

Flight

ISSUE 193

JULY 2025



**It's AGM time
A 'seriously cool' farm
Drone sparks debate**

Insight

DUNZ Inc celebrated 50 years of operation in 2024.

This is an amazing feat for a totally voluntary organisation and we, as members, can feel justifiably proud of what was achieved over that time, with a very limited funding base.

These funds were mostly by way of membership fees, donations, clay target shoots and auctions. There was no Government funding whatsoever for an environmental/conservation group.

DUNZ was way ahead of anything else in the country for the preservation, construction and financing of diminishing wetlands and the endangered wetland bird species that rely on these beautiful areas.

DU was instrumental in the preservation of, and probably the saviour of, tēte (grey teal), pāteke (brown teal), whio (blue duck) and lastly matuku (Australian bittern).

Without the initial captive breeding programmes, nearly all carried out by dedicated DU members at their own cost, the first three species were heading for extinction.

The bittern is now headed that way! The same with wetlands!

DU members took the lead in the preservation of a declining wetland base. In my lifetime (which, I might add, like most of us, is getting on), the governments of the day encouraged farmers by way of 'subsidies' to drain wetlands and turn them into 'productive land'.

I remember helping my father lay explosives to open a drain through an extremely wet area next to a big sand-dune lake. It wasn't all that successful as the soil and grass went straight up

in the air and promptly fell back into the hole. Seems you should do that on a very windy day.

The strength of DUNZ Inc is the people involved. That's what has kept us together and moving forward for 50 years.

I treasure the friendships gathered over the past 30 years of my involvement, wonderful people like Jack Worth, Dave Johnstone, Allan Wilks and Graham Gurr who are sadly no longer with us, Jim Campbell, Ken Cook, etc... the list goes on and on, especially all the Board members I have worked with.

DUNZ is truly a great organisation to have belonged to but sadly our time has run its course.

Every member over the past 50 years should be very proud of what we have achieved, mostly unrecognised by the wider public, but we can hold our heads high and say with pride:

WE DID SOMETHING!

Neil Candy

DUNZ Director



Neil Candy

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Cover: Rangitoto, looking out to the Pacific Ocean. This view reminds James Hunter "that we live in paradise". See story, p4-7. **Photo John Cowpland/alphapix photography**

Back: A kuihi or greylag geese – the birds seen in the wild throughout New Zealand have probably originated from stray farmyard geese. **Photo Bernard Spragg**

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Editor: Alison Murray

✉ 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, 7 October 2025, in time for the November issue.

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

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Important AGM next month

The Board invites members to Ducks Unlimited NZ's 50th Conference and AGM which will be held in Feilding on August 22-23.

It wants to give attendees advance notice that the primary subject at the AGM will be a change of operation for DUNZ. Unfortunately this change has become inevitable:

- the membership no longer sustains *Flight* magazine costs
- membership numbers continue to decline, not only in number, but most noticeably a lack of younger folk joining the organisation.

The Board has a legal duty to manage DUNZ in a fiscally responsible way so it will present to the membership at this AGM a carefully considered alternative to the organisation as it is now.

The conference will follow a format similar to previous years, with attendees meeting on the Friday evening for an informal catch-up and dinner.

The AGM on Saturday will be followed by a field trip.

The conference concludes with a dinner and silent auction on Saturday.

'Like a duck to water'

Wetland Care has awarded its 10th scholarship to a student who will be digging the dirt for her research. **Georgia Goodsell** introduces herself:

I like to learn, and the environment has a lot to teach. Of all the lessons the earth offers, being kind is the most important. The earth has given so much to us, it's only fair that we give back.

Environmental science can be the career path that does that. It involves observing the earth, how humans interact with it, and how to fix problems associated with human activity.

That's what drew me to environmental science like a duck to water, and why I'm doing a master's in the topic at Te Herenga Waka – Victoria University of Wellington.

Wetlands are a hub of life. Their formation is a mix of the coolest things about the earth. Soil, water, plants, animals and the earth shifting to offer new habitats on margins of water. That's why I like wetlands, and I'm sure that's why many others do too.

My thesis is focused on the not-so-seen hero of land-based ecosystems: soil. Soil provides essential nutrients required for plant growth, which, in turn, provides habitats for fauna to thrive.

Soil also acts as a carbon 'sink', it regulates atmospheric carbon levels by capturing and storing carbon dioxide, a greenhouse gas that contributes to global warming when present in high concentrations.



Georgia and her first 10cm soil core, from a field trip to collect data on Te Pouaruhe's current health.



Ducks Unlimited Directors Jim Law and Adrienne Bushell with Georgia Goodsell.

Wetlands are a hive for soil microorganisms and carbon content. Their waterlogged soils slow decomposition allowing carbon to accumulate and build up over time.

The wet soils are also unique environments that microbes thrive in. A diverse microbial community makes for an overall healthy ecosystem.

Soil microorganisms break down organic matter and cycle nutrients, making them available for plants to use for growth.

However, changes in land use tend to degrade soil health. The changes can disturb soil microorganism communities and release stored carbon into the atmosphere.

For my thesis, I'll write a 'story of the soil' at Te Pouaruhe Wetland on the shore of Lake Ōnoke. This wetland was a great food source for early Māori. Local hapū grew fern roots as the name, Pouaruhe, the place where the young fern root grows, suggests. Te Pouaruhe was drained for agriculture around the mid-1900s.

Now, massive work from mana whenua, community groups and organisations has gone into restoring the wetland and reconnecting it with Lake Ōnoke.

I'll analyse soil cores, aligning findings with written and oral histories, to identify key periods of land-use change. I'll then compare soil carbon content and microbial activity, using environmental DNA between phases to assess how both have been impacted over time.

This will also help with establishing a potential restoration goal for healthy wetland microbial communities.

Healthy life above ground relies on strong foundations beneath the surface.

This research project is a new area for me. I'm new to research and have a background mostly in theatre before I moved into geography, and finally environmental science.

Environmental science was a natural path for me because I love to learn and get involved with restoration.

It's a great way to reconnect and build community. I'm excited to learn the history of this special section of the earth, through written and oral histories, and through the soil. ■

Feedback sought on RMA changes

The Government has published three discussion documents proposing changes to the national policy direction that underpins the Resource Management Act.

Consultation on the proposals is open until July 27.

Changes affecting wetlands include:

- removing restrictions on non-intensive grazing of beef cattle and deer in wetlands
- the definition of wetland would be amended to exclude unintentionally created "induced" wetlands to allow farming activities like irrigation, on-farm water storage and fencing considered "unlikely" to have an adverse effect
- constructed wetlands would have a new objective, standards and consent pathway.



Rangitoto – a whole farm package

James Hunter's Rangitoto farm near Porangahau in Central Hawke's Bay is like a landscape painting – with rolling hills, trees and wetlands merging into one idyllic scene.

And it doesn't just look good, the farm is, as Tim Forde, President of Hawke's Bay Farm Forestry Association, says, "a fantastic whole farm package with a highly productive and profitable farming business incorporated with a landscape protecting and restoring the valuable indigenous remnant vegetation, virtually all waterways, as well as including woodlots of potentially valuable timber species".

James was named North Island Farm Forester of the Year in 2022 and a field day earlier this year was a chance to celebrate that award.

Two earlier field days had to be postponed due to the weather so it was third time lucky.

Even then, the programme had to be tweaked for the 100+ visitors because heavy rain the previous day had made some of the tracks marginal for all but the most rugged 4WDs.

James apologised for this, saying that it was a pity the visitors would not get to see the areas that had previously been blocks of scrub turning into bush, or the "seriously cool wetlands".

A cuppa at the woolshed and welcoming speeches by former Federated Farmers president and recently retired QEII Trust chair Bruce Wills, James and Tim kicked off proceedings.

Above: Rangitoto's network of wetlands as it is today, and inset, the same area in the early 1990s.

Main photo Marie Taylor



James Hunter and his 'seriously cool' wetlands.

Photo John Cowpland/alphapix

photography

The day included two stops, the first passing an area that had been recently logged and some other poplar and willow plantings.

At the first stop, trees and the undeserved predominance of *Pinus radiata* over other species, especially the conversion of viable farms into pine forests, dominated the discussions.

James says, "The farm gives me a buzz as I note the changes, reinforcing why the whole-farm planting of pines is nuts as the opportunity to replicate my advances is lost and the weeds and pests destroy Nature's core and income

on adjoining farms."

James worked for the Rural Bank in the mid 1980s, a period when government subsidies courtesy of the Land Development Loan Scheme (LDLS) cleared some 940,000 hectares of native cover (and Lands and Survey had a lash at up to 300,000 hectares in the name of settling young farmers).

"This pine thing will be considered our dumbest rural plan, dwarfing the LDEL (Land Development Encouragement Loan) scheme and earlier draining of wetlands.



James hopes that as the wetlands develop they will become an ideal habitat for bittern.
 Photo John Cowpland/alphapix photography

Dr Ashton Eaves demonstrates an Isco portable water-sampling system.

“And politicians continue to allow this planting on so-called poorer classes of land, all with silent support from the public who think that such moves are saving the planet.”

DU Director John Cheyne later spoke about funding opportunities for creating and restoring wetlands available to farmers, including grants from the Game Bird Habitat Trust and Ducks Unlimited.

He praised the benefits of wetlands and cited an example of how Rangitoto’s fenced wetlands with plantings such as

Carex geminata, which filter out nutrients and sediment, had had significant environmental benefits.

He said he visited the farm after heavy rain and from a hill overlooking a wetland could see water draining from James’ farm and an adjoining property.

“The water from James’ property was clear enough, you would have put it with your whisky”, the other was a murky, sandy colour.

John said another benefit of wetlands was in providing habitat for the bittern.

One of James’ motivations in continuing to expand his wetlands system is to create habitat for bittern.

“The talk is that you need roughly 20 hectares of wetlands within an area for them to have permanent habitat. That’s what I’m aiming to create,” James says.

Other speakers included Stan Braaksma, Poplar and Willow Research Trust, and Madeleine Hall of Beef and Lamb NZ, Manaaki Whenua’s Suzanne

Continued next page



Hawke’s Bay Farm Forestry Association President Tim Forde, DU Directors John Dermer and John Cheyne, James Hunter and Suzanne Lambie, from Manaaki Whenua.



from previous page

Lambie, QEII Trust's Troy Duncan and Dr Ashton Eaves, of Hawke's Bay Regional Council.

James is an Atkins Ranch farmer, part of a collective of more than 100 New Zealand family farms.

His land has been in the Hunter family since 1854, and in 1928, his grandfather ended up with 3300 acres, which he called Rangitoto.

James returned home from overseas in 1989 and continued a legacy of erosion control planting that had been initiated by his grandfather and explored other sustainable land management and farm forestry initiatives.

"In 1998 we fenced off all of the remnant vegetation on the farm. What we fenced off is turning into bush.

"It's what it will be, not now, but in 100 years, we've got a total of 54 hectares that are protected in perpetuity with the QEII National Trust; of that, 12 hectares is wetlands," James says in an Atkins Ranch video about his farm (www.atkinsranch.com/rangitoto-station).

"Guardianship is it's not just a farm, it's a whole system. Guardianship is about looking after more than the animals. Guardianship is caring for where we live, we have something like 150 hectares in the carbon scheme, the emissions trading scheme and the permanent forest sink initiative.

"We've roughly quadrupled the amount of carbon that we're sequestering since 1990.

"We've set about creating the bush areas on a whole farm scale.

Above and below: the wetlands that James is justifiably proud of but were inaccessible on the open day to all but those in the most rugged 4WDs. *Photos John Cowpland/alphapix photography*



"The Rangitoto vision, the future, is going to be flooding more of these areas to create this extensive wetland system with bush.

"We've retired 15% of the farm – we can operate on the balance. But the vision is that we're going to be growing animals surrounded by biodiversity. We're going

to have a farm that looks after nature."

Rangitoto is a long, narrow 660-hectare block, stretching inland from the coast at Blackhead. About one-third of the farm faces the coast, with the rest draining into the headwaters of the Huatokitoki Stream – a major tributary of the Porangahau River.



A topdressing plane over a neighbouring property creates a buzz.

It just keeps getting better

Marie Taylor, of Plant Hawke's Bay, reckons Rangitoto is the most beautiful farm in the province. She said this at the farm's field day:

It's nice here, isn't it?

It's a beautiful farm. I think it's the most beautiful farm in Hawke's Bay. It just keeps getting better and better as you drive out towards the western end of the farm, doesn't it?

It didn't always look like this; it's taken a long time to get to how it is today.

I used to have Troy's job, as the QEII National Trust regional rep for Hawke's Bay.

James started ringing me up to come and visit almost 30 years ago, in 1998, I think. He would say, you've got to come and visit, and I'd say soon, I'll visit soon.

Mostly to stop him pestering me, I came to visit to see what he had planned with the farm.

Would you believe it, but the first time I wrote up the proposal for 11 different fenced areas, the National Trust board turned it down. I couldn't believe it.

Obviously, my powers of persuasion were not up to speed. But it didn't look like it does today. Some of the blocks looked pretty thin and dodgy at the time, but the tall forest out the back of the farm along the Huatokitoki Stream was magnificent.

So we enlisted the help of Geoff Walls, then DOC conservancy scientist for Hawke's Bay, and he wrote a beautiful letter of support for the proposal. And it was approved.

Geoff said: "This is, quite simply, a breath-taking package that the Trust cannot ignore, and one it'd be foolish to walk away from."

He called it an outstanding whole-farm package of protection and restoration, unique in Hawke's Bay, featuring:

- a mosaic of ecologically connected areas
- the only flax swamp of any substance remaining in Hawke's Bay
- the extremely rare system of podocarp forest remnants on inland



James, Tim Forde and Marie Taylor at the field day.

meandering stream flats

- the nationally threatened swamp nettle *Urtica linearifolia* and plants of regional significance, the tiny mistletoe, *Korthasella lindsayi*, the uncommon *Coprosma virescens*, wharangi, rarely found on the Hawke's Bay coast, and matagouri, which is very unusual in the North Island.

It's not just the plants and bush being protected here by the fences and a bit of legal work – there is a lot more going on that we can't see straight away.

This landscape is a refuge, including for several rare and endangered species – and not just plants, but insects and animals like geckos and skinks and bats and fish.

It gives us a snapshot of the past too, a clue as to what our landscapes would have looked more like 100 or 150 or 200 years ago. It's a bit like looking back through the lens of a museum.

It gives a place where it's possible to find soils as close to their original state as possible – they have been least modified by farming and engineering over time.

The soils are uncompacted so it's a good place to go back to as a kind of control against what has been happening out in the paddock.

The other interesting thing about this landscape is that it is joined up – the waterways are fenced off in corridors, the bush blocks all link into them.

These corridors are important for birds and other animals (apart from deer obviously), allowing birds to move around easily for feeding and breeding.

It might not look like it, but these bush

remnants are pretty special because they protect genetic variation, the diversity that's hard to see.

Imagine this landscape without these remnants: it would look like almost the rest of Hawke's Bay. This landscape is pretty special; it's only found here, and it gives the area its character and identity.

Another aspect of what's happened here is the improving hydrology – something we can't see either when we just look at the landscape at one point in time.

Protecting the bush and wetland covers for this land means when it rains, infiltration rates are higher and infiltration continues for longer, and the release of water is slowed down. This area is acting as a huge sponge.

People who have protected bush remnants and excluded stock have found streams start flowing again; a good example is the huge covenant, Hinewai, on Banks Peninsula.

It would have been easy for James to watch this landscape disappear under the pressure of intensive grazing – and indeed some lesser parts of the landscape, which weren't fenced in, did.

I think of our landscape remnants – whether bush or wetlands or cliffs or unmodified coastlines – as priceless treasures. When they are lost, they are lost forever.

They are much more important to protect first than simply planting a new area from scratch.

My challenge to you all is to work out how your farm could use all the principles that James has here to take care of your own farm landscapes. And obviously, we would love to help you do that.

Drone
sparks
debate

Mallards – friend, food or foe

Black Labrador Raven retrieves a mallard during duck shooting season.

Photo Di Pritt

Jacqueline Rowarth, an adjunct professor at Lincoln University, recently wrote in an opinion piece for the *NZ Herald*, about an incident in which a duck hunter shot down a drone over Lake Ellesmore, near Christchurch, at the beginning of this year's duck shooting season.

She said that whatever the legalities of the misunderstanding between the animal rights campaigners who owned the drone and the hunters, it highlighted continuing confusion about desires, wants and needs.

"Society needs, wants and desires: food, health and environmental quality. Mallard ducks, the most common duck in New Zealand, are connected to all three."

She said: "Southland's Federated Farmers president Jason Herrick's description, 'the skies are black and the paddocks are black with ducks', is reminiscent of locusts and farm devastation.

"Crops destroyed by pests are a sunk cost to the farmer (soil preparation and seed, for instance) and a cost in terms of replacement feed for animals (sourcing and buying the feed itself and the transport and feeding-out time and costs).

"This increases the cost of anything produced by the animal – the meat, milk or wool," she said.

Health is sometimes overlooked in the impact of ducks on water quality.

"Ducks contain a remarkable number of bacteria. Researchers in Germany reported in 2009 that mallard ducks are an important reservoir for zoonotic *E. coli* strains," she said.

In 2011, researchers at Crown-owned entity ESR reported that ducks produce the highest loadings of *E. coli* and enterococci per bird; Canada geese produce the highest loadings of *Campylobacter* spp. per bird.

Further work by ESR (a report to ECan in 2015) compared duck production of *E. coli* with that from dairy cows.

The basic order of production of *E. coli* per live bird or animal a day was lambs, sheep, ducks, dairy cows, black swans, gulls, and Canada geese.

The third consideration was environmental quality, she said.

The origin of the New Zealand mallard population was the importation of game farm mallards from England between 1870 and 1930, and two later imports of birds and eggs from a game

farm in Connecticut, US.

Mallards are not native. The Acclimatisation Societies (now Fish & Game) released more than 30,000 mallards throughout New Zealand before 1974.

The mallards were then (and are now) the most common waterfowl in the country and have hybridised with the native grey duck, which is now Nationally Vulnerable.

"She said the drone flyers might say their intention was to prevent animal cruelty.

"That is also the aim of the hunter and their dogs – a clean shot and retrieval. There is pride taken in both.

"Ducks are fun to feed (though councils request that one doesn't) and ducklings are delightful, but they are associated with negative factors in food, health and environment – and the cost of the negatives is not being factored into any equation.

"The animal welfare issues of too many ducks vying for a limited feed source (starvation and disease) have also not been considered.

"And bird flu, of course," she concluded. ■

Sinclair Wetlands awarded \$50,000 grant

Sinclair Wetlands has received a \$49,800 top-up to help manage its growing stream of visitors.

The wetlands, owned by Ducks Unlimited NZ from 1988 for several years, were a successful shortlister for this year's Otago Regional Council Eco Fund.

"The grant will be used to help with our education programme," Sinclair

Wetlands chairman Ian Bryant said.

"We have several schools and volunteer groups already visiting, our aim is to increase the number of schools coming to the wetlands and create a resource to cover our history and restoration, and the role of wetlands, birdlife, aquatic life, native plantings, pests and predators and weeds."

He said the grant would likely go

towards a photographic guidebook-style publication and would also help establish a regular, dedicated guide-person role to add to the volunteers promoting and working for the wetland reserve.

As well as schools, more businesses and community organisations were scheduling time for staff to volunteer at the marshland. ■

'It's far more than the hunt'

Fish & Game outgoing chief executive **Corina Jordan** responds to Dr Rowarth's article in the *NZ Herald*.

Dr Jacqueline Rowarth's recent opinion piece on mallard ducks and water quality raises some important issues, but it tells only part of the story.

Let's start where we agree.

While I respect the right to protest peacefully, there is no place for activists to antagonise duck hunters with drones and other inflammatory actions.

Duck hunting is a legal, carefully managed activity for many New Zealanders.

"It's about far more than the hunt, it's about time with friends and family in the maimai and bringing home wild food to share," she said.

This connection to land, tradition and food is part of our national identity.

The behaviour of activists seen in recent weeks is unhelpful and misdirected.

Without active management, overpopulation can lead to pressure on resources and the wellbeing of the birds.

However, claims that cast ducks as a significant threat to freshwater quality or farming, without proper context, are equally unhelpful.

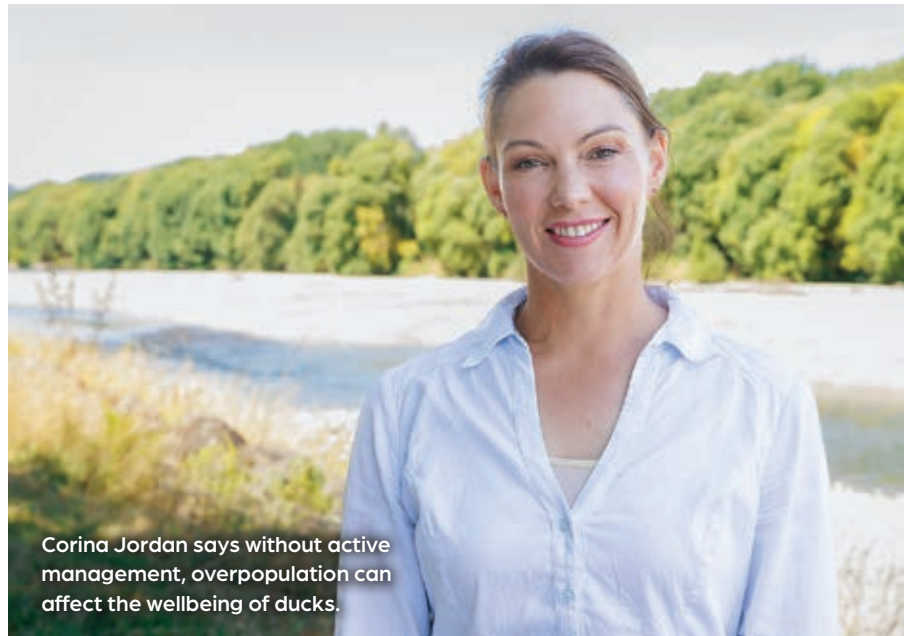
As a freshwater ecologist with strong rural ties and a background in integrated catchment management, I've spent my career understanding how land use, water quality and wildlife intersect.

The reality is far more complex than headlines suggest.

Yes, ducks produce *E. coli*. Dr Rowarth cites a 2015 ESR report that compares *E. coli* outputs across a range of production animals, ducks and geese.

However, this per-animal comparison overlooks critical factors.

A single farm may have hundreds of cows concentrated in one area of a catchment, while ducks are widely dispersed across the landscape, and



Corina Jordan says without active management, overpopulation can affect the wellbeing of ducks.

prefer wetland environments (which are the land's kidney systems).

Moreover, ESR's own research confirms that during heavy rainfall, when most faecal contamination enters waterways, the dominant sources tend to be from livestock rather than waterfowl.

That's not a criticism of farming, but a reflection of how scale and land use patterns affect water quality outcomes.

And *E. coli* is only one part of the picture.

Nutrients like nitrogen and phosphorus, along with sediment, are consistently identified as key contributors to freshwater degradation.

These issues stem from a range of land uses and activities, and effective management depends on understanding all the contributing factors, of which game birds are a relatively minor one.

Regarding crop damage, Dr Rowarth highlights instances where mallards have impacted crops, particularly in Southland.

While such events do occur on newly planted or sprouted crops, they are typically associated with population spikes following wet springs.

These surges are usually short-lived and self-correcting, managed by winter mortality, regulated hunting and natural predation.

Fish & Game New Zealand already enables farmers to apply for special permits to manage duck damage outside the regulated season. Many do.

There are also proactive tools available, such as early pest control measures to remove attractants like caterpillars, which also harm crops.

Dr Rowarth also states that mallards are an introduced species that have hybridised with the native grey duck, raising biodiversity concerns.

While mallards were introduced and have become the most common waterfowl in the country, they are now a valued game bird species.

Tens of thousands of New Zealanders, including many farmers, take part in duck hunting each season.

Dr Rowarth rightly points out that the hunters, and their dogs, take pride in a clean shot and retrieval.

We do hear claims from time to time that duck hunting should be taken out of the hands of Fish and Game.

This would repeat past mistakes.

When Canada geese management was taken from Fish & Game, populations ballooned, causing greater damage to both farms and wetlands.

In my view the lesson is clear: uncoordinated wildlife management often makes problems worse, not better.

Fish & Game is committed to working alongside farmers and landowners on practical solutions that balance the need to farm productive land while managing game bird populations.

New Zealand deserves an informed debate; one that recognises the complexity of our environmental challenges and focuses on the strategies that genuinely make a difference.

– *NZ Herald*

▪ Corina Jordan has now left Fish & Game to become chief executive of the Game Animal Council. Fish & Game deputy chief executive Richie Cosgrove replaces her in the interim.

Horizons wetland dispute resolved

An appeal to the High Court against the granting of resource consents to Horizons Regional Council to build the Arawhata Constructed Wetland Complex has been resolved and withdrawn.

Horizons was granted resource consents in November 2024 to construct the wetlands on a retired farm at the southern end of Punahau Lake Horowhenua, one of New Zealand's most polluted bodies of water.

The wetland complex, expected to be one of the largest constructed wetlands in New Zealand, would reduce the amount of nitrogen, sediment and phosphorus in the water that flows from the Arawhata catchment into Arawhata Stream and the lake.

This would improve the water quality and create quality habitats for native bird and fish species.

However, there was concern that the wetland complex would put more pressure on the fault line which runs under the area, and cause the lake level to rise, leading to flooding.

At a meeting in 2023, landowner Donald Hayes, who filed the appeal, said there were already issues with flooding at northern area of the lake near Waitārere Beach.

"The fault line, it's very sensitive. No-one knows how deep it is. The wetland is going to make it worse."

Hayes said the problem was the weir on the Hokio Stream, which the lake flows into, as it stopped the lake being able to flush itself, so the weir needed to be taken out.

He wanted Horizons to be more proactive and come up with a solution that best suited everyone in the area.

He also believed the wetland would cause property prices to drop and wanted to know who would compensate for property values.

At the meeting, Horizons' group manager of catchment operations Jon Roygard said the big issue was drainage.

"We understand there are drainage issues and we are committed to looking into it and trying to resolve those."

He said they would like to bring the waterway through the wetlands to get more treatment of the water as it headed towards the lake.

Now the appeal has been resolved, Horizons will proceed with detailed design and construction plans for the



Overlooking Punahau Lake Horowhenua, and below, the site of the proposed wetland complex at the southern end of the lake.

Photos: Horizons Regional Council



2025-26 construction season.

The conceptual design includes a master plan for the constructed wetland, with construction split into three phases.

The first phase aims to convert at least 15 hectares of farmland into a constructed wetland complex by December 2026.

The complex will incorporate plants historically found in this area before its clearance, species such as harakeke (flax), carex and rushes.

As further funding becomes available, the following two phases will be considered. These would extend the constructed wetland complex with new drains, bunds, planting and a walking trail through the wetland.

Rachel Keedwell, co-chairperson of a governance group established to oversee the project, had said issues around drainage have been at the forefront of the planning.

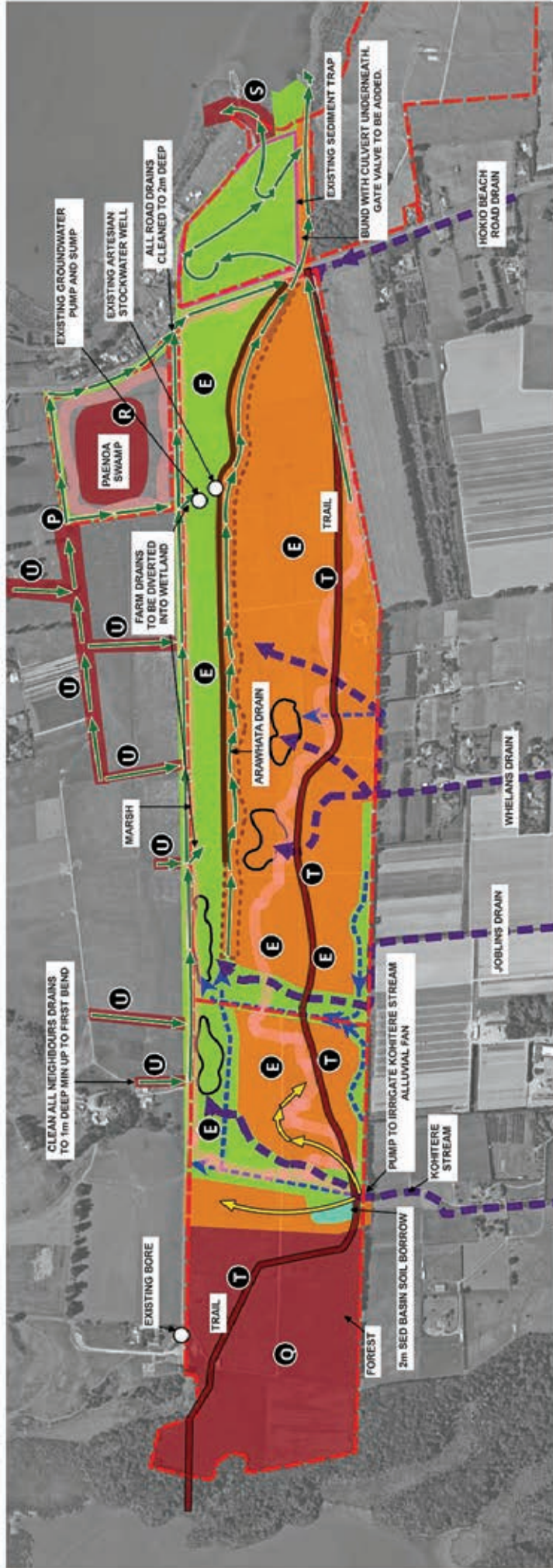
"The current conceptual design contains a number of measures to manage groundwater effects and surface water flows within the wetland complex property.

"These have been and will continue to be further refined as we receive feedback from surrounding landowners and members of the community.

"In addition, the project team have engaged with groundwater experts to liaise with neighbouring farmers and landowners to identify any risks and source remediation measures if necessary."

The proposed wetland design including the conceptual design and scientific reports is available for viewing on the Horizons website.

▪ The concept drawing, right, shows all three proposed stages of the development.



Legend

- Land Boundary
- Deeper cut wetland areas
- Proposed Stopbank
- Existing Stopbank
- Lower Section of Stopbank
- X Component Label - Phase 3
- Surface irrigation perforated pipe to irrigation Kohitere stream alluvial fan
- Existing/new channel farm drains
- Subsurface perforated drain pipe laid in invert of existing/new drains then drain backfilled with wood chips, bark and hay
- Channel taking flow from drains in vegetable growing area to feed into wetland
- Approximate edge of wetland wetted area
- Sediment Basin
- Construction Phases**
- Phase 1
- Phase 2
- Phase 3



Phase 3 Components

- Planting in Paenoa Swamp (R)
- Divert - channels in western area into Paenoa swamp (P)
- Planting upland (southern) forest area (Q)
- Further fill in wetland areas with more planting (E)
- New dispersed outlet into Lake Horowhenua (S)
- Construction of walking trail (T)
- Cleaning out/deepening of drains on neighbours land such that groundwater is intercepted. Invert to be sloped and discharged to either Arawhata Stream or the Wetlands (U)

Arawhata Wetland
Diagram 1: Construction Phase 3

Fish & Game reforms on the way

The Government has released proposals to reform Fish & Game's structure and operations.

Fish & Game currently operates under the Conservation and Wildlife Acts as a statutory organisation funded entirely through hunting and fishing licence fees.

Key changes include:

- a new Fish & Game Act to set the organisations powers and functions
- changing licence collection and revenue distribution, which will be administered by the New Zealand Fish & Game Council
- implementing a funding allocation model based primarily on licence holder activity
- establishing binding national policies for core regulatory functions, including setting a binding advocacy strategy for the organisation.

"We're committed to working constructively through this change process," said acting chief executive Richie Cosgrove.

"Fish & Game serves New Zealand's 200,000 hunters and anglers so they can get out in nature and do what they love. We work to protect the freshwater habitats that are so vital to both introduced and native species.

"Our vision remains unchanged – healthy freshwater habitats and species, thriving hunting and fishing traditions, and the opportunity for all Kiwis to enjoy access to sustainable wild fish and game resources," he said.

"We will support Fish & Game staff and managers, our councillors ... the Minister, and all stakeholders."

The proposals would clarify roles and responsibilities between the National Council and the 12 regional councils, implement good governance practices and strengthen the user-pays, user-says system that underpins Fish & Game's democratic structure, he said.

Under the proposals, regional Fish & Game Councils would retain their decision-making authority over local species and habitat management, including preparation of anglers and game notices covering seasons, bag limits and fishing and hunting conditions.

Topp Twin appointed Fish & Game patron

Fish & Game New Zealand has appointed entertainer Dame Lynda Topp as the organisation's inaugural patron.

Fish & Game chief executive officer Corina Jordan said she was incredibly grateful Dame Lynda has agreed to take on the role and share her passion for angling and hunting with New Zealanders from all walks of life.

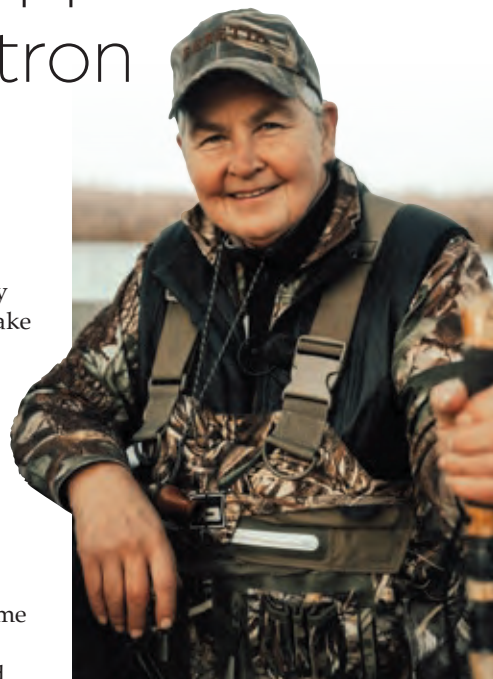
"Dame Lynda's love of angling and hunting, coupled with her contributions to the sector, make her an ideal candidate to represent Fish & Game.

"Dame Lynda shares with Fish & Game a passion for our traditions and the goal of getting people out fishing and hunting. Like many Kiwis she loves the bush, fishing, hunting, being part of it – not just taking from it.

"Angling and hunting are not just for men – Dame Lynda will help us change traditional expectations and show how women and all groups of society can get a lot out of these healthy and rewarding activities."

Dame Lynda, who supported Fish & Game's ReWild campaign at its launch, said she was honoured by the appointment and strongly believed in the role hunters and anglers played in conservation.

"Going hunting or fishing is fun, and a great way to connect with friends and family but it's also a really awesome way of managing introduced species



Dame Lynda in hunting gear.

Photo NZ Hunter Adventures

because every introduced species must be managed in a way that they are sustainable but don't take over from native species.

"So hunting is not only a great time to get together with friends and get amazing mental health benefits but also very important environmentally for this country."

Dame Lynda's role as patron will involve advocating for sustainable freshwater management, engaging the public, supporting initiatives, collaborating with stakeholders, and serving as an ambassador.

Dame Lynda is also trustee for Hunters for Conservation.

Predator Free 2050 disbanded

The Government is scrapping Predator Free 2050 Ltd, the Crown-owned company set up in 2016 to fund large-scale predator eradication projects and technological developments to help New Zealand wipe out possums, stoats and rats by the year 2050.

In May's Budget, the Government said Predator Free 2050 (PF2050) was being disestablished, with the Department of Conservation taking over its functions.

This news came as a shock to many, particularly while a Government strategy review of Predator Free 2050, was under way, with submissions due

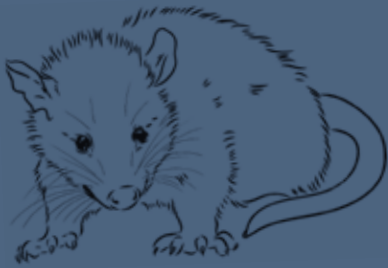
to close on June 30.

Predator Free 2050 Ltd chief executive Rob Forlong said he and 13 staff, and its four directors, were told the same day as the Budget.

Jessi Morgan, chief executive of the Predator Free New Zealand Trust, which works closely with PF2050 said they were like sister organisations.

Conservation Minister Tama Potaka says closing PF2050 will save \$12.6m in operating costs over four years.

"The predator-free projects and contracts funded by the company are not affected," he says. "We are committed to the predator-free 2050 goal."



Possums no longer party at Paparimu



ANNA BRACEWELL-WORRALL, FOR PREDATOR FREE NZ

When Shirley-Ann and Rick Mannering first brought their Paparimu farm just south of Auckland in 1991, one night's shooting would turn up 120 possums over just a few paddocks. Three decades later, they're not just managing possums – they're running a tech-savvy campaign to remove all introduced predators threatening their bush, wetlands and birdlife.

The Mannerings have won many awards, mostly for their environmental efforts, including a New Zealand Farm Environment Trust supreme award for their work at Waytemore Farms, their 1455-hectare sheep, beef and dairy farming operation.

"We've gradually progressed from shooting and poisoning on our own property to having a more formal eradication plan for pests on both properties that we now run," says Rick, referring to their 'home' farm and a second nearby farm they inherited from Shirley-Ann's father.

But they didn't get there overnight.

Their 'home' farm backs onto the Hunua Ranges Regional Park, home to Auckland's only kōkako population.

In 2018, a large-scale 1080 operation knocked back the Hunua possum population. Auckland Council then installed a network of Philproof bait stations through Shirley-Ann and Rick's bush block.

"You'd go out and you might only find a dozen, half a dozen or so [possums], so that was a bit of a game changer for this farm," Rick says.

Seeing the difference the Auckland Council made was a huge motivator for Shirley-Ann and Rick to intensify their efforts.

They now have a network of bait stations alongside automatic resetting and manual traps. They have also employed a farm ranger to help with maintaining traps, weed control and

Rick and Shirley-Ann Mannering on their farm.
Environment Trust

Photo Alan Gibson (NZ Farm

restoring their wetlands.

Years ago, the couple fenced off their native bush, but watched it continue to suffer despite the exclusion of cows and sheep.

With help from a QEII National Trust Auckland Council Fund grant, they installed a suite of additional bait stations, DOC 200 and 250 traps, and 12 AT220 self-resetting traps.

hired a full-time farm ranger to oversee trapping and restoration.

"You can't farm unless you are a bit of an ecologist at heart... If you pug every paddock and wreck every hillside, the grass doesn't grow, you're not getting good production out of your animals, and it just doesn't work.

Rick and Shirley-Ann say once you start on predator control, it's so



Signs of forest regeneration with possum control.

Photo Shirley-Ann Mannering

The early results were promising: chew card monitoring showed that possum numbers had halved.

So, they applied for the grant again, this time for their other, larger farm. They followed a similar plan, but doubled the number of AT220s they bought.

At \$565 a pop, the AT220s are much pricier upfront than manual traps. "But the beauty of them is they just keep working. It's a graveyard underneath the trap," Rick says.

Technology makes the job easier, and Rick's keen to see where it goes next. He has his eye on remote monitoring technology, especially for live-capture traps, which must be checked daily by law.

But more gear meant more maintenance, so the couple made a bold move: they

rewarding, it becomes addictive. And it doesn't have to be complicated.

They recommend starting with fencing off some bush, preventing stock from grazing. Then "chuck in" some traps. Take photos of the same vegetation every six months and "you're away laughing".

The rewards will be almost immediate. They saw this first in the canopy of their native bush. "As soon as something stops eating the trees, all the leaves come out on them," Rick says.

It's not just the native bush flourishing at Waytemore Farms, it's also the birds and farmland.

"When you get a family of seven or so fantails fluttering around and kākā visiting from the Hunua Ranges ..."

Shirley-Ann says.

Smart traps for rugged terrain

Smart traps that recognise their targets, reset themselves and adapt to trap-evading predators are joining the predator-free movement. And they can withstand rugged, rain-drenched terrain, dramatically reducing labour costs and time.

Damp, mountainous, windy – the West Coast’s Mt Te Kinga region has to be one of the most challenging locations to set up traps. But NZ Auto Trap’s new electronic trap changes how trapping can be done in even rugged, remote regions.

The AT520-AI is solar-powered, armed with a camera and self-resetting. Crucially, it only triggers for target species, helping protect curious kea, kākā, weka and kiwi and other native wildlife.

It’s a solar-powered trap, which means no need to recharge batteries. Using AI, the trap only arms when it gets a positive ID on an introduced predator. Its camera can also be used for monitoring, firing images back to base on everything it detects.

The wireless sensor mesh technology provides reliable remote communications. And it’s super durable for long-term use outdoors.

The Predator Free Te Kinga project, set up by West Coast Regional Council, iwi and the community, wanted a surveillance tool to help it determine where to focus its possum control efforts. The project aims to completely remove possums from 3700 hectares of Mt Te Kinga and covers 38,541ha of the Lake Brunner basin including wetlands, podocarp forest, braided river beds and tussock.

The AT520-AI’s camera, with its ability to identify species, was especially appealing to the project team.

High rainfall, gnarly winds and the odd lightning strike up Te Kinga “make almost every electronic thing not weatherproof”, says Predator Free Te Kinga project lead Sue Davies.

The team wasn’t sure how well the traps would communicate from deep ravines, and if solar power would cope in the dense, shadowy bush.

“If it works here, it’s probably going to be able to work just about anywhere,” Sue says.

So far, Predator Free Te Kinga is so



An AT520-AI trap and solar panel in the Te Kinga bush. *Photo PF2050 Ltd*

impressed with the trap’s results, it has ordered more.

“The trap side of it has actually surpassed our expectations,” says operations coordinator Conor Downes.

“Just last night, we had two rats in an AT520-AI, four hours apart... It can reset straight away, rather than our team heading in to service them on foot in hard-to-reach areas, which happens up to every three weeks at best, three months at worst.”

A standout feature of the trap is its ability to use AI to recognise any species that puts its head into the trap.

Te Kinga’s proximity to Arthur’s Pass brings it within kea territory and kea are notorious for messing with traps so the team rigorously tested the new traps for their safety. unarmed traps monitored with trail cameras were trialled for a year. There were no interactions.

By default, the trap only arms if it identifies a target species, like a possum or rat, with 80 per cent certainty. A second layer of protection locks off the whole trap for a specified period if it identifies something like a kea or weka.

But even the smartest traps have their quirks. One challenge is balancing the technology with practicality: where the signal for remote communications is strongest isn’t always the best spot to attract predators.

“The ideal would be placing traps

where the animals are and having the technology work in that spot. At the moment, it’s like: “This spot’s real good”, but you have to move 20 metres to get a connection,” Conor says. He’s confident that technology will keep improving. In future, that will probably look like smaller, more efficient relays.

The relay posts also pose a challenge when it comes to lightning strikes. “We’ve had one destroyed, and now we put a piece of rebar higher, within a few metres, so any strike defaults to that,” Sue says.

One of the most exciting aspects of these traps is not what they can do now but what they will do in future.

Later this year, a software update will instruct nearby traps to pump out extra lure if a possum is detected nearby but doesn’t enter a trap.

A separate hardware update will eventually put three different lures on each trap. AI will help determine which lure to pump out based on the species identified nearby.

There’s also work on using audio to attract target species.

Haydn Steel, operations manager at NZ Autotraps, says these updates are aimed at times when pest numbers fall, and trapping becomes more challenging – when only the wiliest animals are left.

These updates should mean the traps can attract pests from further away, meaning fewer have to be bought.

The goal is to retrofit updates to existing traps, such as those on the cliff faces of Mt Te Kinga.

“No one’s got heaps of money; we’re all scrapping for the dollar. So rather than seeing our trap become obsolete, we try to upgrade it,” Steel says.

The cost of these traps is steep at \$1030 each. But Predator Free Te Kinga crunched the numbers and believes the traps offer significant cost reductions.

Instead of helicoptering in staff who then walk five hours to service a trap that may have caught something months ago, the traps can be left for six months before they might need a service.

During that time, they are catching and re-luring continuously. – **Anna Bracewell-Worrall, Predator Free NZ** ■



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 with your questions.

Terms and conditions, plus an online application form, are on the Ducks Unlimited NZ website, www.ducks.org.nz.

Wetland Care 'grads' – where are they now?

Since 2019, DUNZ has awarded Wetland Care scholarships to 10 master's students, the majority from Victoria University of Wellington.

On completing their postgraduate studies, most of the students have gone on to work related to their studies.

Shannon Bentley, the first recipient to be awarded a \$5000 Wetland Care grant is now a senior adviser, biosecurity systems, at the Ministry of Primary Industries.

Cameron Johnson is an Emissions Trading Scheme consultant for Carbon Forest Services specialising in carbon modelling, land use assessments and resolving compliance issues. Cameron has a BSc and MSc in Ecology and Biodiversity. He continues to be passionate about bringing New Zealand to a carbon-neutral point through large-scale restoration and conservation of flora and fauna.

Olya Albot is due to complete her PhD at Victoria Uni in August. Her research is focused on investigating the biosequestration potential of coastal wetlands in New Zealand; quantifying the impacts of sea level rise on these ecosystems; and evaluating the



potential of coastal wetland restoration and preservation projects. She is also a project manager for The Nature Conservancy, a global environmental non-profit organisation.

Caitlin Daley is completing her PhD at the University of Otago while working as a project manager at Tiaki Maniototo catchment restoration project. Her PhD

is focused on improving management of the Upper Taiari (Taieri) Scroll Plains in the Mānaitoto.

Ellen Carlyon, left, is a field operator for Predator Free Wellington and a night guide at Zealandia Ecosanctuary.

She told *Flight*: "Where I am today would not have been possible if it wasn't for the support and grant from Ducks Unlimited. I am very grateful and hope to one day end up working in wetlands again."

Jessica Wagner is a research assistant at Victoria working on the ecological monitoring of restoration plantings for the Tonganui Corridors project, Wairarapa.

Pearl Ruston has recently joined Horizons Regional Council as a Wetland Research Associate.

One of the 10 Wetland Care grants was returned after a student's personal situation changed and she was unable to complete her research.

We now look forward to see where Wetland Care's current scholarship recipients Charlie Tustin and Georgia Goodsell, see story p3, take their careers.



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.