DUCKS UNLIMITED NEW ZEALAND INC. For Wetlands and Waterfowl

flight

ISSUE 176 March 2019

Conference dates
Record season for kakī
Matthews Lagoon update

FROM THE PRESIDENT

Greetings everyone.

Hope Christmas and New Year treated you well; it has been an excellent year for waterfowl breeding, with most ponds holding water with lots of feed for young birds.

The DU year has started with some small repair work being done to the wall at Wairio and the walkway from the road to Stage 1 being given a coating of gravel.

Consent has been received to divert the water from Matthews Lagoon into the northern end of Wairio and that work should be completed this autumn.

William Abel and Adrienne Bushell have finished the arrangements for the 2019 AGM to be held in Wanganui in early August, so put a note on your calendars and I hope to see you all there.

Ross Cottle

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BOARD OF DIRECTORS

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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49 Nottingham Street, Karori, Wellington 6012

Printer: Lamb-Peters Print, 106A Main Street, Greytown

Advertising rates: Please contact the editor to enquire about advertising rates and to book space. Adverts must be camera ready.
Waterfowl adverts free to members.

Editorial:
Contributions, including photographs and letters to the editor, are welcomed. Please send these to the editor before the next deadline, **Monday 19 August**, in time for the September 2019 issue. The editor reserves the right to edit articles for content, length, grammar, style, and readability.

Gift from a 'Man of Trees'

John and Bunny Mortimer. ***Photo Momentum Waikato***

Ducks Unlimited NZ received an unexpected windfall in October – in the form of a $2000 bequest.

Lifetime conservationist, author and former farm forester John Bracken Mortimer QSM, died at Waikato Hospital in May, aged 94. He was a former president of the New Zealand Farm Forestry Association.

Many environmental groups and other organisations have benefited from Mr Mortimer and his wife Bunny's generosity but their greatest legacy is Taitua Arboretum, which they gifted to the City of Hamilton in 1997.

Hamilton Deputy Mayor Martin Gallagher says the Mortimers' gift will be enjoyed for generations to come.

"John and Bunny's legacy is immense," Mr Gallagher said. "They have given the city one of its premier natural locations with an act of incredible foresight and generosity.

"The city owes John and Bunny a huge debt of gratitude."

The couple began developing Taitua Arboretum in 1972 on their property west of Hamilton. They planted hundreds of trees on the 20-hectare block, before gifting it to the city. It formally opened to the public for visits in 2004 and has more than 1500 species of trees.

Mr Mortimer and Mrs Mortimer co-wrote several books, including *Trees for the New Zealand Countryside: A Planter's Guide and Trees* and *Their Bark: A Selection with Stories and Pictures.*

DU is grateful for the kind gift from Mr Mortimer, fittingly described in the tributes paid to him as a 'Man of Trees'.

Cover: A kōtuku (white heron) at Mapua, Nelson-Tasman. The trustees of Pohangina Wetlands were delighted when a kōtuku visited in 2008. See story, page 8. **Photo *David Brooks***
Back page: A kakī (black stilt) chick at Twizel. Find out how black stilts are doing, page 5. **Photo *Liz Brown/DOC***

Conference 2019 – save the date

Planning for this year's conference and AGM, which will be held in Wanganui/Whanganui from 2-4 August, is well under way.

The conference venue and accommodation will be the Quality Inn Collegiate, a five-minute walk from the city centre.

The programme will include a field trip to Bushy Park Homestead and Wildlife Sanctuary, with lunch at the category-1 heritage-listed Bushy Park homestead, built in 1906.

The trip will include a stopover at Virginia Lake, pictured, where DU released a number of mute swans several years ago.

Bushy Park is considered by Forest & Bird to be among the 25 best restoration ecology projects in Australasia.

The sanctuary is home to hihi (stitchbird), tīeke (saddleback), toutouwai (North Island black robin), kereru and many other species.

A revegetation project in the wetland area of the park includes plantings of rimu, pukatea, mahoe, karamu, hangehange, pigeonwood, kawakawa, NZ flax and toetoe.

Time to clear out the cupboards

For this year's conference, DU directors are asking members for donations of suitable auction and raffle items, particularly DU Canada merchandise that you have bought at previous auctions and are in good condition.

Canada DU items have become too expensive to import because of the shipping costs.

Email Will Abel (huritini@xtra.co.nz) to let him know what you can contribute to make this year's auction the best yet.

You can either bring the item/s to conference or drop them off with someone who is going, but please let Will know in advance.

DU director takes up DOC role

DU director and bittern expert Emma Williams' workload has become a whole lot busier after she was appointed science advisor (wetland birds) for the Department of Conservation in October.

A fulltime job for four years, her main task is to deliver the national bittern research plan. The role also involves work with other wetland birds such as spotless crakes and marsh crakes with the aim of setting up new collaborations with organisations to try to fill some of the knowledge gaps about cryptic and native wetland birds.

Projects include working with Stephen Hartley and students at Victoria University in Wairarapa Moana. One of the current projects involves putting out artificial bittern nests in several study sites, including Wairio, to determine what predators are targeting bitterns.

Emma says new bittern monitoring projects in South Kaipara, Auckland region, Tauranga and Turangi are expanding DOC's national monitoring reach. The goal is to identify where bittern strongholds and hot spots are and inform where new projects are needed to try to reverse bittern declines.

Tagging Canada geese is one of the activities that Emma is involved in.

Resources online

Quack Club and Wetland Care educational resources have been moved to the Ducks Unlimited website. Although none of the competitions are now in play, the archive is still a rich resource, especially for primary school teachers. They include puzzles, information about waterfowl and wetlands, and informative colouring in tasks.

To access them, go to the Ducks Unlimited website – ducks.org.nz, and click on 'Resources'. There, you will be able to preview and download the PDF documents.

River wins national award

Catherine Ott

Ōtukaikino River in Canterbury took out the supreme award for most improved river at the New Zealand River Awards 2018 late last year.

The river originates as a spring-fed stream on the Isaac Conservation and Wildlife Trust property, west of Christchurch. The stream supplies commercial salmon farming water races, flows through the Isaac Quarry and the trust's captive bird breeding aviaries, and across the Isaac sheep farm before continuing downstream into neighbouring properties.

The river is part of a greater restoration programme being undertaken by Christchurch City Council which involves the staged removal of willows and scrubby weeds, followed by more than 195,000 eco-sourced native plantings.

The Isaac section of the Ōtukaikino is fenced off from prohibited stock, with a generous corridor of land provided to maximise the riparian planting zone along the waterways edge. Walkways have been formed along a significant stretch of river, extending between the Isaac Loop Track, Lake Roto Kohatu, Clearwater Golf Resort and the Waimakariri Recreational Reserve via the Isaac Farm Track.

A bridge on the Isaac Loop Track, which is open to the public.

The riparian plantings are all endemic to Canterbury. The land has been cleared manually, using brush cutters, machetes and axes with the slash left in piles as shelter from the Canterbury winds. This also provides a habitat for wildlife including invertebrates, increasing the biodiversity of the site.

Combi guards are used to mitigate against hares. Mulch is used when available, with some irrigation during summer. Initially maintenance spraying continues until a native canopy is formed. Ground preparation is minimal, with no fertiliser applied, so the natives must sustain themselves in the toughest environment from the outset.

The Ōtukaikino waterway demonstrates that a collaborative effort (from multiple landowners and organisations) can achieve significant ecosystem restoration, for the benefit of all.

Plan your visit

Recommended access to the Ōtukaikino is via Clearwater Golf Resort, Johns Rd, Christchurch.

- Park in the Clearwater Golf Resort main car park.
- Follow the Ōtukaikino River pathway (beside the car park) upstream.
- Cross the river on the pedestrian bridge to continue on the Isaac Loop Track.
- Allow one hour return.

Pūkaha releases shore plovers

Four juvenile shore plovers (tuturuatu) were released on to Motutapu island in early February.

The birds, which are critically endangered and number about 250 in the world, are endemic to New Zealand and among the world's rarest shore birds.

Pūkaha Mount Bruce National Wildlife Centre in the northern Wairarapa, which released the birds, hopes to release 21 more by the end of March.

"This season has been very full on," says Mireille Hicks, lead shore plover ranger at Pūkaha. "Together with the Isaac Conservation and Wildlife Trust, this would be our most successful year yet. Between us we have so far raised 46 shore plover chicks – and there are more on the way.

A male juvenile shore plover. Photo *Tara Swan*

"We have seven breeding pairs in total, two of which are breeding in their first season, which is incredible. We also have a breeding pair that was very unexpected as the male had an injured wing and the female had an issue with her feathers.

"Due to these injuries they could not be released into the wild but by breeding in captivity, they are contributing to the survival of their species."

Motutapu Island in the Hauraki Gulf is the site of the world's largest pest eradication programme and is home to the saddleback (tīeke).

"The shore plover is a very special bird because it's naturally very curious, but it nests on the ground and is very small – it almost 'shakes hands' with predators," Mireille says.

"They are also very nervous birds and can be easily frightened away from their nests. Many people do not know about how critical the situation is which is something we'd like to change. Each bird is precious."

Last year, Pūkaha released six juveniles hatched from five pairs on to Waikawa Island. The Shore Plover Recovery Programme began at Pūkaha in the early 1980s.

Record results for black stilt

Catherine Ott

A record number of endangered black stilts (kakī) were released in the Mackenzie Basin in spring after the most productive captive breeding season on record.

Overall 184 kakī were hatched and reared for release by the Department of Conservation, including 49 by the Isaac Conservation and Wildlife Trust (ICWT).

In 1981, when the population plummeted to only 23 known birds in the wild, measures were taken to manage this tiny population.

Kakī, once widespread throughout wetlands and braided rivers throughout the South Island and lower North Island, remain categorised as critically endangered and are the rarest wading birds in the world. Their range is limited to the harsh environment of the Mackenzie and Waitaki basins, often snowbound through the winter months and drought affected during summer.

A black stilt in the Mackenzie Basin.

Controlling stoats, ferrets and feral cats across the Tasman Valley is critical for kakī to survive in their natural habitat. Without predator control, fewer than 30 per cent of young birds survive. In areas with trapping, the survival rate is 50 per cent.

Captive breeding facilities operated by ICWT and DOC are an essential conservation tool to bring the species back from the brink of extinction, with genetic management one of the multiple tools used to optimise captive breeding outcomes.

The Isaac Conservation and Wildlife Trust continues the conservation work of Sir Neil and Lady Diana Isaac who bequeathed all their assets into the self-funding charitable trust, to continue their legacy and commitment to conservation.

- *Catherine Ott is the administration manager for the Isaac Conservation and Wildlife Trust.*

A long way from home

*DU member **Diana Chetwin** was surprised to spot a rare visitor from the south and now her sighting has been officially confirmed.*

On December 2017 I was helping to launch a boat at Sandy Bay, Te Awaiti, South Wairarapa, when I heard the sound of pied stilts; looking down the beach, I saw two birds take flight. One appeared to be darker than the other.

After launching the boat, I walked along to the next bay to see if the birds had landed there. Sure enough, they were fossicking in the rock pools as it was low tide. One was a black and white stilt and the other was clearly a black stilt (kakī).

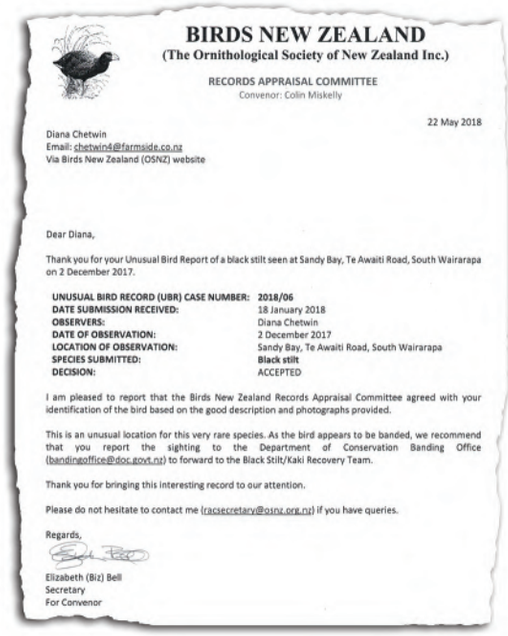
I had my little camera and was able to get close enough to get a few pictures, but not so close as to disturb them again. The black stilt was banded, but unfortunately it was standing behind a low rock ledge so the feet and coloured leg bands could not be seen properly.

The sighting was reported to the Department of Conservation and the breeding programme at Twizel in Canterbury. Conversations with people there revealed that the black and white stilt was a hybrid from breeding with a black stilt and the other was clearly a black stilt in the North Island.

My photos only showed the bands on one leg, so they were unable to provide any more information on its breeding, but it was definitely from the South Island.

Climate conditions before the sighting were exceptionally dry for the month but there had been rain the week before. No storms though.

The sighting was reported to the Ornithological Society of New Zealand as an unusual bird recording and officially recorded.



BIRDS NEW ZEALAND
(The Ornithological Society of New Zealand Inc.)

RECORDS APPRAISAL COMMITTEE
Convenor: Colin Miskelly

22 May 2018

Diana Chetwin
Email: chetwin4@farmside.co.nz
Via Birds New Zealand (OSNZ) website

Dear Diana,

Thank you for your Unusual Bird Report of a black stilt seen at Sandy Bay, Te Awaiti Road, South Wairarapa on 2 December 2017.

UNUSUAL BIRD RECORD (UBR) CASE NUMBER:	**2018/06**
DATE SUBMISSION RECEIVED:	18 January 2018
OBSERVERS:	Diana Chetwin
DATE OF OBSERVATION:	2 December 2017
LOCATION OF OBSERVATION:	Sandy Bay, Te Awaiti Road, South Wairarapa
SPECIES SUBMITTED:	**Black stilt**
DECISION:	ACCEPTED

I am pleased to report that the Birds New Zealand Records Appraisal Committee agreed with your identification of the bird based on the good description and photographs provided.

This is an unusual location for this very rare species. As the bird appears to be banded, we recommend that you report the sighting to the Department of Conservation Banding Office (bandingoffice@doc.govt.nz) to forward to the Black Stilt/Kaki Recovery Team.

Thank you for bringing this interesting record to our attention.

Please do not hesitate to contact me (racsecretary@osnz.org.nz) if you have queries.

Regards,

Elizabeth (Biz) Bell
Secretary
For Convenor

Diana Chetwin's photo of the two stilts and the letter recognising her rare sighting.

White-eyed wanderer

*A lost duck? **Alan Fielding** wonders what became of the white-eye and suggests it has a place among New Zealand wildlife.*

The white-eye, hardhead, brownhead, *aythya australis australis,* or karakahia is a pochard – a diving duck closely related to the scaup. Strangely, its Maori name is also used, as an alternative name for native grey duck or pārera.

It is present in considerable numbers in eastern and south-western Australia. When it first appeared in New Zealand, is not known for certain, but it was first recorded by Professor FW Hutton on Lake Whangape in the lower Waikato in 1867 and a year later recorded in abundance on lakes Waikare and Rotomahana.

So abundant was it that local gentlemen, after worshipping God and praising His creations, regularly took a leisurely punt and shot them in their hundreds, if not thousands.

Needless to say, game management procedures were not functioning at that time and apparently foresight was not generally prevalent.

It was yet again a fine example of European greed and stupidity in the colonies, rather akin to hunting to extinction in Tasmania, both the Tasmanian tiger and the Tasmanian Aborigines.

Unsurprisingly, this duck appears to have moved on and perhaps all but died out, for there are no records of it having bred successfully.

But reliable sightings continued from time to time. Were these the 'vagrants' they were passed off as? Or were there small residual populations maintained in out-of-the-way, somewhat safer localities?

Sightings appeared from Lake Tutira, Lake Tarawera (in large numbers) Te Aute, Hamurana Springs, Wairarapa, Manawatu, Lake Ellesmere, Otago, and much more recently, near Napier (several times).

It would be interesting to know what the factors were that moved so many white-eyes into New Zealand in the 19th century – or indeed did they? Perhaps they came across in substantial numbers a lot earlier?

Since their breeding is influenced considerably by climatic conditions and they must nest very close to water, perhaps a particularly vicious drought sent them eastwards seeking water, aquatic food and a cooler climate?

Interesting too, to consider their disappearance from New Zealand. Was it entirely due to human intervention? Shooting on that scale had to have had an impact but it is unlikely to be the only factor. At that stage of our colonial history, introduced predators are not likely to have been well enough established in sufficient numbers – except for rats. In those years there were serious rat plagues that may have contributed to the ducks' demise. Were we in the grip of a drought? Apparently not.

But in 1886 Mt Tarawera erupted, and it erupted with an uncommon vengeance. The lakes of the Tarawera region had at various stages contained white-eye populations. And not so very far away were populations on the Waikato lakes.

Naturally when Mt Tarawera spoke, everyone wished to leave town – ducks included. The eruption quite possibly dispersed the duck population far and wide.

Perhaps too, the ash showers may have significantly affected food supply – both terrestrial and aquatic. Continuing earth tremors and general rumbles would certainly have given incentive to move and keep moving. The species are very gregarious, so presumably they might stay together to some degree. But where?

Could they have returned to Australia – against often strong prevailing westerlies? Rather unlikely. Perhaps they went south, but it is unlikely in a

A white-eye male, left, and female, Hurstville Golf Course, NSW, Australia.
Photos *JJ Harrison.*
Licensed under the Creative Commons Attribution-Share Alike 4.0 International licence

species adapted to at least a temperate climate. Maybe they went eastwards into the vast Pacific. Again there is no substantial evidence to suggest this.

There remains the possibility that they went north and north-east to the Pacific Islands. Interestingly, they have been frequently reported from various island groups.

Or did they simply disperse throughout New Zealand, and never bred much, if at all, for they are known to be reluctant breeders and also wary of human company.

Even in Australia, they are thought to be in some decline in recent years, presumably due to habitat degeneration such as the usual: drainage.

However populations are still pretty impressive: during the 1957-58 severe drought in southern NSW about 80,000 white-eyes dropped into Lake Brewster, 50,000 at Barrenbox Swamp and a mere 15,000 at Lake Learmouth (Victoria).

Perhaps now is the time, before numbers do lessen, to reintroduce this species into New Zealand. Whatever the populations, putting your eggs in various, good quality, safe baskets is still a very sound strategy.

Considering the self-introduction and therefore indigenous status of this bird, like the other white-eye or waxeye (tahou) and a handful of other Australian species, perhaps it deserves a little help.

A male white-eye in Kaiapoi, Christchurch, April 2012. Photo *Peter Langlands/Wild Capture Photography*

A little help like the grey teal – a non-endemic species – received so successfully. Surely white-eyed ducks have a far greater eligibility for residential assistance than say Carolina wood ducks, mandarins, whistling tree ducks, mallards, Canada geese!! and mute swan.

- *Alan Fielding lives in Masterton and is a Life Member of Ducks Unlimited. He previously taught environmental technology and education at tertiary level and had a wetland, which he developed, at Tokomaru, northern Horowhenua.*

There's a road through

***Gordon Pilone** tells the story of how Pohangina Wetlands, now protected*

In 1995 Gordon and Anne Pilone bought a lifestyle block in Pohangina Valley, retiring there from Palmerston North where Gordon, originally from California, had lectured on and researched microbiology at Massey University and Taranaki-born Anne had established the best veggie and landscape gardens in town, which would prove valuable experience later.

Beside the Pilone property, sheep and bulls were grazing on a very wet paddock with some remnant kahikatea (New Zealand white pine) and other wetland flora struggling to survive. This farmland, owned by Finnis Farming Company (John and Mary Culling), had historically challenged owners' efforts to drain it.

Across the road was the well-established Luttrells White Pine Gardens and Museum. The gardens had walking tracks but only one small pond to attract wetland wildlife. And so began Gordon and Anne's long-term retirement project to create a large, mature wetland. They set up the Gordon and Anne Pilone Charitable Trust in August 2000, and were joined by farmer and orthotist Chris Pullar and accountant Ian Mackrell as trustees. A fifth trustee, naturalist Dr Liz Grant, joined later, contributing her expertise in visual design and entomology science. All are Ducks Unlimited members.

Shaping the wetlands

The development took off in 2001 when the trust employed contractor Kevin Large with his digger and bully to create the first pond near the main entry gate along Pohangina Rd. This is now known as the kahikatea block. Progress was slow as the wet dirt, being moved to create a pond, was used to develop the head and track along the bund, but it needed time to dry to get access.

Then in 2004 floods struck Pohangina Valley. Roads and bridges were washed away and Pohangina Rd was cut off when the culvert bridge at Sandy Creek was washed out. Pohangina Wetlands became even more soggy, but no damage occurred because the "wet" of the wetlands comes from aquifers and not directly from water flowing on the surface from creeks, streams or rivers.

Development slowed down after the flood because Kevin was involved with clean-up work in the valley but activity continued with the planting of native grasses, bushes and trees, mostly by Anne.

In 2006, work began on the second block (damsite block) and the biggest pond (0.54ha), which includes a sizeable island and a subterranean island – sometimes visible in the drier seasons.

Work on the "big pond" was challenging and a large track-dump truck and extra help were required to take away the soil. It was also a large block (2.3ha) to plant out so Anne was flat out growing and planting and weeding. It is now maturing nicely and has a "lookout".

Once the damsite block was completed, Gordon convinced the other trustees that additional property would be fruitful for the future protection of the two main blocks.

The kahikatea block formed an L-shaped property with the newly developed damsite block, and the triangular block nestled in the "L" was being used for grazing. In 2010 this land was bought and designated the Culling block.

Instead of extensive pond development and native plantings, the block, essentially, is being allowed to "develop on its own". Some earth was moved by Tim Luttrell with his small digger to provide a flow of surface water and a few flax, cabbage trees and *Carex geminata* (cutty grass, rautahi) have been planted among the rushes.

The wetlands slope dramatically towards the Pohangina River, and the aquifer and surface water flows from north to south. This enabled the creation of ponds of varying depths and in the drier months, muddy areas form at the upside of the ponds. This habitat is invaluable because it attracts wading birds that feed in the "mudflats". So watch out for pied stilts, heron, royal spoonbill, spur-winged plover, and dotterel.

Because of the slope, all the surface water that overflows in the wet months flows to the southernmost part, the base of the damsite block. Until 2012, this

these wetlands

by a QEII National Trust covenant, were created.

water drained directly to the Weka St drain and the river. But Gordon found a way that this flow could be reused to establish a different habitat within the wetlands.

Finnis Farming Co allowed the trust to acquire a small (0.2ha) parcel at the back of the damsite block from which Tim created a series of shallow ponds, with final exit of water overflowing to the Weka St drain.

Retention of water in this block is being aided by the planting of raupo (bulrush, cat-tail). This will create a new habitat and will allow shy and uncommon wetland birds to be seen such as fernbird, crakes and bittern. Even if this is wishful thinking – because the area is small – raupo swamps are ideal as filters for water purification.

Challenges along the way

Even with the best planning, things can go wrong and sometimes reworking is necessary, and costly. In 2006 it became noticeable that the big pond in the damsite block would not maintain its full overflow level for long after a wet period, but dropped quickly, exposing the subterranean island and pond bottom.

When walking along the track behind the head next to the drain, a wet patch was apparent so an exploratory ditch was dug along the pond below the base of the head. It exposed a cluster of rocks which seemed to form a drain into the head since water was trickling from them. It is likely this had been a very wet paddock, with drainage created from a ditch filled with rocks, and these were not noticed when the head of the big pond was developed. All agreed the remedy was to cut through the head and remove the rocks and rebuild it.

During a trustee tour after the Eketahuna earthquake in January 2014, it was obvious the poplar pond in the kahikatea block was extremely low. This pond is where the "waterworks" pipe crossing the pond head with an upright was built to allow discharge of the pond water to different levels. We thought it would be clever to be able to control the water level and form new habitats (for example, exposed muddy areas) at will. Well, Mother Nature thought differently.

The reason for the low water level became apparent when Anne found water leaking from the outlet side of the pond hidden in tall grass near the end of the pipe running through the head of the pond. On further inspection, there was a large crack in the plastic T-fitting at the base, which must have happened in the earthquake.

The T-fitting was held snugly by two posts and apparently there was not enough "give" when the earthquake hit. The assembly was removed and the pipe carrying water through the head was capped off on the inlet side of the pond. We learnt that careful thought needs to be given to the design of piping in a wetlands system.

Another example was during the development of the ponds in the kahikatea block. The main ponds there are connected by 110mm pipes allowing water to flow from one pond to the next underground rather than over the tracks, ensuring easier and drier access for visitors.

Gordon had a bright idea to prevent clogging of the inlet of the pipes with surface debris: the inlets could be fitted with a short pipe at a 45-degree angle to submerge the inflow beneath the surface of the pond. Soon after this modification, he was surprised to find all the ponds had lower water levels than the expected overflow levels when the ponds were full.

The penny dropped and it became obvious that the inlet-angled pipe also allowed for siphoning to occur when the flow was great enough to fill the pipe and continue to flow to the level

The 45-degree pipe to submerge the inflow – with the later addition of a drill hole and, below, the 'waterworks' pipe where a large crack was found, the likely result of the 2014 Eketahuna earthquake.

of the submerged inlet. A lesson learnt. And the solution was obvious, too – drill a hole at the attachment point of the angled pipe to allow the inflow of air, thus preventing siphoning.

Some other "oops" happen unexpectedly and require major adjustments. In 2011 Gordon began to have cramps in the calves of both legs. Peripheral arterial clogging was advanced and in 2015 he had to have both legs amputated above the knees. Now wheelchair-bound, Gordon is no longer physically active in the wetlands development, but fortunately the main work is complete. Anne continues maintenance plantings

Continued next page

Cutting through the head of the big pond to remove the cluster of rocks.

Anne and Gordon Pilone at home in the wetlands.

Continued from page 9

and track mowing is subcontracted to Tim Luttrell.

The Pilone home could not be readily renovated for wheelchair living but, fortuitously, a cottage being built across the road by Tim and Carol Luttrell became available and was purposefully built for wheelchair use. You will still see Gordon in the wetlands, but not on his tractor mowing or on his bright orange Kubota RTV.

Instead, he will be observing and taking pictures from a Timmobile, a mobility scooter renovated by Tim. So look out for Gordon on the tracks and have a chat, or come to the cottage across the road and say hi.

Visitors always welcome

The wetlands were opened to visitors on the longest day in December 2005 and are always open to visitors at no charge. A brochure is available at the entry gate on Pohangina Rd.

Probably one of the greatest joys in establishing a wetlands was seeing a kōtuku (white heron) visiting for a few hours in 2008. This has been a one-time event, though it may be that they visit when we are not in the wetlands.

Another uncommon visitor is the New Zealand royal spoonbill (kōtuku ngutupapa). A young individual was seen for several days feeding in the shallow ponds. Some flock yearly at the Foxton beach estuary nearby. Since the first bird seen in March 2007, we have had increasing numbers visit and stay for several days, sometimes in flocks as big as 13.

Another resident wetland bird that delights visitors is the dabchick (wewei). During breeding season, you can find one or two white striped headed chicks on the back of an adult with the mate diving and bringing food to the chicks.

Luttrells wetlands and kahikatea bush

Next door to Pohangina Wetlands and hidden by the magnificent tall stand of kahikatea is another developing wetlands area on the property of Tim and Carol Luttrell.

Luttrells White Pine Gardens and Museum is open any time by arrangement for a small fee. The complex is well-worth seeing and includes a walkway through kahikatea bush; tracks meandering around wetlands; and plenty of opportunity to view wetland wildlife and a comprehensive museum based on settlers in the valley.

Pohangina Village residents are fortunate to have such an extensive wildlife habitat of 10ha (25 acres), combined, within walking distance of their homes. To assure it is kept in perpetuity for future residents, the Pilones and Luttrells have been granted Queen Elizabeth II National Trust covenants on the portion of their properties that constitute wetlands and bush. We are grateful and honoured that the QEII National Trust has regarded the properties as worthy of protection.

Now that the future of the two wetlands are secure, it is interesting to speculate what form of management might develop for their continued maintenance. Pohangina Wetlands, now under the auspices of the Gordon and Anne Pilone Charitable Trust, already has some long-term management permanency in the "turnover" of trustees, as well as financial assurance as the beneficiary of the Pilone estate. The Luttrell wetlands and kahikatea bush belong to the family, but the long-term future is unclear.

As the two properties are beside each other, separated only by a road, and wildlife interaction is seamless, it seems logical that the two properties be managed as one. In Manawatu, there already are open space properties being managed by some level of government using subcontracted maintenance. This might be considered for the future management of the "Pohangina Village Wetlands".

We look forward to seeing you in the "wetlands a road runs through".

Visit www.pohangina.org for more information.

The kahikatea block.

Wings over Wairio project

*Victoria University master's student **Patrick Hipgrave** is using drones to map wetland vegetation for his project on geographic information systems (GIS).*

The project

What changes in vegetation cover over time are evident at Wairio?

To what extent is the accuracy of the image classification process improved with the addition of ancillary data?

This project investigates the use of image classification techniques to create detailed maps of wetland areas based on aerial photographs.

The project uses an emerging set of analysis methods called 'object-based image analysis' to investigate the applications of remote identification techniques calibrated to detect selected native and invasive species.

An additional objective is to compare and contrast the improvements that including ancillary data into the classification process, such as 3D digital surface models (DSMs) or near infrared imagery, may have over classifications based solely on true-colour images.

The processes being evaluated by this project may allow teams with limited budgets or time to quickly and accurately convert imagery into maps with much greater levels of details, which will improve their ability to detect and track specific plant species.

This is especially useful in the case of wetlands undergoing restoration as they often exhibit significant changes over time, and the target species would normally be challenging to differentiate from one another in an aerial photograph.

Results to date

Though the study is ongoing, with flights every three months, the initial results would appear to confirm that a 'true-colour only' classification would perform poorly compared with ancillary data. The improving effects of including infrared imagery will be tested once that has been gathered.

The classified images contain between 18 and 20 distinct classes.

Study area

The Wairio wetland was drained and converted into farmland in the 1960s. Since 2005, it has been undergoing a managed restoration programme to return it to something approaching its natural state.

Several plantations of native plants have been established, and a weed eradication programme to control invasive species such as *Bidens frondosa* is in progress. This project can assist this effort by tracking the distribution of natives and weeds.

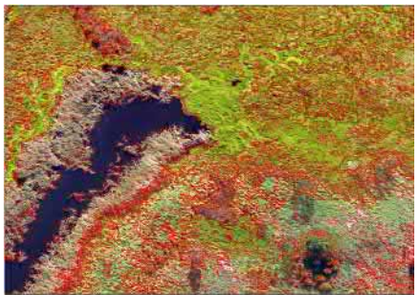
Bidens frondosa

Object-based image analysis

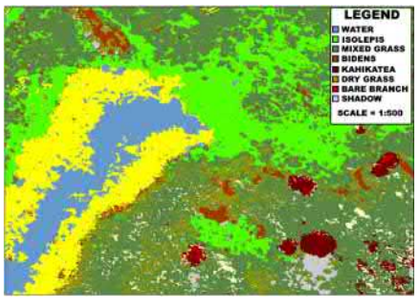
Object-based image analysis works on the principle that different types of surface cover have unique properties, such as colour, texture or shape. For instance, weed species might be distinguished from grass as the weeds may be a different shade of green to the surrounding grass, or present a unique textural pattern owing to differently shaped leaves.

- *Patrick Hipgrave's supervisors are Dr Stephen Hartley (School of Biological Sciences) and Dr Mairead de Roiste (School of Geography, Environment, and Earth Sciences).*
- *Special thanks to Daniel Kawana (Department of Conservation) and the Wairio Wetland Restoration Trust.*
- *For more details, email pjh216@gmail.com or tel 021 0228 9824.*

Step 1: An orthomosaic with a resolution of 2cm/pixel is created from the images captured by the drone flying at a height of 50 metres. This is loaded into the analysis program, along with any ancillary data.



Step 2: The pixels in the image are grouped into segments with similar attributes.



Step 3: Once provided with examples of the different types of surface in the image, the segments are sorted into classes (see legend), based on the properties of the training data.

EQUIPMENT

A DJI Phantom 4 Pro, left, and a DJI Matrice 200. The sensors being used in this project are the DJI Phantom 4 Pro Camera, to collect true colour imagery, and a Micasense RedEdge-M, a multispectral sensor for collecting near infrared imagery. The software is ArcGIS Pro 21, ENVI 5.4 and PrecisionMapper 3.32.

Matthews Lagoon project approved

A proposal to divert water from Matthews Lagoon through Wairio wetland has been given the green light.

DU President Ross Cottle says he is delighted that the consent process has been finalised and work on "the final major part of the Wairio story to get a permanent water supply" is about to begin.

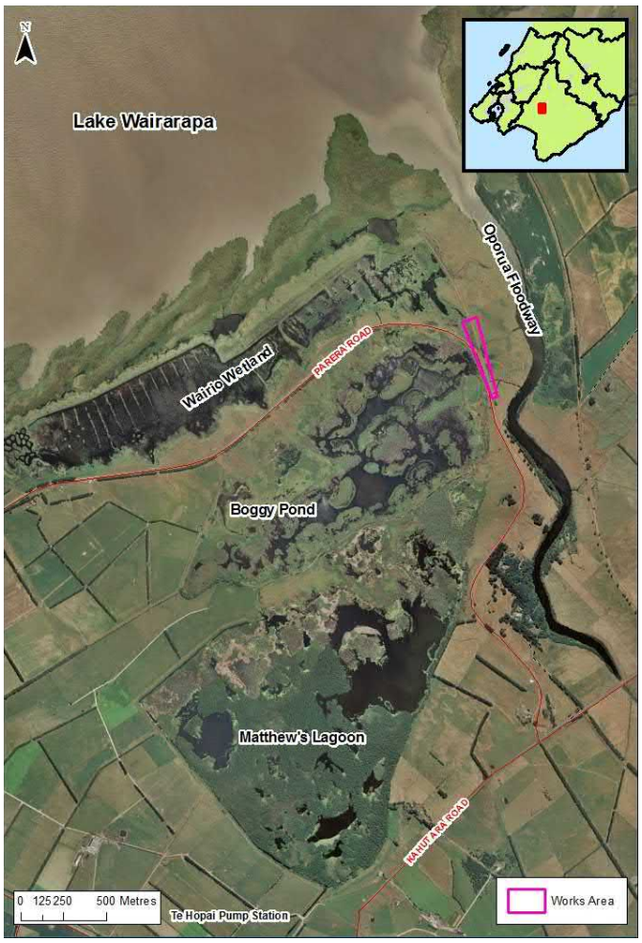
The project, a collaboration with Ducks Unlimited, the Department of Conservation and Greater Wellington Regional Council (GWRC) is part of a longer term plan to restore the eastern shores of Lake Wairarapa to a fully functioning wetland with thriving native flora and fauna, says Aprille Gillon, GWRC biodiversity advisor – wetlands.

Diverting water from the lagoon will lead to increased water levels in Wairio, and a better habitat for wetland plants and birds. It will also play a vital role in better filtering nutrients and sediment from the water.

Runoff from 1000 hectares of farmland is pumped into Matthews Lagoon via Te Hopai Pump Station and this water ends up in Lake Wairarapa by travelling through two culverts into the Oporua Spillway and out of a drain.

A 10-year resource consent has been granted for the work to build the diversion into Wairio wetland and it will involve creating a channel for water to flow into a low-lying area at the northern end of the wetland.

"We are currently creating a fish passage monitoring plan as well as a restoration project monitoring plan," Aprille says. "We're looking forward to seeing how this project develops and closely monitoring the impact on wetland habitat as well as water quality."



Wairio showcase for ecologists

Ecologists from around New Zealand visited the Wairio wetlands on 29 November with DU President Ross Cottle and Stephen Hartley, of Victoria University, as their tour guides.

The trip was part of the New Zealand Ecological Society's annual conference in Wellington, and also included a visit to Pounui Lagoon and Onoke Spit, where Denise and Dougal Mackenzie were the guides.

Student Patrick Hipgrave and Dr Stephanie Tomscha spoke about their wetlands projects at the conference.

Stephen says Wairio have had good water levels for the past two years and the raupo beds along the margins of stage 3 and 4 are maturing nicely.

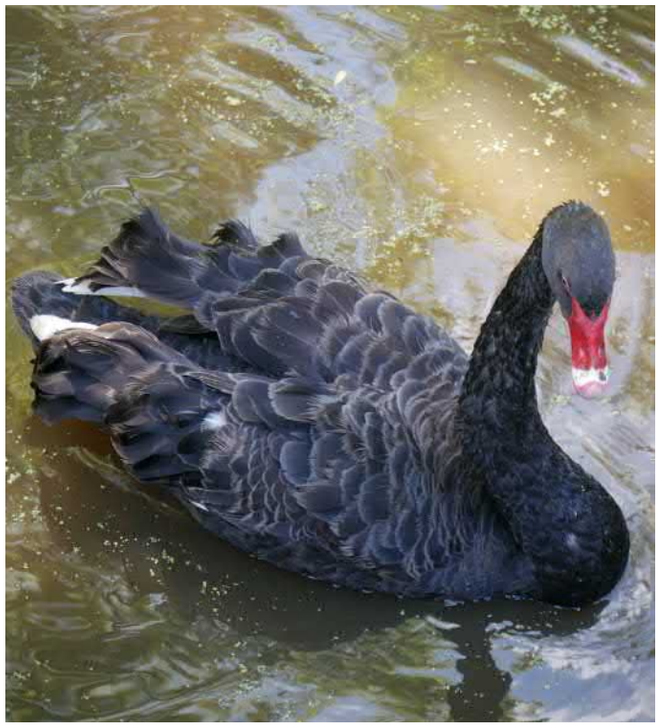
During the tours, several royal spoonbill were spotted as well as the first signs of natural regeneration of totara and kahikatea in the drier sections of Stage 3 under restoration plantings of manuka and kohuhu. These were planted in 2011.

Looking down on Wairio and, inset, one of the kahikatea seedlings. Photos *Stephen Hartley*

The manuka and kohuhu are now more than 3 metres tall and have shaded out the ground cover of tall fescue grass to provide the microsite conditions necessary for successful establishment of totara and kahikatea seedlings.

- For more information on Dr Tomscha's project, visit www.victoria.ac.nz/sbs/research-centres-institutes/centre-biodiversity-restoration-ecology/research/ecological-restoration/wetlands-for-people-and-place.

SWANNING AROUND



A black swan at Travis Wetland, Burwood, Christchurch, and a mute swan at Lake Huritini, Horowhenua.

Photos *Alison Murray, Will Abel.*

‘Beetle-mania’

Dung beetles have joined the fight to clean up New Zealand’s waterways and Lake Wairarapa is a key target.

In November the first region-wide release of non-native dung beetles in New Zealand began at an open day at Featherston’s Kaiwaiwai Dairies, in a paddock beside the farm’s wetland.

The 0.75-hectare Kaiwaiwai wetland is part of the wider Wairarapa Moana wetland project, which includes Wairio. Both wetlands won Morgan Foundation Awards in 2015.

Greater Wellington-subsidised packages of four species of dung beetles have contributed to about 200 dung beetle colonies, primarily in Wairarapa.

Contamination of pasture by dung reduces the amount of forage available for grazing, and has other economic, environmental, ecological and social effects, such as pollution of waterways.

Introducing dung beetles to deal with pastoral dung provides an opportunity to help mitigate risks to freshwater quality.

Greater Wellington’s offer of discounted beetle packages is focused on properties along the eastern shore of Lake Wairarapa, where the lake contains high levels of nitrates and other pollutants, some of which leach into the water from dung.

“We will introduce measures that will show whether the beetles are spreading, whether we’re witnessing a reduction in dung, and whether other benefits are being realised.

“We’ll work with Lake Wairarapa farmers to plan a monitoring regime covering the next few years,” says Greater Wellington land management advisor Kolja Schaller.

It is planned to have most of the dung beetles released in an area along the eastern lake shore of Lake Wairarapa in partnership with catchment farmers, though a small number may be released outside of this area.

Bittern count reassessed

New research highlights the importance of New Zealand’s wetlands for one of our most secretive native birds, the Australasian bittern or matuku, Conservation Minister Eugenie Sage said on World Wetlands Day, 2 February.

GPS tracking of matuku/bittern has, for the first time, revealed that it flies more than 300km between wetlands in the eastern South Island as well as large distances between North Island wetland sites.

Previously it was thought bittern ranged only small distances from their home wetlands.

DU is one of several partners in the Department of Conservation-led research, which shows that bittern rely on a network of wetlands to feed and breed in.

It also means matuku/bittern may be rarer than previously thought as birds have probably been double-counted in local counts in different parts of the country.

In the study, male bittern were tracked flying 330km from Te Waihora/Lake Ellesmere in Canterbury to wetlands near Blenheim during the breeding season last spring.

They also flew 117km from Whangamarino wetland in north Waikato to south Kaipara and from Whangamarino to Kaituna in the Bay of Plenty.

Trans-Tasman bittern knowledge exchange

*Australian wildlife ecologist and bittern expert **Matt Herring** visited last year and took the time to catch up with his New Zealand counterparts.*

> *"The best thing we can do for nature is simply spend more time in it. From there, reverence grows and action flows."*
> M Herring, 2013

What a wonderful trip. It was as if we spent a week compiling precious pieces of a rare, incomplete jigsaw puzzle called "Australasian Bittern Ecology and Conservation".

After several years of being in touch via email and phone, it was so nice to finally get together with the New Zealand bittern crew and see some of their sites first hand.

There is some great work happening across the ditch and a strong sense of being united in working towards reversing the decline of this iconic waterbird that we share. It is affectionately known as matuku hūrepo in Māori, or matuku for short.

The knowledge exchange began with the biennial National Wetland Restoration Symposium in Napier where I was honoured to be a keynote speaker, focusing on the importance of community engagement, novel habitats and active management.

We then had a day visiting wetlands around Hawke's Bay, including Pekapeka Swamp, followed by a successful bittern workshop day organised by Matt Brady from DOC. It was now crystal clear to me that there's a lot of love for matuku in New Zealand.

With much discussion about wetland restoration targeting bitterns, it was astounding for many folk to learn about bitterns in rice and how bare, ploughed paddocks ready for sowing are able to support nesting bitterns less than three months later. There was a range of inspiring case studies from around New Zealand at the workshop, and we got to visit some local work in Hawke's Bay with Hans Rook.

After that, it was time to begin a broader tour of bittern sites across the North Island. First stop was Lake Whatuma, and thanks to John Cheyne and Bernie Kelly, we were able to track some bitterns while kayaking.

We discussed key issues like willow control, raupo (cumbungi) management, water levels and swamp harriers as bittern nest predators.

This is the legendary John Cheyne, a long-time champion of wetlands. His 1980 study of bitterns at Whangamarino yielded more than 140 booming males. Recent surveys suggest a 90 per cent decline. Photo *Matt Herring*

This wetland has up to nine booming males, but far fewer females, perhaps only three. The apparent shortage of female bitterns across New Zealand is something DOC's Emma Williams is very concerned about. We may well have the same problem in Australia.

While we know some of our booming males in rice fields have up to three nesting females in a single territory, there is emerging evidence that would support a general shortage of females here too. It's definitely something we should consider: a booming male may not be a sufficient indicator of breeding or site quality.

It was now October and time to visit the 7200-hectare Whangamarino Wetland, between Auckland and Hamilton. This Ramsar site was once the world's most important wetland for the Australasian bittern, with more than 140 booming males in 1980.

Nowadays, there's only about a dozen. I learnt about the many issues that are implicated in the decline, such as introduced species and water quality, but I think the huge water level fluctuations are central.

Near Tauranga, we visited the Lower Kaituna Wetland, and were lucky enough to spot a bittern feeding in the eleocharis. Part of the restoration work in the broader area is starting from scratch, essentially constructing new wetlands.

And on the edge of Tauranga itself, right on the coast, we visited a bittern breeding site that was tidal. This was quite perplexing. The vegetation is low and we wondered where they build their nests without being flooded.

Unfledged chicks have been found in land nearby, including a recreational park. We talked about how this site would be suitable for a thermal drone in locating nests and monitoring breeding success.

All in all, a wonderful trip, with special thanks to all who made it possible. I'm looking forward to returning the favour! The love for matuku in New Zealand is admirable, and the conservation work being done is inspiring.

wetland care NEWZEALAND

DUCKS UNLIMITED

Wetland Care Scholarship

Interested in studying wetland birds or wetland restoration? – the 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.

Starting in 2018, up to $20,000 will be available annually to cover one to four separate scholarships of $5000 each. Funds can be used to support student living costs or to 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:

- 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.
- research covering any 'preferred research topics' listed on the Ducks Unlimited/Wetland Care website.

Value

Wetland Care will award up to four scholarships a year, in two funding rounds annually for the next three years (2019 to 2021). The current round, consisting of one or two $5000 scholarships, is being advertised now. The second funding round, consisting of another one or two $5000 scholarships, will be advertised in September. Funds will be paid in one lump sum to successful candidates upon completion of the milestones agreed at the time the scholarship is accepted.

How and when to apply

- Applications for the February 2019 funding round opened on 14 February and close on 1 May 2019. Depending upon the quality of applications, we may award up to two $5000 scholarships.
- The next applications will be called for in September. This round will also consist of up to two $5000 scholarships.

Interested? Or want to know more?

Please email swampbird.research@gmail.com with your questions or to request an application pack.

Terms and conditions will also be available on the Ducks Unlimited website.

Applications close at 5pm on 1 May.

DU MEMBERSHIP FORM

Detach and post or apply/renew online at **ducks.org.nz**

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

☐ Please send me further information, I may join later.

Name.....

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Phone.....

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For Wetlands and Waterfowl.

All subscriptions include GST.

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☐ Contributor $60

☐ Family $70

☐ Business $110

☐ Life (one payment) $3000

☐ Bronze Sponsor $90

☐ Silver Sponsor $160

☐ Gold Sponsor $310

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

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Ducks Unlimited, PO Box 165, Featherston, Wairarapa, 5740

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