

Flight

ISSUE 187

JUNE/JULY 2023



**2023 Conference
Self-reset traps
Botulism crisis**

Off the back of a very enjoyable weekend of networking, our AGM, a charity auction and other shenanigans at Blue Duck Station, I've been asked to impart more of my opinions upon you.

Firstly, I would like to thank all of those who made the journey and contributed to a very successful fundraiser. I enjoyed catching up with old friends and making new ones.

All of us are trying to solve problems, make the world a better place and live our lives as meaningfully as we can.

For myself, Sandy, our kids, and our Blue Duck family, conservation is integral to our business, our lives and our wider community. An improving environment is a pleasure to live among; a degrading one is depressing.

Out here in the backcountry, everywhere we turn we see something we can make a difference to – protecting an endangered species from predators, planting or caring for native trees, or cleaning up and improving our waterways. There is so much to do... it can be daunting!

We'd hoped for many years to have meaningful partnerships with relevant government departments. Working towards a plan for a better New Zealand where the environment is properly valued and taking care of our ecology is an investment into our future.

But the Department of Conservation and its layers of bureaucracy are becoming inefficient. There are fewer and fewer rangers out there doing the mahi, and more and more office administrators consumed with all things health and safety.

It's become evident that it's up to us and organisations like DUNZ to pick up the slack. If not us, then who?

A concerning example is the Manganui o-te-ao, just a few valleys away from us. This was a standout blue duck project with great community engagement. Their proactive trapping resulted in an increase in blue ducks breeding on the river.

However, the trapping appears to have stopped and now bird numbers are going backwards.

DOC (now commonly known as the Department of Conversation) stipulated that they needed to deliver aerial 1080 every three years to keep the rat, mustelid and cat numbers

down within Whanganui National Park.

Currently, we are at least two years behind on this timeframe, allowing the pest numbers to build back up again, negating all of the good work that has been achieved in the past.

DOC and regional councils are not co-ordinating their poisoning operations so some areas are being targeted while neighbouring areas are not.

Because there's no strategic approach, pests are reinfesting poisoned areas almost immediately. This is such a waste of time and money.

While I'm sharing my opinion, another challenge for the backcountry is pine trees. Rural communities, where the conservation work is most needed, are struggling because of rising costs, increased compliance and poor returns.

A higher return for hill country like ours is carbon sequestration through pines. It's happening fast. We think it'll be a liability to future generations.

Pine trees are bad for the environment, terrible for communities and will end up being a cost to our economy.

People are selling out to carbon farmers and leaving the land at an alarming rate. How will we keep our rural schools open with no families living on the land?

While this all sounds like doom and gloom, there is some good happening. There's better awareness, more volunteers and conservation groups springing up, as well as farmer-led catchment groups gaining momentum.

There's also new technology coming through in multi-kill traps which will hopefully take away some of the labour requirements of traditional trapping. It's exciting to see the rapid improvement in this space. Now more than ever, it's up to passionate people and businesses to do the work.

For now, Sandy and I have done our bit to keep our local school operating with our four kids making up one third of the school roll. And we'll never sell out to pine trees.

Cheers,

Dan Steele
Vice-President



Contents

- P3-6 AGM**
Reports from the 48th AGM.
- P7 Self-reset traps way to go**
Volunteer trapper Jeff Williams on low-maintenance traps.
- P8 Farmers doing it for themselves**
Catchment collectives are catching on.
- P9-10 Spotlight on Wairio**
- P11 Booming bitterns and forgotten females**
DUNZ's seventh Wetland Care scholar.
- P12-13 Botulism takes no prisoners**
- P14 Warning about weeds**

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Cover: The entrance to Blue Duck Station, the venue for DUNZ's 48th AGM and Conference. *Photo Alison Murray*

Back: A whio on the Retaruke River.

Photo Leanne Silver/Leanne Silver Photography

Flight magazine is published by Ducks Unlimited New Zealand Inc, PO Box 165, Featherston 5740, New Zealand www.ducks.org.nz

ISSN 1173-2776

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Editorial:

Contributions, including photographs and letters to the editor, are welcomed. Please send these to the editor before the next deadline, 18 September 2023, in time for the October/November issue.

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

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Blue Duck Cafe sets agenda

Blue Duck Station turned on a perfect weekend for this year's Ducks Unlimited's 48th AGM and Conference.

On May 12, about 40 guests drove into the remote station, which is surrounded by Whanganui National Park, and checked into their accommodation for the two nights. Some DUNZ members had mobile homes and others stayed in the various lodges and cabins dotted around the eco-farm.

All meals were provided at the Blue Duck Cafe, the central hub and venue for the AGM, auctions and socialising.

After a casual meetup and dinner on Friday night, guests reconvened the next morning for breakfast before being split into two groups: one taking an ATV tour around wetlands on the farm and other places of interest on the station, and the other heading down to the river for a jet boat trip on the Whanganui and Retaruke rivers.

After lunch, the two groups switched activities, making the most of the warm autumn day before reconvening at the cafe for pre-dinner talks, dinner and the silent and live auctions. The auctions raised about \$9000 which will go towards the trapping programme at Blue Duck Station.

Volunteer trapper Jeff Williams spoke about multi-use traps, and King Country sheep and beef farmer Natasha Cave spoke about the benefits of farmers uniting to enhance conservation in the area and front-foot future regulations (stories, page 7-8).

The AGM, which was held after breakfast on the Sunday, began with President Ross Cottle welcoming everyone and commending the hosts – Vice-President Dan Steele and his staff, especially Mel – for the enjoyable and informative weekend.

PRESIDENT'S REPORT

Ross apologised to "those of the duck shooting fraternity for dragging them away" from the second weekend of the season but Blue Duck Station is closed in July/August, when DUNZ's annual meetings are usually held.

This year DUNZ had funded the construction of a large pond on Paddy Chambers' property in Raetihi, and was now looking for other suitable projects to fund.

Ross said membership was still in decline, with about 200 people now,



From top: DUNZ conference guests gather for the live auction on Saturday evening; auctioneer Dan Steele with his able assistant, Will Abel, as bidding begins; Rosie Sutherland, Ken and Jacqui Barnes dine al fresco at the cafe.

from a peak of about 350 to 400.

He and David Smith had spent the previous weekend at Wairio, and although the shooting was not very productive, they were treated to a stunning sunrise and sunset, and the wetland was looking fantastic, something that DUNZ members should

be proud of.

This year's finances had benefited from a grant of \$9000 from the Pharazyn Trust, and Ross and Jim Campbell had provided one of the trustees with some advice on planting.

Continued next page

48th AGM and Conference

from previous page

While at Wairio, Ross met Ellen Carlyon, one of the Wetland Care scholarship recipients, working there on her research into rat behaviour in wetlands. It was inspiring to see her enthusiasm, and DUNZ is delighted to help her with the \$5000 scholarship.

Ross noted the passing of Director Neil Candy's wife, Julie, a DUNZ stalwart who had put a huge amount of time into the Manawatu chapter, which folded after the Candys left.

He concluded his report, saying: "We are in good heart financially, thanks to the Wetland and Waterfowl Trust, and are still working in the wetland field."

WETLAND AND WATERFOWL TRUST

David Smith said the trust assets stood at \$514,202 as at the December 31, 2021, financial year.

As at December 31, 2022, they were \$419,564, \$94,638 less than the year before.

"The assets include funds in our bank account, the balance being our portfolio with AdviceFirst," David said.

As at December 31, 2022, the trust held \$27,946 in its bank account. The portfolio stood at \$391,618, compared with \$511,269 the year before.

"The \$119,651 reduction in our portfolio consisted of a withdrawal of \$50,000 for advances to DUNZ (\$25,000 of which is still held in the Trust's bank account) and a loss in the portfolio of \$69,651. (This figure was incorrectly advised to the AGM as \$29,137, I had used the 2021 figures. My apologies.)"

As at May 8, the portfolio stood at \$407,987.62 – \$103,281.38 less than as at December 31, 2022. Allowing for the \$50,000 withdrawn for DUNZ, the loss on the portfolio was \$53,281.38.

"That is at least a 10.42% loss but likely more, depending on the timing of the withdrawal of \$50,000. While the stock market has had its woes lately, the trustees are concerned not to allow it to continue if there are better alternatives.

"The trustees met the financial adviser, AdviceFirst and asked about the fees – "not just AdviceFirst's fees, but also the fees affecting the various funds our funds are placed in".

"We also wanted to know how our current portfolio was performing compared to others. We were concerned our funds are not doing as well as others.

"We were unimpressed. AdviceFirst was



From top left: The morning jet boat tour, with, from left front, Neil Candy and Neal Hull, Diana and Fraser Chetwin, and John (obscured) and Carol Noakes; Dan Steele, with John Noakes in a supporting role, describes how every part of the shinsei poplar provides value (US students pay to prune the trees, the foliage is palatable and the poles are in hot demand for land stabilisation); the smaller of the two jet boats with Dan's father, Richard, at the helm.

not able to tell us but promised to get the details. Both Jim Law and I followed this up. We have received a reply but it was a standardised response ... We continue to be unimpressed and are now investigating alternatives," David said.

Glenys Hansen is standing down as a trustee and treasurer. Glenys has done the Trust's accounts since 1997 – 26 years. Before that she was DUNZ treasurer. "She deserves a rest and our heartfelt thanks," David said.

Under the Trust's constitution, no more than two trustees can be DUNZ board members. Neil Candy and Jim Law fill those two positions.

"So we are looking for a non-board member who has the ability to do the accounts. Trustee meetings are often by teleconference so location is not a requirement."

ELECTION OF OFFICERS

Neil Candy and John Cheyne, whose two-year terms on the DUNZ Board were up, were both willing to continue as directors and were re-elected unopposed.

WETLAND CARE

Will Abel said DUNZ had carried out only one major project in the past year – a large pond on the Chambers' farm in Raetihi.

"The great thing about this pond was that it is an addition to the network of wetlands and ponds now covering the farm, and links in with all the other habitat around the district.

"We have had members creating habitat in the Ruapehu district now for over 50 years and it shows, with the number of waterfowl spread over the area," Will said.

48th AGM and Conference



Clockwise from top left: Ross Cottle and Co-Patron Di Pritt, well co-ordinated in green leathers; guest speaker Natasha Cave; Fraser Chetwin and Jim Law; Dan's wife Sandy Waters chats to Di Pritt, Trish Smart (obscured), Adrienne Bushell and Neil Candy; Dan with his aunt Rosemary and Paul Clark; John Noakes, Raine and Jeff Williams and Dan Steele.

"You always get better value out of linking wetlands than doing isolated ponds on their own."

Ross said DUNZ was actively looking for new projects to fund.

ROYAL SWAN

Despite pairs in wetlands around New Zealand and free flying at Lake Ellesmere, there were no cygnets available. It was possible the gene pool had become too small and they had stopped breeding, as there had been no swans available for several years now.

WAIRIO WETLAND

Jim Law said the 2022 planting day had

been a great success, and with follow-up planting by contractors Better Nature, 1900 trees had been planted.

Noxious plant control had continued, supplemented by helicopter spraying, funded and organised by Greater Wellington Regional Council (GWRC), which targets willows, blackberry, pampas, and loosestrife.

A bittern survey on the eastern coastline of Lake Wairarapa had been completed by a new GWRC contractor, Shane Cotter.

Predator control by GWRC's Steve Playle (also a DUNZ member) is to be extended to possums.

DUNZ scholarship recipient Ellen Carlyon is continuing to carry out research on rat behaviour in Stage 1 of Wairio.

Six years ago GWRC took responsibility for reticulating water from Matthews Lagoon and Boggy Pond into Wairio and it has still not been completed due to a failed fish passage. Another passage design had been completed and the resource consent prepared but site work has been delayed until 2024.

The Treaty of Waitangi settlement had been finalised and DUNZ was awaiting the establishment of a Wairarapa Moana

Continued next page

48th AGM and Conference

from previous page

governance group to formally extend the current DUNZ management agreement, which expired on April 29.

A public planting day is set for Tuesday, June 27, to plant 500 trees, and 500 more will be planted by Better Nature.

Expenses at Wairio for 2022-23 – for plants, noxious weed control and spraying and contract planting – had come in close to the \$20,000 budgeted at \$20,581.

Funding had come from the Aorangi Restoration Trust (\$7600), Rotary (\$3000), Pharazyn & Muter Trusts (\$4000), and Pharazyn Trust (\$5000), totalling \$19,600.

The draft budget for the 2023-24 year was \$15,000 and GWRC had already committed \$4500 for trees and a further \$1500 for fencing.

DUNZ has spent a total of \$270,111 on the project in the past 17 years.

Ken Barnes said Ngati Kahungunu kaumatua Haami Te Whaiti had asked him to extend his personal thanks to Ross and Jim for their efforts at Wairio, saying: “Without those two guys, there would be no wetland.”

SCHOLARSHIPS

Jim Law said there was just one scholarship recipient, Victoria University student Ellen Carlyon, in the past financial year. She is “as keen as mustard” and Professor Stephen Hartley, who has a good relationship with DUNZ, is one of her supervisors.

Jim said it was strange there appeared to be little interest from students in the \$5000 grants.

DUNZ has just awarded another scholarship for the current year. There were only two applicants in the March round, but it was decided one, investigating mosquitoes in wetlands, did not fit the Wetland Care scholarship criteria.

The successful applicant, Zohara Rafi, of Otago University, is studying bittern behaviour and one of her supervisors is former DUNZ board member Emma Williams.

Jim concluded by asking people to spread the word about the scholarships and encourage more young people to apply for them.

FINANCIAL REPORT

Jim Law tabled the report on behalf of Treasurer John Bishop who was unable to attend.



A pair of whoie in flight above the Retaruke River.

As at March 31, 2022, the balance sheet shows \$33,000, which was largely funding from Wetland and Waterfowl Trust. The current balance was \$23,000, with \$25,000 available from the Trust.

This year, revenue dropped from \$89,000 to \$66,000, which reflected greater activity in the previous year, and therefore it drew down more funds from the Trust.

“We are in good heart but the reality is that trust fund that is supporting us will decline by roughly \$50,000 a year,” Jim said.

This gives DUNZ about eight, maybe 10, years before alternative funding would be required.

PROJECT BITTERN REPORT

John Cheyne submitted a written report, which was tabled by Ross Cottle.

John said Ducks Unlimited NZ had supported Project Bittern for several years, providing funds for research (radio transmitters, fish survey nets, field research expenses, and predator traps).

“This support has significantly improved our knowledge of this iconic wetland bird, now classified by DOC as threatened – nationally critical, the same conservation threat category as kakapo and black robin. The next category is extinction, he said.

Results over the past two years include:

- A good population of elvers, very small juvenile eels, which are a major food source for bittern, has been confirmed at Lake Whātuma in Central Hawke’s Bay and DUNZ’s Wairio project. This shows elvers are able to migrate from the sea to these

wetlands.

- The numbers of male bitterns holding breeding territories (booming) at Lake Whātuma is steady at 10 birds.
- At Wairio in spring 2022, six male birds were detected by Shane Cotter, the new contractor for Greater Wellington Regional Council, with four on the lakeside west of Wairio and for the first time, two birds booming in the raupō within Wairio (see report, page 10).

“With the creation and maintenance of satisfactory water levels [DU] natural growth of desirable wetland palnat and the establishment of suitable food supplies (eels, frogs) together with ongoing predator control (GWRC, DOC), this wetland continues to mature.”

John said if bitterns were benefiting from the DUNZ work, all other wetland birds using the area were also beneficiaries of this work.

Ross said John’s report showed greater bittern numbers at Wairio, a good indicator of a wetland in good heart.

“In stark contrast, 30 years ago at Whangamarino, south of Auckland, John counted 250 birds, and they now count seven. Fluctuating water levels are thought to be a major contributor to the wetland’s decline despite DUNZ’s legal efforts to stop Mighty River Power 30 or 40 years ago.

“DUNZ supposedly won the case but Mighty River Power then blocked subsequent efforts to monitor its actions.

“No one knows how to fix it. It is in dire straits and no one has any clue on how to fix it – it’s 7000 hectares and it’s become a cesspool. Very, very sad,” Ross said.

Self-reset traps keep on keeping on



ABOVE: Ross Cottle, Anna Keenan and Dan Steele listen as Jeff Williams, demonstrates how the reliable but higher maintenance DOC200 works.

LEFT: NZ AutoTraps' self-resetting AT220.

energises a circuit to activate a gas pouch, which, over time, slowly pushes the lure out and down into the trap. The lure lasts about 3-4 months.

Price-wise, the AT220 is more expensive, reflecting its 100 resets v the A24's 24. GoodNature has a two-for-one deal for preferred conservation projects.

The conference included two pre-dinner speakers, Jeff Williams, who demonstrated self-reset traps, and Natasha Cave, of the newly formed Whanganui Region Catchment Collective.

Jeff and his wife Raine run Blue Duck Station's trapping programme, looking after the traplines, upgrading traps and organising volunteers.

Originally from the East Coast, US, the Williams now live in the Coromandel though they spend much of the year volunteering at five or six conservation projects around New Zealand. Raine was a Department of Conservation consultant for many years.

Jeff said the aim of trapping networks was to eliminate the key predators of the species you wanted to protect. "Here, it's whio and kiwi."

The key killers of those two species are stoats, followed by ferrets, cats and roaming dogs.

He described the workings of the DOC200, "basically a very dangerous snap trap". It is simple to use and effective but as a single use trap, once activated, it's useless until manually reset.

Volunteers have to check the traps regularly – they need constant work, Jeff said.

He said they were starting to replace the higher maintenance DOC200s with self-resetting traps such as NZ AutoTraps' AT220, which was developed by Kevin Bain about six years ago, and GoodNature's A24.

The AT220 is manufactured in a Whakatāne factory, and to date, about 15,000 have been made.

It has an electric rotor and pump, and as a lure, a plastic pouch filled with mayonnaise with cinnamon. When the motor runs, it opens up a kill bar, and can be set to only run at night.

A couple of electric eyes fixed on an infrared light activate the trap if an



animal passes between the them, blocking the light.

Within 30 minutes, the AT220 reopens, the animal drops out on to the ground, and the trap is reset. It can self-reset up to 100 cycles and only needs servicing once every 4-6 months.

Jeff has been working with NZ AutoTraps on the technology side and the company has some exciting innovations in the pipeline. It is currently working on including a chip reader that would stop the trap from activating if it detected a cat's microchip, which it would then read and record.

Each trap unit contains the trap, a rechargeable battery, a USB charger, 4-6 months of lure, an Android phone application (to be installed on your device to access the kill counter and other trap data for monitoring purposes).

They have been tested for possums, rats and mice, and the lure was targeted to those species, but there are reports of people killing stoats and feral cats with them. Dan said his biggest result with the AT220 in one night was 10 animals under a single trap.

Jeff also demonstrated GoodNature's A24, which uses a CO₂ cartridge. This allows the trap to fire 24 times before it needs refilling. It's an instant kill for stoats, rats and mice.

The lure system is a plastic pouch which comes with a magnet and 10c coin. When the coin is removed, the magnet

Awards for DU members

Ducks Unlimited NZ members have been recognised in the 2023 Horizons Ballance Farm Environment Awards.

Foxton dairy and beef farmers, Peter, John and Karen McErlean of Poplar Partnership are this year's supreme regional winners, and Rangiwhahia's Mike Bourke, who has maintained Mangahuia Wetlands for many years, won the Margaret Matthews Trophy for his commitment to sustainability.

The awards are run by the NZ Farm Environment Trust and champion sustainable farming and growing.

The supreme winner from each of the 11 regions will go through to be considered for the Gordon Stephenson Trophy at the trust's national showcase at Te Papa in May.

The McErleans have created multiple wetlands throughout the farm, including significant investment in the planting of native trees.

They are keen to continue developing the wetlands, as well as working to protect a native giant snail colony on one of the support blocks.

Poplar Partnership also won awards for soil management, people in the primary sector, sustainability and stewardship, agri-science, farming efficiency and agri-business management.

Farmers doing it for themselves

The first paid employee of the Whanganui Region Catchment Collective, Upper Catchment Co-ordinator Natasha Cave, spoke about the work of the collective and its plan to encourage as many farmers as possible in the region to join the group.

Natasha farms in the Mokauiti Valley, King Country, with her husband Alan, but has links to the Retaruke area through her forebears, the Neilsons, who had a farm east of Blue Duck Station.

Dan Steele said similar catchment groups were springing up all over the place and it was the first time he had seen farmers getting involved in conservation from the ground level and saying, let's take charge of the narrative ourselves and make sure water quality is on the up and up, let's make sure biodiversity is being looked after.

"We are aiming to be the biggest catchment group in New Zealand, just short of 800,000 hectares," Dan said.

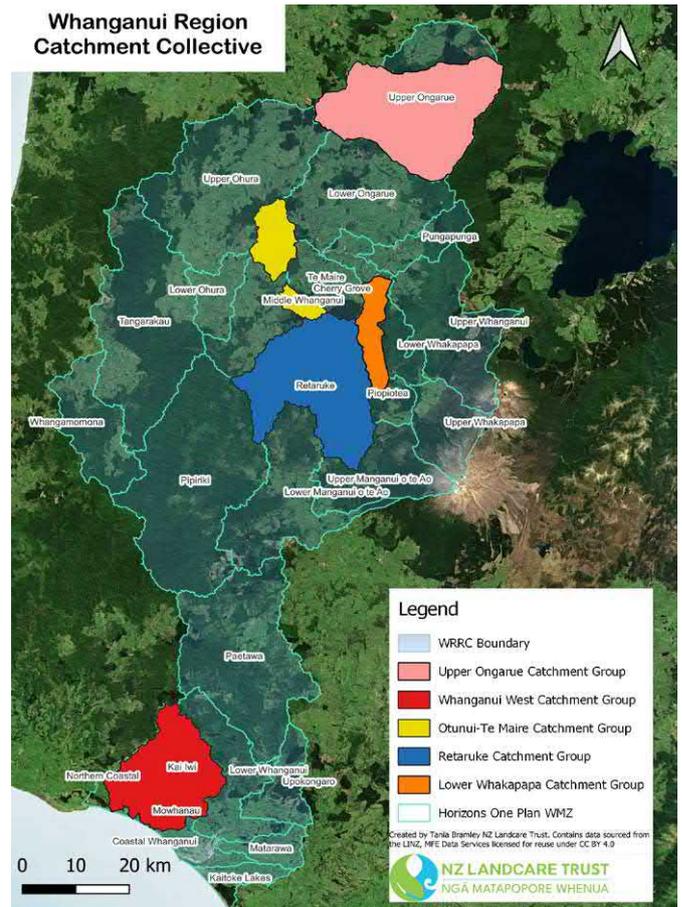
Natasha said Alan and her were members of the King Country Catchment Group, which had been going for about eight years. It covers 250,000ha, so in comparison, the Whanganui Catchment Collective is "huge".

The WRCC was formed by several farmers, including Dan, who put together a proposal to the Ministry of Primary Industries and got some "serious funding" to set up the collective and employ Natasha and another co-ordinator.

The collective is a farmer-led group with a big focus on farmer education, keeping abreast of new legislation and regulations, learning from each other in a safe environment, improving water quality, helping biodiversity and learning about the impacts they have on the land.

Natasha said that the collectives had "gone beyond the environmental space" and were having a positive effect on communities, making them more resilient and giving farmers access to funding and expert knowledge.

Her work includes applying for funding, and one of three



current applications she has submitted includes a proposal to set up a Retaruke trap bank.

Members of the collective have become more motivated to carry out trapping and a trapbank would allow farmers to borrow traps when they needed them.

LiDAR reveals drainage risk to wetlands

For the first time in New Zealand, research has shown how remote sensing, using LiDAR, could aid improved conservation management of wetlands through better drain detection.

LiDAR (light detection and ranging) determines ranges by targeting an object or a surface with a laser and measuring the time for the reflected light to return to the receiver.

Recent research, led by Manaaki Whenua ecologist Dr Olivia Burge and published in the *New Zealand Journal of Ecology*, shows that while efforts have been made to restrict new drainage close to wetlands, the extent of existing drainage in or near wetlands nationally is unclear.

"Wetlands on peat are particularly sensitive to lowered water tables and can effectively subside and shrink when drained," Dr Burge said.

"Drainage systems can cause the loss of key wetland species, an increase in weediness, declines of native wetland species diversity, and further wetland loss and degradation."

While there is a national drains spatial layer, this has never been used to explore where drains occur near wetlands. Dr Burge and her team are the first to look at wetlands within 100 metres of drains using LiDAR.

Co-author Dr Hugh Robertson, a wetland ecologist from the Department of Conservation, says they developed a model to identify drains using LiDAR which they compared with the national drains spatial layer for the Waituna catchment of Southland.

"As LiDAR is more sensitive to detecting drains in the landscape, it showed the area of wetlands potentially affected by drains is more extensive than the national layer might

suggest," Dr Robertson said.

Dr Burge said, "Not only does this work help us to better detect drains around wetlands and identify where the potential risks from drainage exist, it also has the potential to be scaled up nationally to complement the mapping of wetlands down to 0.05ha, which is required to be completed by 2030 under the NPS Freshwater Management."

Co-author Dr Janet Wilmshurst said, "This is good news for small wetlands which are disproportionately important in conserving biodiversity but are currently too small to be mapped.

"As LiDAR coverage becomes more widely available, this technique will be able to better assess the risks from drainage to all wetland habitats regardless of size over New Zealand..."



On a mission from Massachusetts

A group of US engineering and physics students visited Wairio Wetland earlier this year as part of their research into the Wairarapa Moana Restoration Plan.

They visited Wairio to see the kahikatea plantings and how the trees play an important role in wetland restoration.

Ian Gunn, Wairarapa Moana wetlands project coordinator at Greater Wellington Regional Council and Ra Smith, of Ngāti Kahungunu ki Wairarapa, have been mentoring students from Worcester Polytechnic Institute (WPI), Massachusetts since 2015.

This year, four students set out to study Wairarapa Moana and make recommendation for a restoration plan.

After seven weeks of online research, they arrived in Wellington in early January, making several site visits and interviewing various stakeholders.

Michelle Sangillo, one of the students, said: "With all of this knowledge, we made recommendations to Ian and Ra about ways to improve the Wairarapa Moana Restoration Plan."

"The Wairio wetlands were a stop during one of our site visits to look at the kahikatea plantings."



From left, Gabriela Ferullo, Sam Markwick and Michelle Sangillo on site at Wairarapa Moana. Nika Gegechkori, the fourth student, worked remotely

The students returned home in March. Their final report made three recommendations:

- "Our first recommendation builds on the current stock exclusion regulations to use native plant species to reduce chemical runoff.
- Our second recommendation builds on the current biodiversity site-specific strategies in the plan and adds pest fish management.
- Our last recommendation focuses on increasing youth engagement with the Wairarapa Moana."

Building fences

Under the National Policy Statement for Freshwater Management 2020, the following regulations apply from July 1, 2023:

- Where beef cattle and deer are break feeding or grazing on annual forage crops or irrigated pasture, they must be excluded from lakes, and rivers more than a metre wide (bank-to-bank).
- Dairy cattle and pigs must be excluded from lakes and rivers more than a metre wide (bank-to-bank), regardless of land slope.

Further provisions will be enacted on July 1, 2025.

Bitterns out in force at Wairio

In 2022 **Shane Cotter** carried out bird surveys on behalf of GWRC at Wairarapa Moana. Here is a summary of his report.

[Ducks Unlimited Director] John Cheyne, of Wetlands Works, led annual spring surveys for Australasian bittern (matuku, *Botaurus poiciloptilus*) and spotless crane (pūweto, *Zapornia tabuensis*) at selected wetlands within Wairarapa Moana between 2012 and 2021.

In 2022, John passed this responsibility to me. I conducted the annual spring (October-November) survey using the same methodology as in previous years so continued comparisons could be made of the annual results.

The survey focused on the core wetlands (Boggy Pond, Matthew's Lagoon and Wairio Wetland) and the northern wetlands (Barton's Lagoon, Tauherenikau delta, Simmond's Lagoon, J K Donald Block).

Only booming male matuku are surveyed because females are much less vocal and therefore difficult to detect and monitor.

In the 2022 survey, 11 booming male matuku were located at the core wetlands and 12 in the northern wetlands. This is an increase in previous years and a record number at both locations.

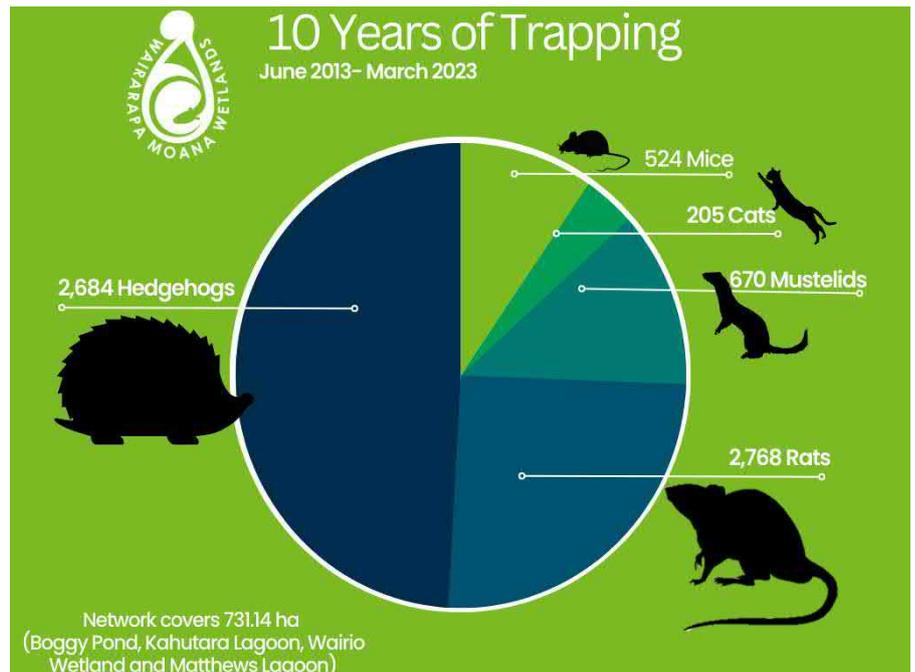
At the core wetlands, numbers have remained relatively stable at eight to nine birds since 2014 while at the northern wetlands, annual numbers of male matuku has varied between three and nine birds.

Overall, the combined number of booming male matuku at the core and northern wetlands has steadily increased from 10 in 2016, to 16 in 2018, to 18 in 2020, and now 23 birds in 2022.

In addition to the 23 matuku heard booming during the survey, three other birds were seen, one in Matthew's Lagoon near Boggy Pond and two in Wairio Wetland.

At Boggy Pond, nine pūweto were located, the most in Boggy Pond since 2018 and significantly up on the single individual in 2021.

During the matuku survey, four pūweto were heard calling independently, not in response to playback calls. Two were calling in Matthew's Lagoon close to each other while at two locations within



Graphic courtesy of Greater Wellington Regional Council and the Wairarapa Moana wetlands project.

Wairio, one individual was heard calling.

I believe there are more pūweto than recorded during the pūweto surveys. They have just moved to different areas of the wetland complex outside the pūweto survey routes.

Ongoing predator trapping with the regular servicing of traps is essential as several predators were seen dead in traps within days of the traps being serviced and rebaited at the core wetlands. These included a weasel and several rats.

All traps observed were well set up and maintained, and had good vegetation clearance.

RESULTS

Numbers of booming male matuku have continued to remain relatively stable at the core wetlands of Boggy Pond and Matthew's Lagoon and at the northern wetlands of Barton's Lagoon, Tauherenikau delta, Simmond's Lagoon and the lake edge.

However, in 2022, numbers increased at Wairio Wetland from three to six birds and at J K Donald Block from five to seven birds.

This increase is likely to have been in response to significant positive habitat changes that have occurred in the past three to five years, including an increase in the size and density of rushlands, extensive shallow water through the rushlands, large scale willow control and the intensive predator trapping

programme carried out at the core wetlands.

The vast majority of male matuku have been recorded booming each year out of raupō reedbeds and this continued in 2022. The exception has been a small number of birds heard booming out of oioi rush/*Isolepis* rushland closer to the lake edge.

Most birds recorded booming at other wetlands around Wairarapa Moana have also been located in raupō. Raupō appears to be a key habitat for booming males, however they will also use other tall reeds, rushes and sedges when raupō is not present.

In 2022, matuku were not recorded in the eastern half of Boggy Pond where most of the open water is located. Similarly, only one individual was recorded in Matthew's Lagoon.

This continues a trend from previous years where matuku have only been found in the northern end of Matthew's Lagoon close to Boggy Pond. This is puzzling as there is no obvious difference in vegetation compared to the rest of the same wetlands.

In his acknowledgments, Shane paid tribute to the work of John Cheyne: "Without his sharing of knowledge and information gained over many years, this transition would have been very difficult. John's strong advocacy for matuku over the last 12 years while undertaking these surveys has been immense and is appreciated."

Booming males and forgotten females

DUNZ's seventh Wetland Care scholar Zohara Rafi is an award-winning birdsong researcher and now, she is turning her attention to the calls of the female Australasian bittern/matuku.

With former DUNZ board director Emma Williams as one of her advisers, Zohara has ambitious plans to attach recording devices to female bitterns to help provide a more accurate picture of bittern populations.

The Otago University student says the objectives of her PhD research are to understand the movement of bitterns and determine whether female bittern vocalisations can be used for monitoring.

Australasian bitterns are a nationally critical and highly mobile species which are monitored using the loud booms of males made during their breeding season in spring.

"Our knowledge of female bitterns is very minimal because they have not been monitored as much as the males."

The female is said to make a bubbling call when returning to a nest but this has not been studied scientifically.

"If female vocalisations can be documented and understood, it will be a breakthrough which will help us incorporate it into the national bittern monitoring protocol," Zohara says.

"The dependence on the vocalisations made by the males is a limitation of the current monitoring protocol..."

Reliance on recording only the booms of males may have resulted in over-counting the population in the past.

"Our study will be the first to attach recorders to female bitterns to document their vocalisations."

Bird calls have always captured Zohara's imagination. To decipher a bird's vocabulary is to stumble upon a goldmine.

"With a secretive bird like the bittern, it is a distant ambition, for we still have no understanding of their full body of vocal communication."

"Unfortunately, bitterns are not as



Zohara Rafi, in rock wren territory at Marian Lake Lookout, Key Summit, Routeburn Track, Milford National Park.



An Australasian bittern nest with "cute" chicks and eggs.

Photo Matt Herring

cute or charismatic, nor does it have a beautiful call as other bird species that get lots of conservation attention in New Zealand.

"But if you have seen a bittern chick, or at least a photo of a chick, you will agree that bitterns are indeed cute," she says.

She is eager to capitalise on Emma's work and the work of her mentors Dr Jo Monks and Professor Bruce Robertson.

She says, "...it is now or never for these vulnerable species of birds managing to eke out their survival on an even more fragile ecosystem here in NZ Aotearoa."

Zohara has started analysing the audio records she has sourced from her fieldwork from last year, having

deployed an array of acoustic recorders in Otago.

She has built automatic detectors to sieve through the hundreds of hours of audio efficiently and thinks eavesdropping on bitterns needs to be take advantage of new technologies.

In addition to the more traditional acoustic recorders, matuku will be even more closely monitored in the coming season with spy recorders and GPS tags to understand movement and vocalisations.

The \$5000 Wetland Care scholarships were established in 2019 to assist students working in wetland conservation, which includes threatened bird species.

Disease wipes out 1000s of ducks



A dead mallard at the water's edge in Helenville.
Photo John Dyer

An outbreak of avian botulism in Waikato's Whangamarino wetland has killed thousands of waterfowl including rare indigenous species.

Fish & Game says this year's outbreak of botulism, which produces a toxin that can paralyse and kill birds, follows increasing outbreaks during summer in the Waikato in the past decade.

Poor water quality and changes to water flows through human activities contribute to low oxygen levels, creating the perfect conditions for botulism. This results in fish dying, followed by birds, before the botulism spreads to other surrounding wetland environments.

Covering almost 7000 hectares in Waikato, Whangamarino wetland is recognised by the Ramsar Convention as a significant global wetland worthy of protection and conservation.

Fish & Game New Zealand chief executive Corina Jordan said in March: "Parts of this wetland have been without oxygen for the best part of three months, leading to massive aquatic deaths of even the hardiest freshwater species such as eels. This isn't normal in healthy freshwater wetland systems.

"Lake Waikare, one of the Southern Hemisphere's most polluted lakes, has also been diverted into the wetland as part of the flood control scheme, which is adding even more nutrients to the wetland.

"While there's no quick fix, the Waikato

Regional Council needs to take a really hard look at how the system is managed and limit discharges into these waterways to help decrease the likelihood and severity of these incidents continuing to occur in the future."

Degradation of waterways and associated environments, coupled with predictions of longer hotter summers, means botulism outbreaks are likely to become more common, Ms Jordan says.

David Klee, Fish & Game's southern game bird manager for the Auckland/Waikato region, says the situation is grim.

"Botulism is symptomatic of severely degraded ecosystems and this area is being adversely impacted by human activity to the point where its resilience is severely compromised.

"Fish & Game, the Department of Conservation, mana whenua, and hunter volunteers, in conjunction with contractors, have recovered close to 1500 dead birds and rescued hundreds of sick ones from the wetland, an important step in trying to minimise the size and scale of the outbreak.

"It is an appalling situation both in terms of animal welfare and the environmental impact.

"It really is the ambulance at the bottom of the cliff stuff. Until we see a huge paradigm shift in how we treat our freshwater environments, these situations will continue to occur."

Botulism:

JOHN DYER

Botulism is a neurotoxin produced under the right conditions by a widely found bacterium. Typically, it's produced when water temperatures are high, dissolved oxygen is very low and the pH range is ideal.

It is also called limberneck because, at one point, afflicted birds cannot hold their heads up. They struggle to flap their wings, lose their ability to walk and, in the latter stages, lose their ability to swallow.

They can dehydrate right on the water's edge but also drown because they cannot hold their head out of water. Death is ultimately from respiratory failure but they'll often appear in good condition because it happens so quickly.

For around 40 years, I have been finding, bagging and removing ducks with botulism to limit its spread.

It affects many species of waterfowl and cormorants, supposedly hawks too, though I have yet to pick up hawks despite often finding them cleaning up infected carcasses. Hawks can carry infected carcasses to other nearby sites.

There are seven strains of botulism. Types A, B E and sometimes F can cause serious food poisoning and sometimes death in humans, typically from inexpertly preserved (usually bottled) shellfish.

Waterfowl get Type-C botulism. One authoritative volume states: "The toxin from Type-C does not harm people." However, always use sensible precautions handling sick or dead birds. Wear rubber gloves, wash hands thoroughly and use antibacterial soap afterwards.

I run antibacterial wipes over my truck steering wheel, door handle and anything I might have touched before getting home, showering promptly and washing all exposed clothing separately. The boat deck also gets a wash down.

There are tests to confirm botulism. They tend to be expensive, and the results take time so aren't much use, in my opinion. Treatment will be well under way by then if the bird has been rescued. The response to treatment is itself diagnostic.

Botulism bacteria cannot synthesise several amino acids, so the substrate must contain a protein source. Hence decaying plant matter is a poor substrate for botulism, but often the fish and small invertebrates sharing the same habitat die, due to crashing oxygen.

how to recognise it, what to do about it

Waterfowl don't normally get sick just from the water, but they ingest toxin-laden bacteria in the bodies of the dead macroinvertebrates.

In particular, if the dead fish and animals are fly blown, and if the duck eats just one maggot, that bird now has a lethal dose (maggots concentrate botulism).

That duck too becomes fly blown, and the cycle accelerates. A single northern shoveler carcass can have as many as 10,000 maggots. Ignored, the problem quickly becomes exponential.

Even wastewater treatment plants that monitor all water conditions with hi-tech equipment struggle to predict botulism. Nor can they adequately explain why one year might be bad and another botulism free.

The problem plant one year is often not the same as the next year. In the past, thousands of birds have died over summer at individual wastewater sites. For years this was just regarded as one of the costs of wastewater treatment.

Lately, Fish & Game has been holding them to account, often through their resource consent conditions, to monitor and control botulism. To their credit, many (but not all) individual managers also do so out of a sense of environmental responsibility.

If infected and/or dead ducks (and fish) at any site (public park ponds, for instance) can be removed early on, bagged up and sealed to prevent other birds getting access to them, then burning or more often burying them, the outbreak can be managed until temperatures subside and oxygen levels return.

In the wild wetlands, it is typically Fish & Game and gamebird hunters doing such work, firstly through surveillance. Once reported, the prompt removal and proper disposal of infected birds and fish must follow.

District and regional councils as well as DOC and SPCA have played a part, but usually only if they perceive that native birds are being affected – a photo of a sick/dead botulism-affected bittern would be very helpful in getting their commitment.

Removing infected birds is still the best way of managing outbreaks, which tend to be in the same places each year but vary in intensity between years.

Some regions have BirdCare Aotearoa or similarly motivated people who will take in sick birds. The birds can often



Survivors recuperate at BirdCare Aotearoa, Auckland. Inset: A grey duck falls victim to botulism. *Photos John Dyer*

be saved and returned to the wild, if caught soon enough. In the absence of such people, these birds are typically euthanised to save them from suffering and prevent contagion to other healthy birds.

It used to be thought you could put a tube down a duck's neck into their crop and inject freshwater to rehydrate it. However, get it wrong and into their lungs, they'll die in front of you.

And because their gastrointestinal tract has seized up, this doesn't work anyway. If they throw it up while their head is down, they choke on the water.

What they need is a drip of fluids and electrolytes to go directly to their bloodstream about a finger's width out and parallel with their backbone. They'll need ongoing care for 7-10 days minimum.

We have to be careful of releasing recovered birds that fly back into the

same environment while it is still toxic. Banding these birds will tell us if this is occurring, and they may need to be penned until the risk has passed.

All this treatment costs money and human resources. However, it is something that other centres around New Zealand should be considering. Just leaving wild birds to slowly die and ignoring them at council stormwater reserves and wastewater treatment plants is probably illegal.

Watercare at Mangere is paying a BirdCare Aotearoa-contracted person to regularly collect sick birds to get them promptly to the Green Bay rescue centre. What a great example to emulate.

It's not only botulism but a whole variety of health threats to native, endangered and valued introduced birdlife that such centres respond to, but they need our support. If you think you see botulism anywhere, notify your local Fish & Game office.

Noxious weeds on the loose

Alligator Weed

Regional councils in the North Island are urging landowners to keep an eye out for alligator weed, one of the world's most damaging weeds.

It can thrive in both aquatic and terrestrial environments, has a deep root system and is not easily killed by herbicide.

And with hunting season under way, there are fears the weed may be inadvertently spread by duck shooters through contact with boats, duck decoys, vehicles or even boots.

In Hawke's Bay a delimiting survey to establish the boundaries of alligator weed at Lake Whatumā in Central Hawke's Bay has just been completed.

The survey indicates that the weed hasn't spread too widely but has taken a strong hold in the places that it has been found.

Iain Maxwell, Hawke's Bay Regional Council integrated catchment management group manager, says, "The main outbreak is on the northern and eastern edges of the lake, where it has really established itself, however, unfortunately, we also found it at the head of the Mangatarata stream."

He urges anyone who uses the lake or lake surrounds "to please check, clean and dry all equipment and leave any plant material at the site".

The council's biosecurity team is putting up additional signage on maimais and duck hides, around the lake and at its entrances.



Alligator weed is a severe threat to agriculture and biodiversity and spreads very easily from the smallest piece of vegetation.

Iain says, "Property owners have been informed and are being asked not to try and tackle the weed themselves as it spreads so easily and instead to contact the regional council who will confirm identification and assist with a management plan."

Alligator weed originates from Brazil, and was first discovered in New Zealand in Dargaville in 1906 where it is thought to have arrived as a hitchhiker in ship ballast water.

It has since spread across the top of the North Island, and as far south as Manawatū, by accidental movement of plant fragments through earthworks, fishing nets and kumara farming.

It can be difficult to identify. It is a low-

growing, herbaceous perennial which is easy to confuse with two other similar-looking plants that can occur in similar habitats: water primrose (*Ludwigia peploides*) and willow weed (*Persicaria maculosa*).

Alligator weed has long horizontal stems (stolons) up to 10 metres long that are hollow and often reddish in colour.

In Manawatū, Horizons Council has asked people to report any discoveries of alligator weed in the Mangaone Stream and the lower Manawatū catchment. This area includes the stream area north of Colyton through Palmerston North to the Manawatū River, and down to Foxton Beach.

The weed was first spotted in Palmerston North during Covid-19 Level 4 in late March 2020. The only previously known location of the weed in the Horizons region was the Taumarunui effluent ponds.

Purple Loosestrife

DOC, GWRC, Fish & Game and DUNZ have been working together to control noxious weeds and are particularly concerned about the spread of purple loosestrife (*Lythrum salicaria*) also known as bouquet violet, now that hunting season has begun.

Purple loosestrife is an erect, hairy, perennial herb with a taproot and fibrous roots that form dense surface mats and produce up to 50 stems per rootstock.

From December to February, it has showy, densely hairy flowerhead spikes that are about 20-25 cm long made up of purple-magenta flowers with 5-6 petals.

Purple loosestrife rapidly invades damp ground and shallow water and overtops native species with dense bushy growth.



It tolerates hot or cold conditions and low to high nutrient levels in the water, but is intolerant of salt water.

It forms massive, tall, impenetrable stands, excluding all other species and destroys wetland and marginal habitats and food sources for many fish and bird species, and causes blockages and flooding.

To eradicate it, weedbusters.org.nz advises landowners to start control

work at the margins to prevent further seeding, and work downstream where possible.

Weedmat kills whole patches. Start at top of infestation, leave 3-4 months.

Spray: glyphosate (10ml/L). Respray until eliminated.

Spray terrestrial sites: triclopyr 600 EC (30ml/10L) or triclopyr120g/L (15ml/L). Follow up every three months.

Lower water level if possible and mechanically remove. Raise water level if possible for 2-3 weeks to drown the weed.

To avoid it re-establishing, plant tall trees beside infested margins to shade out weed, and deepen water if possible to prevent growth.



Leanne Silver Photography

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.