population and their distribution ever recorded in New Zealand.

Teams and individuals will co-ordinate monitoring to record any observations and males booming 30 minutes before and after sunset for three days each month of spring.

Bitterns are low-light predators and are most likely to be out and about around dawn and twilight.

Saturday, September 14, was the first muster's monitoring date, and October 19 is the second and has been nominated as the most important date. This is when DU will have at least two teams at Wairio Wetland in locations identified as likely bittern territory. November 16 will be the third monitoring date.

In Northland, the bittern monitoring project (Matuku Mahi) involving Kiwi Coast, the QEII National Trust, Northland Fish & Game Council, DOC, Northland Regional Council and partners, surveyed bitterns during breeding season last year.

DOC estimates there are fewer than 1000 of the wetland birds remaining in New Zealand and their numbers

continue to decline due to habitat loss and predation.

They forage in drains, flooded pasture and estuarine areas and feed on eels, fish, frogs, small birds, mice, lizards, kōura, molluscs and insects.

"These birds are extremely secretive, and they also travel widely with a network of foraging and roosting

Continued next page

## Christchurch for 2024 conference

Although planning is still in its initial stages, next year's DUNZ conference and AGM is set to be held in Christchurch in late July, early August.

At this stage, it will include a trip to the Isaac Conservation Trust's Peacock Springs near Christchurch airport, barring an outbreak of the deadly avian flu. If this occurred, Peacock Springs would go into lockdown and no visitors would be allowed.



A bittern goes hunting at Foxton Beach.  
Photo Imogen Warren.  
Below left: In flight above Lake Ellesmere.  
Photo Peter Langlands.

## Councils get in behind bitterns

For a shy, retiring bird, the Australasian bittern has attracted plenty of publicity this spring, with five regional councils and many conservation groups endorsing it for Forest & Bird's Bird of the Year competition.

Greater Wellington, Northland, Waikato and Taranaki Regional Councils and Environment Canterbury all declared they were backing the bittern for their bird of the year.

The 2024 winner was announced on September 16, and though the bittern didn't make the top 10, it recorded its best result since the competition began in 2005, coming in at No 12, with 1411 first preference votes. Its previous best result in recent years was 19th, in 2022.

The hoiho, yellow-eyed penguin, was crowned the champion and is now a two-time winner, after it won in 2019.

### from previous page

habitats primarily in and around wetlands," said Craig Deal, from Northland Fish & Game Council.

"That makes them hard to find but males are vocal during the breeding season and their booming mating call is distinctive."

Last year, between September and November, acoustic recording devices were deployed in likely habitat around the Northland region and bitterns were detected at 44 of the 78 sites surveyed.

"It was great to see bitterns had made four Fish & Game owned or managed

wetlands their home.

"The Fish & Game wetlands are constructed wetlands, made and maintained primarily for game bird habitat and hunter access with funding from the sale of hunting and fishing licences."

Kiwi Coast spokesperson Ngaire Sullivan said the project aligns with similar national monitoring efforts being done by DOC and Love Bittern Trust.

"We're helping landowners and communities find out where their bittern are foraging and roosting so we can help bring them back from the brink of extinction, she said.

Northland's 2023 survey report can be found online at [kiwicoast.org.nz](http://kiwicoast.org.nz).

The information gained in this year's muster will be used to establish long-term monitoring sites and support management efforts at key areas of bittern habitat.



The 2024 champion.



## IN BRIEF

### Two hats for Jack

The Chef's Table, co-owned by Ducks Unlimited Vice-President Dan Steele and chef Jack Cashmore, had won a national *Cuisine* Good Food Award for best specialty restaurant in New Zealand.

The 10-table restaurant, at the highest point of Dan's Blue Duck Station in the Ruapehu District, was also awarded two hats at the prestigious awards.

Three is *Cuisine's* highest accolade, with The Grove, Ahi, Cocoro (Auckland), Amisfield (Queenstown) and Pacifica (Hawke's Bay) receiving top marks this year.

### Christmas is coming

Matuku Link has merchandise that would be perfect for Christmas gifts focused on New Zealand birdlife.

Its native dragonfly window stickers mean birds are far less likely to fly into

windows when they spot the 20cm-long shape of a dragonfly in their path.

Featuring the giant bush dragonfly, New Zealand's largest and one of the oldest species in the world, these stickers are a simple yet effective tool to prevent bird collisions.

Each set includes seven different native dragonfly designs. Check out Matuku Link's store at <https://matukulink.org.nz/shop>.

Best of all, every purchase from the website supports Matuku Link's conservation work in the Te Henga wetland.

### Tales from the bush

The best place to write a book about being a bushman is in the bush, says Sam Gibson, who was guest speaker at DUNZ's conference in 2020.

Sam has just published a book, *Sam the Trap Man: Cracking Yarns and Tall Tales*

from the Bush, which "represents what we do here on the East Coast".

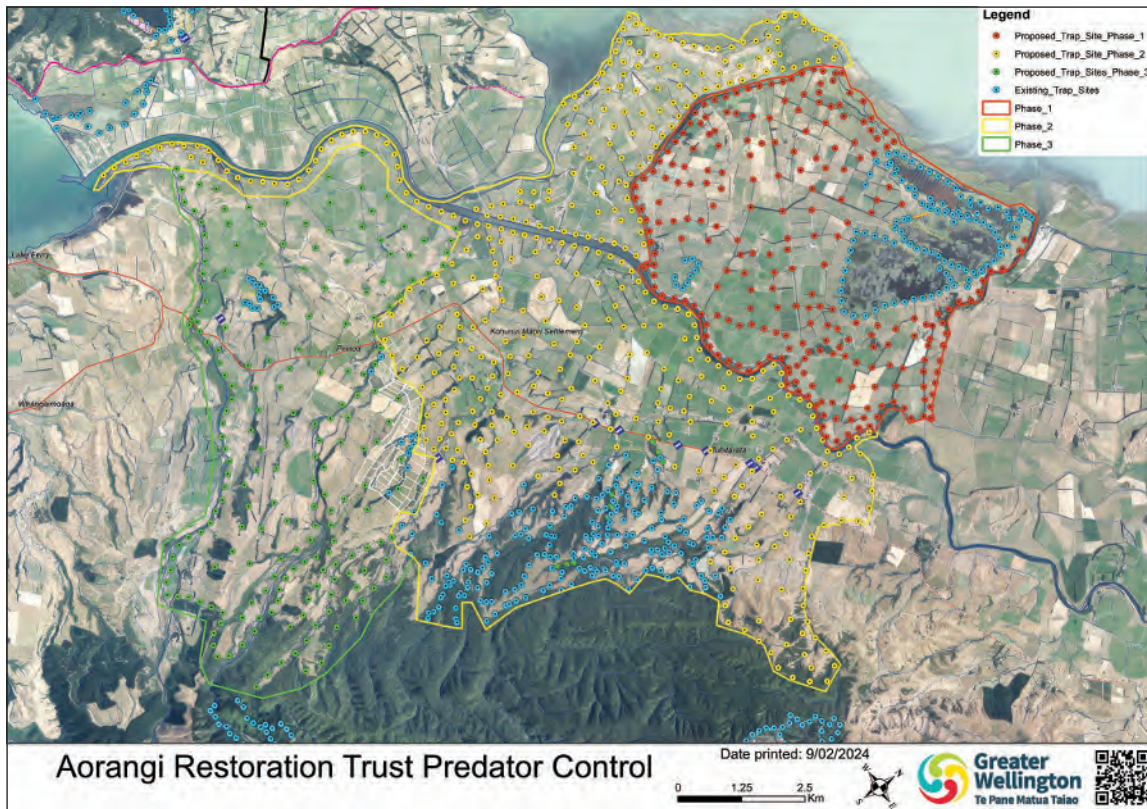
"The book is about understanding ecosystems and learning about the culture I was raised around; it's about being a bushman," Sam told the *Gisborne Herald*.

"I have plenty of adventures I have wanted to put down to paper and, naturally, you can't tell these adventures without telling the stories of the plants, birds and the work we do in the conservation space."

It follows Gibson's early adventures in Te Urewera and Fiordland working for the Department of Conservation, plus his journey back home to Tairāwhiti.

"I have always found myself more comfortable in the bush. It's my place where I can go to get away from town and things like that."

The book was launched in August at the Gisborne Hunting and Fishing store.



A map showing the boundaries of the trapping operation. The colours show the three annual phases for setting out of traps: orange for Year 1, yellow Year 2 and green Year 3.

## Trapping project benefits Wairio wildlife

A trapping programme that will benefit Wairio Wetland’s wildlife has received the nod for further funding from the Department of Conservation.

The Aorangi to Wairarapa Moana Landscape Predator Control operation by the Aorangi Restoration Trust aims to improve the survival of Australasian bittern/matuku-hūrepo chicks around Wairarapa Moana, including Boggy Pond, Matthews Lagoon and Wairio, and outcomes for long-tailed bats/pekapeka in and around Aorangi Forest Park.

Other threatened species that will benefit include spotless crane/pūweto, long-tailed cuckoo/koekoeā, banded dotterel/pohowera and the Caspian tern/taranui.

The trapping programme will use mostly BT250s and Flipping Timmys to target mustelids, possums, cats and rats over 15,500 hectares of mainly farmland.

The Aorangi trapping runs alongside the Tonganui Corridors Project, sometimes over common terrain.

The corridors project aims to reconnect the public conservation land of the Aorangi and Remutaka forests by planting trees to form permanent native forest corridors across the south Wairarapa valley.

As part of this, about 4500 trees were planted on July 29 at DU Director Jim Law’s Palliser Ridge property. Jim is also a trustee of the Aorangi Restoration Trust.

In the past three years, about 30,000 trees have been planted at Palliser Ridge, Jim says.

## QEII covenants safeguard ecological treasures

A QEII covenant, established by the Queen Elizabeth II National Trust, is a legal agreement between a landowner and the trust to protect and preserve areas of natural and cultural heritage on private land in New Zealand.

These covenants are voluntary and designed to safeguard significant ecological and historical sites, ensuring they are maintained for future generations.

Set up in 1977, Queen Elizabeth II National Trust (QEII) is an independent charitable trust that partners with private landowners to protect natural and cultural heritage sites on their land with covenants.

Since 1977, more than 5023 covenants have been registered, covering a diverse range of landscapes across New Zealand.

### Key features of a QEII covenant:

- **Permanence:** Covenants are typically perpetual, binding not only the current landowner but also future owners to the terms of the agreement, ensuring long-term protection of the land.
- **Flexibility:** Each covenant is tailored to suit the specific characteristics and needs of the property. This flexibility allows for various land management practices that promote conservation while accommodating

the landowner’s use of the property.

- **Support:** The trust provides ongoing support and guidance to covenants, including assistance with pest and weed control, fencing, and ecological restoration projects.
- **Protection:** These covenants help protect diverse ecosystems, habitats and landscapes. They are crucial in conserving native flora and fauna, as well as historical and archaeological sites.

Several DU members hold covenants on wetland areas on their properties, giving them confidence that their work developing and/or restoring them will be treasured by future generations.

# NZ on high alert for bird flu

New Zealand is preparing for the arrival of H5N1 avian flu as the risk to its wildlife and poultry grows with the arrival of spring and birds migrating from the northern hemisphere.

Hundreds of millions of birds have been destroyed around the globe due to the highly pathogenic strains of avian influenza, mostly the H5 and H7 strains, RNZ reports.

New Zealand has never had a case of highly pathogenic avian influenza (HPAI), but the Ministry for Primary Industries has been monitoring its movement around the world for more than 20 years, chief veterinary officer Dr Mary van Andel told Federated Farmers in a podcast.

“New Zealand’s geographical isolation has protected us from HPAI in the past, but we can’t rely on it forever. Given the unpredictable journey of wild birds who can travel with HPAI, it may still arrive here.”

The ministry was developing a response plan which will cover cover surveillance, biosecurity, wild bird populations and human health alongside the Department of Conservation, Ministry of Health, Te Whatu Ora and key sector groups, she said.

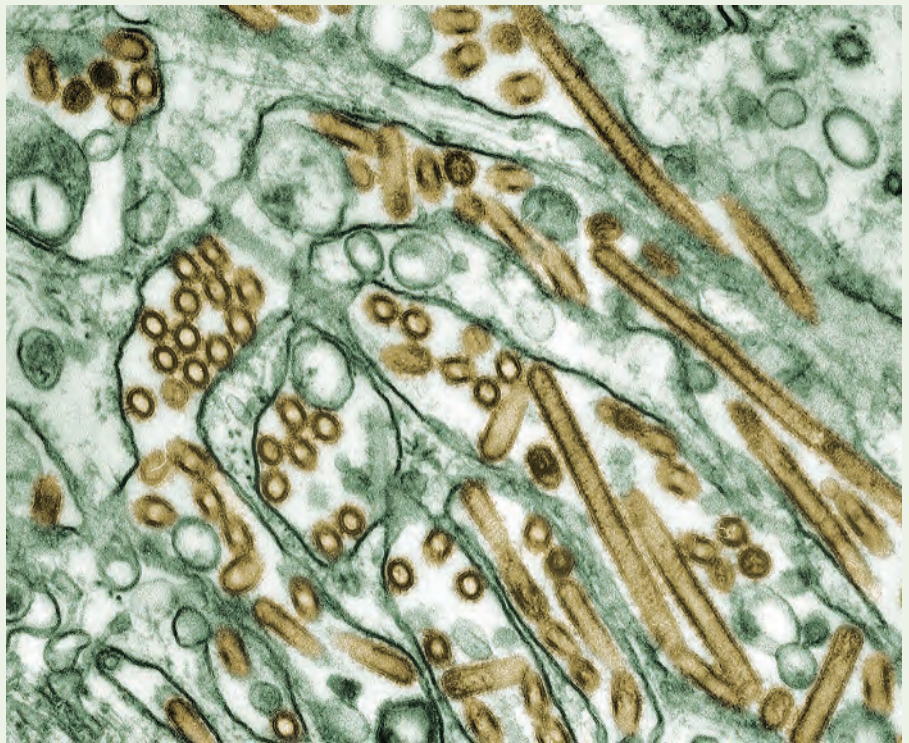
The Dunedin Wildlife Hospital is monitoring migratory wild birds and shorebirds and sampling for the virus, and MPI is working with Fish & Game to conduct summer surveillance programmes for waterfowl.

Meanwhile, the Department of Conservation has vaccinated 50 native birds, including takahē, kākāpō, tūturuatu, kakī and kākārīki, in a trial to see if it is effective against bird flu. The birds are all part of DOC’s breeding programmes.

Jemma Geoghegan, an evolutionary virologist at the University of Otago, told Newsroom’s Marc Daalder the first sign of the arrival of lethal avian flu in New Zealand would likely be a wave of mysterious deaths among native birds.

In February bird flu was detected in Antarctica, then Australia where it spread to poultry farms a few months later, RNZ said. In June, more than 1 million birds were killed in Victoria to try to halt the spread of the virus.

In July, ABC News reported that nearly 10 per cent of Australia’s egg laying hens had been affected by the outbreak. McDonald’s stopped serving breakfast early to conserve its egg supply and



A digitally coloured microscopic image of H5N1 virus particles (seen in gold), grown in epithelial cells (green). Photo Cynthia Goldsmith: CDC, courtesy of Cynthia Goldsmith; Jacqueline Katz; Sherif R. Zaki

supermarkets imposed restrictions on how many cartons of eggs could be bought in one transaction.

Bird flu has spread from birds to at least 26 species of mammals, according to Harvard Health Publishing. Among them are mice, bears, foxes, dolphins, otters, alpacas, goats and hedgehogs.

In July, the Veterinary Medical Association in Colorado reported six domestic cats had been diagnosed with the virus, and elsewhere, 12 cats died in Poland and nearly 40 in South Korea. Their deaths were traced back to raw pet food that contained infected chicken and duck.

Compared with bird flu’s spread in animals, few people have been infected so far, and the risk to human health is still classified as low.

In 2020, there were 13 human cases of bird flu reported – mostly in China, with one each in Russia, Hong Kong and Senegal, according to the US Centers for Disease Control, RNZ said.

The following year, 2021, was the deadliest for humans. There were 62 human cases reported in China, 19 of whom died, World Health Organisation figures show. All but one had the H5N6 strain.

Australia reported its first human case of the H5N1 strain in May – a child who had been on holiday in India, RNZ

said, and a second person, a poultry worker, has also contracted the virus.

According to the World Health Organisation, there have not yet been any cases of H5N1 that have been transferred from person to person, however, the virus is “constantly evolving” and could potentially become transmissible that way.

The strain of influenza virus detected in the Australian who returned from India is H5N1, but a different variant from the one behind a global explosion of cases in birds and now some mammals in recent years.

The egg farm detections in Victoria are of the H7N3 strain, unconnected to the global outbreak.

“That was kind of like a locally adapted [virus]. That happens sometimes – there’s mutations in the influenza virus that cause disease and quite a limited outbreak. It’s not related to the one that’s running around the world,” Dr Geoghegan said.

In other words, there’s no reason to think the H7N3 outbreak could have public health ramifications. The H5N1 virus, meanwhile, has historically struggled to transmit between mammals since its discovery in the 1990s, so the human case in

Continued next page

Australia poses little public health risk, Newsroom said.

The concern for New Zealand is whether that might change, particularly now there is strong evidence the virus has adapted to spread between dairy cattle in the United States.

Since 2020, partially unnoticed by the public due to the high profile of the Covid-19 pandemic, a new variant of H5N1 has been tearing through wild bird populations.

There are two developments that raise the risk for New Zealand. The first is the dairy cattle outbreak in the United States.

“Preliminary genomic evidence from the outbreak among the cattle herds in the US suggests that this virus now appears to be transmitting from cow to cow and that’s really concerning,” Dr Geoghegan said.

“The virus has acquired a genetic mutation to allow more efficient transmission between mammals and this is actually the first evidence of mammalian transmission of this virus. That is something that we haven’t seen before, in the 30-year history of this virus.

“The fact that whole genomes of this virus have been pulled from store-bought milk [in the US] does suggest this virus can survive in a range of environments. Not that it would be infectious in milk but that it’s there is something that’s pretty worrying.”

The second concerning development is the arrival of the global H5N1 outbreak in Antarctica. While this doesn’t pose a human health risk, the virus could still deal serious damage to New Zealand’s native bird populations as well as, potentially, agricultural livestock.

The virus is already highly mobile and the populations it has been found in – including penguins, seals and gull-like arctic skuas – are common across Antarctica.

“Birds disperse quite far across Antarctica and we know they come up to the sub-Antarctic islands as well.”

That said, the detection of the virus in bird populations in Antarctica could mean there is too much focus on that.

Dr Geoghegan says it’s just as possible the virus is running rampant in the northern hemisphere where birds have spent the winter before returning to New Zealand in spring.

“Our northern hemisphere flyway sites, through Southeast Asia and so on, we don’t have too much data about wild bird populations there.”



## Report avian influenza

**Avian influenza – also known as bird flu – is a contagious viral disease that can affect both domestic and wild birds. High pathogenicity avian influenza (HPAI) causes severe clinical signs and high mortality rates in birds.**

**New Zealand has never had a case of HPAI. If HPAI arrived here, it could severely impact a variety of bird species, including our native birds.**

### Clinical signs

The most obvious sign of HPAI is rapid mortality among a group of birds. Other signs vary, depending on the affected bird species:

#### In wild birds:

- lethargy or a reluctance to move, droopy head, inability to fly or lack of co-ordination
- coughing, panting, and nasal secretions
- severe diarrhoea.

#### In poultry:

- unusual or unexpected drop in egg production
- reduced appetite
- darkened and/or swollen comb/wattle
- lethargy
- severe diarrhoea.

### Protect yourself and prevent spread – do not touch birds with suspected HPAI



### Practice good biosecurity

To help prevent the spread of disease, always practice good biosecurity and hygiene when dealing with birds in your everyday work.

- Keep sick and healthy birds separate.
- Wear disposable gloves and wash your hands after handling wild birds or poultry.
- Clean footwear and change clothes after contact with wild birds or poultry.



**Te Kāwanatanga o Aotearoa**  
New Zealand Government

### Report it

**If three or more birds in a group are sick or dead, report it immediately to the Exotic Pest and Disease Hotline: 0800 80 99 66.**

This is operated 24 hours, 7 days a week.

Your call will be answered by our experienced call centre staff, who will take some details from you. One of our specialist biosecurity investigators will then assess the information and contact you.

Ensure you wait for instructions from one of our investigators before handling any sick or dead birds.

For backyard poultry that are unwell or dying, you should first contact your veterinarian to rule out more common diseases.

Provide as much detail to Biosecurity New Zealand as you can, including:

- a GPS reading or other precise location information
- photographs and/or videos of sick and dead birds
- species identity and estimate of numbers affected (note how many birds are sick or freshly dead)
- an estimate of the total number of live birds present.

Read more here: [www.mpi.govt.nz/HPAI](http://www.mpi.govt.nz/HPAI)

**Report suspected HPAI**  
**0800 80 99 66**



Photo: DOC; photographer Rod Morris

August 2024

When Newsroom reported on the state of the H5N1 outbreak and New Zealand’s readiness for it last year, MPI said the virus was unlikely to arrive on the wings of a migratory wild bird.

“We are isolated from other land masses, do not have migratory waterfowl pathways and have strong border biosecurity,” it said at the time.

“A variety of migratory shorebirds and seabirds travel a long distance to return to New Zealand each spring, but due to the high mortality of HPAI viruses like H5N1, the risk for live infected species making the journey to arrive here is considered low.”

Now, Dr Geoghegan isn’t so sure.

“I don’t think that statement is true any more because the virus has changed. That was kind of the case then, but the virus has evolved and we’ve seen how the genetic changes in the virus have now allowed the virus to massively expand its host range.

“It can affect such a wide variety of birds, not necessarily causing severe disease,” she told Newsroom.

That’s why Dr Geoghegan is working with Te Niwha, the infectious diseases research platform hosted by Otago University and ESR, to sample birds throughout the country.

Hundreds of samples from the sub-Antarctic islands and the North Island flyway sites where migratory birds arrive from the northern hemisphere have been processed by Dr Geoghegan and her team so far.

“We’re trying to understand viral transmission among birds generally, so that we might be able to model how a new virus like highly pathogenic flu could be transmitted into the mainland and around as well,” she said.

“The first signs of the disease in New Zealand is probably going to be a bunch of dead birds, to be honest,” she told Newsroom.



# A wise head on all things wet and wild

After 57 years out in the wild, John Cheyne has retired as a trustee for the NZ Game Bird Habitat Trust. **Maggie Tait**, of Fish & Game, reports.

**One of New Zealand's** wisest and most trusted voices on wetland management, John started his career in the New Zealand Wildlife Service as a young man in 1967 working with threatened bird species and waterfowl and the wetlands they needed to survive.

Twenty years later the Department of Conservation was formed and John became Hawke's Bay's first DOC regional manager.

He retired from DOC in 2000 and was employed by Fish & Game Hawke's Bay as a fresh water biodiversity officer for about five years.

At this point he established a small consultancy business called Wetland Works based in Hawke's Bay but working right across the North Island.

This work involved wetland bird surveys and providing advice on wetland bird habitat enhancement. A significant amount of this work was focused on the endangered bittern and secretive wetland birds like spotless and marsh crane in addition to the more common waterfowl species.

John Cheyne (left) with GBHT chair Andy Tannock at Takitakitōa Wetland, Otago.

John was appointed to the NZ Game Bird Habitat Trust in 2010 as a Ducks Unlimited NZ representative then as a DOC representative until his retirement earlier this year.

"I'm 75 now so it's time for me to move on and for someone else to take my place," he says.

[John remains a DU Director and DU retains a presence on the trust with a permanent DU representative. Fellow DU Director Neil Candy is the current appointee.]

"People appointed to the trust have a significant amount of knowledge and practical wetland management experience amongst themselves, and together with Fish & Game staff and Ducks Unlimited members, are an invaluable source of hands-on knowledge and expertise when it comes to the creation, enhancement and management of wetland habitats for open water bird species and wetland game birds in particular," John says.

"There will be no noticeable gap in the Game Bird Habitat Trust with my retirement as there are so many competent people on the trust."

Reflecting on his years of conservation work – for which he was made a member of the New Zealand Order of Merit in 2021, John talks about work ranging from building wetlands with a digger to establishing a national threatened species dog programme to help locate threatened species such as kākāpō and kiwi for relocation to

predator-free sites and general research purposes.

"It's been an absolute pleasure working with wetlands, farmers, landowners, and staff at Fish & Game, DOC and the Wildlife Service. If it wasn't for those organisations and other statutory agencies, wetlands would be in a sorer state still than they are."

He reckons that over the years he's worked on about 150 wetlands, both large and small, in Hawke's Bay, Manawatu, Wairarapa, Waikato, Northland, Southland and Otago.

"I've been very lucky to have had the opportunity to work on the number, size and diversity of wetlands that I have."

He's seen many changes, good and bad. He highlights the need for practical experience to be more widely provided for than it has been in some organisations in more recent years, and sees time in the field as the tertiary equivalent of a university degree as far as developing the hands-on skills needed to develop and maintain productive wetlands.

He is concerned that current wetland protection measures are under threat and hopes the importance of wetlands becomes more widely appreciated.

"Wetlands have multiple values, not just for birds, but for fish species, recreation, flood control and water quality enhancement to name just a few.





## Court of Appeal rules on wetland case

**In August** the Court of Appeal released its decision in a Kāpiti Coast environmental damage case that Greater Wellington Regional Council began investigating in 2019.

The case related to works on a property in Paraparaumu in the Nikau Lakes subdivision.

The court decided to re-sentence Julie Crosbie and Adrian Page itself rather than refer the case back to the District Court, which would prolong the litigation.

The District Court had sentenced Page to three months' imprisonment for 35 offences under the Resource Management Act 1991. Crosbie, as the owner of the land, had been fined \$118,742.

In the Court of Appeal, 29 convictions were set aside in relation to activities in areas alleged to be wetlands.

Six convictions remained unchallenged (or not substantively challenged) relating to a track subsiding into a stream, sediment in the bed of a river or where it could enter water, and contravention of an Environment Court Enforcement Order relating to livestock grazing in an effluent disposal field.

With the six charges of environmental damage standing, the Court of Appeal quashed Page's sentence of imprisonment, but noted that it would have imposed a sentence of three months' home detention had Page not already served the sentence of imprisonment. Crosbie's fine of \$118,742 was reduced to \$57,000.

This case marked the first time the application of the Clarkson method for identifying wetlands had been tested by the appellate courts in a criminal prosecution.

The Court of Appeal found that in this case further evidence of wetland soils (hydric or peat soils), wetland hydrology and wetland animal evidence was required to prove the presence of natural wetlands beyond reasonable doubt.

GWRC said the court judgment provided it with clear direction that wetland identification would sometimes need to be strengthened with pedological and hydrological evidence, as well as evidence that the area was able to support wetlands animals.

**“Wetlands serve multiple functions and we need these values to be better understood and wetlands to be more widely created, restored and enhanced.”**

— John Cheyne

“Wetlands serve multiple functions and we need these values to be better understood and wetlands to be more widely created, restored and enhanced.”

John says increasing numbers of landowners are becoming more environmentally conscious and this is encouraging.

The day we spoke with him he had spent the morning looking at a wetland project with a member of the Hawke's Bay Fish & Game team.

“It was inspiring to hear the landowner talk not only of the wetland they were developing but how they manage their land more generally – protecting their native bush, controlling predators and undertaking ongoing planting and maintenance programmes.

“The family will not only get satisfaction from doing this and enjoying the environmental outcomes it generates, but in the case of the wetland they're developing will enjoy the additional benefit of being able to hunt waterfowl over it.”

John commented that larger and more ambitious wetland and environmental programmes can take considerable time to implement and deliver their full potential, but for some landowners this can be rewarding in itself, particularly when the programme becomes an

ongoing and multi-generational exercise.

His top tips for someone seeking to create or enhance a wetland are to seek advice from Fish & Game or other qualified and experienced people who in addition to providing practical support can point them in the direction of funding opportunities.

John lives in Waipukurau with wife Gail and they have a cabin close to Lake Whatumā where he enjoys kayaking and bird watching. They have planted the property for the local tui and wax-eys/tauhou to enjoy.

“I'm sitting on the deck, the sun is beaming and I'm watching the birds feeding.

“I have worked with some of the rarest birds, like bittern and kākāpō, but I get a great kick out of the more common native birds and watching their behaviour and interactions.”

He and Gail have three children and four grandchildren between them.

Gail has been hands-on, particularly over the past 12 years, helping with wetland bird surveys and now they are enjoying travelling New Zealand and visiting special places like Fiordland to see the wildlife and scenery. John is looking forward to more time out on the water for fun rather than work.

“I'll do more of what I'm doing now, I'm a keen trout fisherman and Hawke's Bay has great braided trout rivers which also support a large number of birds like banded dotterel and pied stilt.

“Wherever I go and whatever I do, I like observing the birds and see what's going on.”

Now he's sitting in the sun with the lake 500 metres away watching the birds and reflecting on the joys of a long and rewarding career in which wetlands have played a major part.

*In 1974 DU's inaugural board created a foundation document that has guided the organisation through 50 years.*

# Board lays down strong foundations

## Rules of Ducks Unlimited (N.Z.) Incorporated

### Name

1.01 The name of the Association shall be 'Ducks Unlimited (N.Z.) Incorporated' hereinafter referred to as 'The Association'.

1.02 Founded in May 1974 by J. Worth in association with Messrs I.H. Pirani, P.B.C. Pirani, D.G. Bell, D. Main, T.A. Voss and W. Houtman.

### Objects

2.01 The objects for which the Association is established are:

(a) the acquisition, development and management of wetlands and water reticulation for waterfowl

(b) to establish areas for the display, propagation and acclimatisation of native and exotic waterfowl

(c) the preservation of associated wetland birdlife

(d) to liaise with appropriate government departments, local bodies and conservation and acclimatisation societies

(e) to invest or use the funds of the Association in such investments or assets to carry out the objects of the Association and in the payment of the costs and expenses of the Association including the employment of officers agents and servants as shall appear expedient

(f) to do all such lawful acts and things as are incidental or conducive to the attainment of the above mentioned objects.

### Board of Directors

3.01 The affairs of the Association shall be managed by a board of up to twelve (12) directors.

3.02 The full board of directors shall consist of up to eight permanently appointed directors and up to four directors elected annually by the full and life members of the association present at the annual general meeting.

3.03 Permanent directors shall sit on the board until such times as they shall resign, or be dismissed by a majority vote of 80% of the total board members.

3.04 The President shall be a director elected to the office by the board for a period of three years.

3.05 The Vice-president shall be a director elected to the office by the board for a period of three years.

3.06 The Secretary may be either a salaried servant of the Association appointed by the board or he may be a director elected to the office by the board for a period of three years.

3.07 The Treasurer may be either a salaried servant of the Association appointed by the board or he may be a director elected to the office by the board for a period of three years.

3.08 The offices of Secretary and Treasurer may be held concurrently by the same person who shall be designated Secretary/Treasurer.

3.09 The board shall fill vacancies for the offices of President, Vice-president, Secretary and Treasurer as such vacancies occur.

3.10 On the retirement, or resignation, of a permanent director, the total board will nominate a replacement director, whose appointment will be permanent after it has been ratified at the next annual general meeting by the full and life members present. Should such nomination not be ratified at the annual general meeting further nominations will be made by the full and life members present.

### Membership

4.01 There shall be six types of membership:

Full members; Life members; Supporter members; Honorary members; Junior members; Trade members.

4.02 Full membership may be granted to any individual who wishes to support the objects of the Association, has paid the appropriate subscription and, should he so desire, do at least one day's work per year for the Association, if called upon. Full members are entitled to a copy of the Annual Report and Balance Sheet, a copy of the DU newsletter, and a vote at the Annual General Meeting.

4.03 Life membership may be granted to any individual who wishes to support the objects of the Association, has paid the Life membership subscription and, should he so desire, do at least one day's work per year for the Association, if called upon. A Life member shall have the same rights and privileges as a Full member.

4.04 Supporter membership may be granted to any individual, association, educational establishment, and the like, who desire to support the objects of the Association and have paid the appropriate subscription. Supporter members are entitled to a copy of the DU newsletter, a copy of the Annual Report and Balance Sheet, but have no voting powers.

4.05 Honorary membership may be granted to individuals who the Board may decide it wishes to honour. The Board will decide the duration of honorary membership. An Honorary member shall be entitled to the same rights and privileges as a Full member.

4.06 Junior membership may be granted to any individual under the age of sixteen years who desires to support the objects of the Association and has paid the appropriate subscription. A Junior member shall be entitled to the same rights and privileges as a Supporter member.

4.07 Trade membership may be granted to any commercial organisation which desires to support the objects of the Association and has paid the appropriate subscription. A list of Trade members will be published once per year in the DU newsletter. A Trade member shall have the same rights and privileges as a Supporter member and will also be given special advertising rates when advertising in the newsletter.

4.08 Any member of the Association may resign by giving one month's notice in writing to the Secretary of his intention so to do and upon paying all subscriptions due to the date of expiry of such notice.

4.09 The membership of any person may be suspended or determined at any time upon a resolution of the Board of Management after that member has been given the opportunity to appear before the Board and to hear such reasons for suspension or determination.

### Subscriptions

5.01 Subscription rates shall be determined from time to time by the Board and in so doing the Board shall have due regard to the effects of economic factors including inflation and in respect of the subscription for Life membership shall have due regard

to the then present value of future subscriptions otherwise payable at the rate for Full membership.

5.02 Membership shall be by application to the Secretary on the Association's approved application form.

5.03 Subscriptions are payable within one month after a member's application has been accepted by the Board.

5.04 New subscriptions, paid after 1 December, will be credited to the next financial period.

### Meetings

6.01 The Board shall meet at regular intervals and a meeting may be called by notification in writing by the President or at the request of any two Board members.

6.02 A quorum shall be six Board members present at board meetings.

6.03 Except in the case of an emergency meeting, seven (7) clear days' notice shall be given in writing to all Board members to attend board meetings.

6.04 At all board meetings the President if present shall occupy the chair and meetings shall be conducted in accordance with the recognised rules of debate.

6.05 Voting at meetings shall be by a show of hands or if required by any board member present by ballot. The President shall have a deliberative vote and in the case of an equality of votes shall also have a casting vote.

6.06 Minutes shall be kept of all meetings of the Board and sub-committees.

6.07 Sub committees can be formed at the discretion of the Board to assist the Board and executive effective operation of the Association. Note -- this is designed to bring active honorary members into participating.

6.08 In cases of emergency, decisions can be made by the President, Vice-president and three board members, the decision to be ratified at the next board meeting.

### Financial year

7.01 The Association's financial year shall be from 1 April to 31 March of the following year. New subscriptions paid after 1 December will be credited to the next financial period.

### Annual General Meeting

8.01 An annual general meeting shall be held each year within three months after the end of the financial year. All members shall be notified in writing of such annual general meeting and the

method of voting shall be by ballot.

8.02 Copies of the annual Balance Sheet and statement of accounts, certified by an auditor, shall be issued to all members of the Association and presented to the annual general meeting.

### Finance

9.01 All monies received on account of the Association shall be paid to its credit at the offices of its bankers within a reasonable period of receipt.

9.02 Accounts to be passed by board minute.

9.03 All payments exceeding two dollars (\$2.00) shall be paid by cheque. Each cheque shall be signed by any two of three signatories being the President, the Secretary-Treasurer and any board member.

### Auditor

10.01 An Auditor shall be elected annually by the Board.

10.02 The Auditor shall audit the books of the Association at least once per year, or more often if the Board deems necessary.

10.03 For every audit the Auditor shall submit a report to the Board.

10.04 The Auditor shall have access to the Association's books and accounts at all reasonable times.

### Investment and borrowing powers

11.01 The Association may on a majority of the votes of the Board invest monies in such forms as are approved by that Board.

11.02 The Association may from time to time for the purpose of the Association raise borrow such sum or sums of money as it may think fit necessary with or without security therefore and may secure the payment of sums by pledges, guarantees, mortgages, sub-mortgages bonds, debentures, mortgage debenture, or other securities or by bills of exchange promissory notes or other negotiable instruments and such mortgages or other forms of security may contain such covenants, powers, conditions, agreements, commitments or obligations as it may think fit. Any such action must first be approved by a majority of members of the Board.

11.03 All monies will be applied wholly or principally within New Zealand.

### Common Seal

12.01 The Common Seal of the Association shall be kept in safe custody by the Secretary or such authorised member of the Association and shall not be affixed to any

deed instrument, contract, writing, document or paper without the authority of a majority of the members of the Board. The affixing of the Seal shall be attested by signatures of President and two other board members.

### Alteration Of Rules

13.01 These Rules shall not be amended, added to or rescinded except by a resolution of the Board and with the approval of the Commissioner of Inland Revenue.

### Dissolution

14.01 The Association shall be wound up if at a board meeting of which notice has been given a majority of the board members personally present and voting pass a resolution to this effect and if such resolution is confirmed by a similar majority at a subsequent board meeting called for that purpose and held not less than thirty (30) days later.

14.02 If upon winding up or dissolution of the Association whether voluntary or by the Registrar of Incorporated Societies or otherwise there remains after satisfaction of all its debts and liabilities any property whatsoever the same shall be donated to the Councils of the North and South Island Acclimatisation Society (Incorporated) or to such groups having similar objects as have been approved as charitable by the Commissioner of Inland Revenue.

### General

15.01 Board members shall be remunerated for out of pocket expenses or for services performed for the Association.

15.02 No board members shall make any public or press statement purporting to be made by or on behalf of the Association or any officer thereof except by or with the prior authority of the appointed press officer of the Association.

15.03 Any financial member shall have full access to the financial records of the Association at a convenient time. ■



DUNZ's first logo.

# Maps to identify top spots for swamp maire



Restoration maps for swamp maire (maire tawake; *Syzygium maire*) will soon be available for the Greater Wellington region.

Julie Deslippe, a senior lecturer at Victoria University of Wellington, is one of many researchers working to reverse the decline of wetland health in the Wairarapa and nationally.

“I’ve been working in the Wairarapa for about a decade now. If there’s one message that I get from Wairarapa iwi, it’s that they want the lake clean. They want to re-establish a native fishery, so a lot has to change in wetlands to meet that aspiration for the lake,” she told BioHeritage New Zealand.

To revitalise Wairarapa wetlands, Julie and a team of researchers have been working on a model to predict where swamp maire might do best in the landscape, she said.

“Local iwi, communities and government want to conserve swamp maire specifically. They know it occurs in their region and that it’s endangered, but they don’t know where to plant it, especially when the threat of myrtle rust is looming.”

In general, modelling uses known information to make predictions about unknown situations. Julie and the team have been gathering fine-scale habitat suitability data to inform the model and understand where swamp maire have the best chance of surviving once planted.

However, a knowledge gap opened wide when myrtle rust was detected in New Zealand in 2017. As myrtle rust has spread, it has been discovered that swamp maire is one of the most susceptible plants.

“This realisation was like an injection of adrenaline for all of us working in wetland forest conservation and restoration,” Julie says.

The researchers have developed a

Swamp maire, Ngā Manu Wildlife Reserve, Waikanae.

Photo Rudolph89, CC BY-SA 3.0, via Wikimedia Commons

model that accounts for myrtle rust and they have used climate and hydrology data to determine where swamp maire could be restored to the landscape.

Then, they’ve incorporated myrtle rust risk information, generated by others in the myrtle rust research community, to identify landscapes least suitable for myrtle rust.

Importantly, the model also includes “distance to roads”. “When species become so restricted and their populations become so depleted, they need a lot of human effort to sustain and protect them, so they can persist,” Julie says.

“Human access to these species is really important to consider for restoration investments.”

What the model generates is maps that show the best places to restore swamp maire in the Greater Wellington region, according to the suitability of the habitat and proximity to the people who will be actively restoring these habitats and monitoring for and managing myrtle rust.

“We intend to share these maps with regional and city councils and through our networks of community groups – there are over 140 restoration groups in the Greater Wellington region.”

Before these maps are made available, a manuscript reporting the results is undergoing peer review via a formal academic publication process.

This ensures that the maps that are released to restoration groups will be as rigorous as possible.

“The high spatial resolution and the combination of different data types are the most novel aspects of our work.

“Our approach enables us to identify restorable refugia for swamp maire in the Greater Wellington region, which is something that has not been possible in

the past using previous approaches

“Mana whenua have expressed interest in being leaders in the swamp maire restoration effort locally,” Julie says.

In other research efforts to save the critically threatened swamp maire, researchers from Rangitāne o Manawatū, Plant & Food Research and Victoria University have collected and sequenced the DNA of swamp maire in the Palmerston North region as part of a campaign to conserve and manage declining populations of the plant.

The resulting genome sequence has been named Ngā Hua o te Ia Whenua, or ‘the fruits of the land’ and is believed to be the first genome to be given a te reo Māori name. The assembled chromosomes were named with the prefix IW for ‘ia whenua’ followed by the chromosome number.

The sequencing of the swamp maire genome is part of the research undertaken by Colan Balkwill, a PhD student at Victoria University.

Colan says, “The gifting of the name by Rangitāne o Manawatū is, to the best of my knowledge, the first time a genome sequence has been gifted a name by an indigenous people. This really reflects the mutual respect established between all members of the research team.”

Wayne Blissett, of Rangitāne o Manawatū, says, “Swamp maire populations are in decline, both from human actions, such as land use change, and through attack by pathogens such as myrtle rust.

“As kaitiaki, we have a duty to protect these taonga by using all available knowledge.

“By working with Plant & Food Research, we are combining mātauranga with modern techniques such as genome sequencing and cryopreservation.”

# Saving nature from above

**Simon Wong, Predator Free NZ**

**Founded in true** No 8 wire fashion, Envico Technologies began in an Auckland garage. Two mates used their expertise to turn drones into a powerful new tool for conservation – and it's taking on the world.

Envico is a Māori tech company with a holistic approach to conservation. Their heavy-lifting drones reach deep into remote corners to monitor and bait introduced predators.

Using custom software, the drones also drop special seed pods that grow into trees – all at the click of a laptop button.

In 2018, Cam Baker and Samuel Vye imagined an Aotearoa New Zealand where it's normal to hear the rustling and cries of a kiwi in your backyard every night.

Today, it's not as far-fetched as it sounds, and it's the Tauranga-based company's guiding vision.

Cam and Samuel's big leap of faith into drone-based conservation paid off in 2019. Envico was brought on to an international project in the Galapagos Islands to eradicate invasive rats.

Using two heavy-lift drones, almost 1.5 tonnes of bait was dropped on both Isla Seymour Norte and Islet Mosquera, covering more than 184 hectares in just two days.

The project succeeded, making international headlines as a world-first approach to predator control. Cam says it was proof what they were offering could be a game changer.

"There's one undeniable thing that's different with drone technology – there's no pilot in the sky, and it's all data-driven. You can run the whole operation from a laptop."

There are also savings from safety, efficiency and cost perspectives.

"That's where the accuracy comes into play, and the safety aspect is where you have to decide: is it going to be a helicopter with a person in it? Or is it going to be a human scaling down that cliff? We're giving a new alternative," he says.

Cam says while rats, stoats and possums devastate bird populations and leave forests silent, they can also destroy native trees and plants.

To restore native flora, Envico uses its drones to disperse seed pods.

Created for New Zealand's unique environments, its seed pods are made



Envico founders Cam and Samuel loading seed pods into one of their heavy-lifting drones.

Photo MOTAT

up of five to six different native seeds gathered from an area, mixed with water, clay and compost and pressed into a small ball about the size of a lolly.

Envico has received funding from Predator Free 2050 to develop a ground-based trapping device, the self-resetting Spitfire, for large land holdings and remote locations.

This trap, now being trialled, uses an automatic lure to attract rats and possums. Sensors spray the target animal with liquid toxin, which is ingested during grooming while leaving everything else untouched.

Since making waves internationally including winning an Asia-Pacific Stevie Award earlier this year, the company has been busy with overseas projects.

Cam says conservationists globally face the same challenges as New Zealand when it comes to invasive species. They're also more likely to adopt new approaches.

He believes New Zealand has been slower in trying new methods because of our long history with traditional tools and traps.

However, countries that are earlier in their conservation journey are willing to try new things.

"They need to be resourceful in the way they apply new technologies because they're asking for philanthropic grants. Drones are a way of achieving the impact whilst balancing the risk.

"We have the privilege of working with amazing partners, in both the conservation and land management sectors and being able to amplify their

efforts so they can achieve more, is what drives us each day," Cam says.

"There are a lot of other countries using Envico's novel tools as their first choice. I do worry that if New Zealand rests on its laurels in the conservation space, we might not be the ones sitting at the table saying that we're the best in the world at conservation," he says. ■

## Counting pāteke

**Matuku Link**, with more than 160 hectares of diverse wetland at Te Henga, West Auckland, has found that conducting a thorough census of its pāteke has been a challenge.

"The complex landscape – a mix of reed beds, raupo, willow, open water, and small ponds – and limited access have made traditional methods difficult," Matuku Link says.

"In an exciting development, we tested drones to aid in our census efforts, inspired by successful trials in Tasman. We've found that flying the drones at a height of 15-20 metres above the water provides the perfect balance: wide camera coverage without disturbing the pāteke.

"While the pāteke seemed largely unfazed by the drones, we did observe other bird species, like plovers and pūtangitangi/paradise shelducks, taking to the sky," Matuku Link said on its Facebook page.

This preliminary trial paves the way for a more extensive survey next January or February when pāteke are known to group together. ■

# Free app compares trapping methods

A new, free, online predator control application, TrapSim Plus, has been made possible with funding from BioHeritage NZ.

The user-friendly app is the culmination of four years of collaboration between wildlife (and social) scientists at **Manaaki Whenua Landcare Research** and the **University of Canterbury**.

The simulation tool was launched this year to enable smarter, more cost-effective decision-making, allowing land managers and community groups to compare scenarios in planning and designing ground-based predator suppression control.

By simulating real-world situations to show the likely outcomes from different control methods and levels of effort, users can work out the cost and benefits of each approach, says project leader, **Dr Chris Jones**, a wildlife biologist at Manaaki Whenua.

"We know that all predator control initiatives nationwide, with limited resources, face the challenge of choosing which control methods and how much effort to use.

"One of the advantages of TrapSim Plus is that users can compare different regimes, such as combinations of devices, taking into account factors such as the type of predator targeted, the level of previous control and the duration of the programme," he says.

Another advantage is that while science underpins the model, users don't need to be scientists or know about wildlife modelling to use TrapSim Plus, Dr Jones says.

"The online practical tool is easy to use, and it can be used by non-experts for local, community projects as well

as larger-scale operations to compare the relative costs and effectiveness of different predator control programmes."

He says TrapSim Plus not only shows the cost to achieve a specific project goal, but it can also be used by predator control projects or funders to estimate what is realistically achievable given the level of funding available.

The model can rank each option, show how much effort is required to control target species, and the feasibility and cost-effectiveness of each option.

"The tool isn't designed to predict the exact number of individual predators remaining after a control programme. But it does help understand a system and gives insight when comparing the relative effectiveness of approaches, which ultimately helps guide managers and communities in their decision-making," Dr Jones says.

TrapSim Plus can be used by landowners and land managers, trapping groups, community predator-control groups, mainland sanctuaries, forest regeneration projects, conservation organisations and schools.

With the ambitious quest to rid New Zealand of seven mammalian predators by 2050, the new tool can be used to plan predator control initiatives as well as fine-tune operations to reduce six of New Zealand's main invasive predator species: the brushtail possum, stoat, ferret, weasel, ship rat and Norway rat.

Manaaki Whenua says it is aimed at helping users answer three key questions:

- For a given level of funding, what change in pest numbers is likely to be achievable?



One of New Zealand's main problem predators, the stoat.

Photo Charlie Marshall, CC BY 2.0

- For a specific goal, how much control effort, and therefore, cost, is required?
- Of all possible scenarios (device type, number of devices, duration), which is likely to be the most cost-effective approach?

It allows users to specify a number of different scenarios by varying the level of control (e.g. number of devices and duration of control), and simulating the outcomes.

The relative changes in pest numbers and the costs of each scenario can be used to help determine the most cost-effective strategy.

## Trapsim Plus at Work

### Scenario

The user constructs a 'scenario' by defining the length of control, the type and number of devices, and the checking interval of devices. Devices are selected by a drop-down list which lists parameters such as cost, trap capacity and whether the device has passed NAWAC testing for that species.

### Additional scenarios

Additional scenarios can be constructed with different specifications (e.g. different device-types and/or number of devices). Once the user has constructed all the scenarios they wish to compare, the simulation is run for multiple iterations of each scenario. The results allow the user to compare between scenarios in terms of remaining population size, total cost and cost-effectiveness.

Manaaki Whenua

## LETTER



Basil George

I was reading the June/July 2024 issue of the magazine and noticed that mention was made of the Sinclair Wetland and some of the history of the site, both in Adrienne Bushell's opening article and David Smith's article.

I met Horrie Sinclair back in 1974 when I attended the Commonwealth Games in Christchurch, as he was one of the officials at the Games –

shooting clay targets.

I met him again in the mid-1980s when I was persuaded to become a member of DUNZ.

I also read that you have a problem with dieback in kahikatea trees. Here in the UK we are experiencing dieback in our ash trees throughout the country.

Some 40 years ago we lost most of our elm trees through disease

caused by a beetle.

I always enjoy reading *Flight* magazine and send my good wishes to all the DUNZ members.

Yours sincerely

Basil George, Wales

**Reply from editor:** Many thanks for your valued memories, information about dieback in the UK, and finally your kind donation to DUNZ for its work.



# Wetland Care Scholarship

Interested in studying wetland birds or wetland restoration?  
A Wetland Care Scholarship could be for you!



## BACKGROUND/PURPOSE

Wetland Care Research Scholarships are Ducks Unlimited-sponsored scholarships applicable to any student currently enrolled or affiliated with a New Zealand university.

Funds are aimed at encouraging and supporting students who wish to push the boundaries of what is known about wetland restoration and conservation.

Up to \$20,000 is available annually to cover up to four separate scholarships of \$5000 each.

Funds can be used to support student living costs or cover the costs of equipment purchase, logistics and consumables.

## CRITERIA

Applications will be accepted from students/researchers affiliated with universities interested in making a difference through wetland conservation.

Funding is aimed at student projects designed to facilitate better management of New Zealand wetlands or their environment. The student

project must be based in New Zealand or be of direct benefit to New Zealand based on current wetland conservation issues.

Preference will be given to applications that demonstrate some of the following criteria:

- projects of direct benefit to New Zealand based on current wetland conservation issues
- innovative thinking that pushes the boundaries of what is known about New Zealand wetland conservation
- research on native threatened wetland bird species
- research with clear objectives and measurable outcomes
- research with a strong wetland management and conservation applications.

## VALUE

Wetland Care will award up to four scholarships of \$5000 each in two funding rounds a year, with applications closing on 31 March and 30 September.

Funds will be paid in one lump sum to successful candidates upon commencement or completion of milestones agreed at the time the scholarship is awarded.

## INTERESTED? WANT TO KNOW MORE?

Please email [scholarships@wetlandcare.org.nz](mailto:scholarships@wetlandcare.org.nz) with your questions.

Terms and conditions, plus an online application form, are on the Ducks Unlimited NZ website, [www.ducks.org.nz](http://www.ducks.org.nz).



## Ducks Unlimited NZ Membership Form

YES, I wish to join Ducks Unlimited as a member OR  I wish to renew my membership

Name .....

Address .....

Phone.....

E-mail.....

All subscriptions include GST.

- |   |  |
|---|--|
| <input type="checkbox"/> Junior (under 16) \$10 | <input type="checkbox"/> Life (one payment) \$3000 |
| <input type="checkbox"/> Contributor \$60       | <input type="checkbox"/> Bronze Sponsor \$90       |
| <input type="checkbox"/> Family \$70            | <input type="checkbox"/> Silver Sponsor \$160      |
| <input type="checkbox"/> Business \$110         | <input type="checkbox"/> Gold Sponsor \$310        |

Note: Bronze, silver and gold sponsorships include the membership fee of \$60 and the balance is received as a donation, which is tax deductible.



DUCKS UNLIMITED NEW ZEALAND INC.

For Wetlands and Waterfowl.



Please pay by internet banking or online at [ducks.org.nz](http://ducks.org.nz) under 'Supporter Options'.

Internet banking: Ducks Unlimited NZ, account 02-0312-0038729-00.

Use the code DUNZAPP and your initial and surname as the reference.

Scan this form and email to [info@ducks.org.nz](mailto:info@ducks.org.nz) or post to Ducks Unlimited, PO Box 165, Featherston 5740



We deliver and advocate for effective wetland restoration, development, research and education; and support the preservation of threatened waterfowl and the ethical and sustainable use of wetlands.