

KUAKA



Welcome to the newsletter of the South Auckland Branch of Birds NZ

Te Kahui Matai Manu o Aotearoa

Issue 55 – APRIL 2024

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Tena koutou *Kuaka* readers. With daylight saving behind us now would be a good time to get out there after dark and do some nights counts for the Atlas. As we showed you last month, there is a shortage of night counts in our region for autumn.

The images above were chosen as they relate to two of the articles in this issue of *Kuaka* – owl flight, and human-driven avian extinction.

On the left we have a ruru (from NZbirdsonline.org).

On the right it's an upland moa (from tereature.org).

**Our next meeting will be on Tuesday
14h May at 7.30pm**

Don't forget to note the census dates in your diary

PROGRAMME FOR 2024

Monthly Meetings: held on the second Tuesday of each month, at the Papakura Croquet Club, 1 Chapel Street Papakura. Meetings start at 7:30. Visitors welcome. \$3.00 donation to cover costs please

May 14	Monthly meeting	Sandra Anderson on bird ecology and plant interactions
Jun 11	Monthly meeting	Alex Wilson on the fairy tern captive breeding programme
Jun 23	Manukau Harbour winter wader census and spoonbill survey – details TBA	
Jun 29	Coromandel winter wader census and spoonbill survey – details TBA	
Jun 30	Firth of Thames winter wader census and spoonbill survey – details TBA	
Jul 9	Monthly meeting	Lucy Hawley on the work of Ak Airport wildlife rangers
Aug 13	Monthly meeting	Taneal Gulliver on bellbirds, dabchicks & malleefowl

SPEAKER FOR APRIL

This month Adrian Riegen updated us on his tuturiwhatu/northern NZ dotterel observations from Muriwai to Whatipu on Auckland's west coast. 52 chicks have been banded/flagged since 2018 and 38 of those individuals have been resighted from Big Sand Island in the north to Kawhia in the south.

One of the questions Adrian is attempting to answer is 'do the manu breed on the coast opposite to the one they were born and raised on?' – so far, the answer is no, although at this stage only three of the westies appear to be breeding; two in Adrians research area and the other in our region Big Bay, Awhitu.



Adrian shared his experience of moving eggs, that had been washed out of a nest, approx. 30 metres up the beach above the high tide mark. One of the parents apparently unaware of the damage done by the wave, attempted to lure the human away from the old nest site with the ole broken wing act. Adrian managed to guide the manu in the direction of the new nest and was delighted when it discovered the eggs and immediately set about rearranging them before settling down to continue brooding them.

A little Google research uncovered this article about Adrian and his tuturiwhatu passion.

NZ DOTTERELS ON AUCKLAND'S WEST COAST

Excerpts from a report by Adrian dated March 2024

Since the 1980s I have been monitoring New Zealand Dotterels (NZD) on Auckland's west coast (as well as Variable Oystercatchers). NZD populations have remained low but stable, with usually 2-3 pairs in the Whatipu Scientific Reserve from Paratahi Island south to Pararaha Stream, and lower numbers at Piha, Anawhata and Bethells (Te Henga). The breeding success of NZDs on these west coast beaches is also low, compared to the east coast beaches, despite the greater human population pressure there. Is this due to human disturbance, predation, low food supply, or some other factors such as the wild west coast weather and hot black sand? Without doubt the early establishment of community groups on many eastern beaches helped considerably, putting fences round nesting birds and undertaking predator control and educating the public. However Bethells, Anawhata, Piha and Karekare now have community groups led by some wonderfully dedicated people to help protect these birds.

To find out what is happening on the West Coast, we instituted a banding programme, so that individual birds can be monitored over their lifetime (20-plus years). Initially we attached an engraved metal band to the legs of young birds, but the numbers on the bands proved difficult to read. Since 2018, we have started to fit them with a small engraved 'flag' (white with three black letters), which can be read more easily, either with binoculars or with a camera. This flagging protocol is approved by the Department of Conservation (DOC), who issue banding licenses. The flag means individual birds can be tracked without disturbing them or the need to recapture them. We normally band the young birds at about four weeks old, as they have a better chance of surviving from that age. They can usually fly at least short distances from about five weeks old.

Overview

Since 2018 we have put flags on 5 adults and 50 chicks on the west coast from Bethells to Karekare. Of the chicks, 22 were banded at Karekare, 14 at Piha, 7 at Anawhata, and 7 at Bethells. Since then at least 42 people have reported sightings of the 55 birds flagged - 37 have been seen at least once, with CHR seen the most, 101 times.

Sightings further up and down Auckland's West Coast

Of the 50 chicks banded on the west coast, most sightings (outside of the home beaches) have been further south on the West Coast. Seven birds have been seen at Port Waikato, mostly during autumn and winter, and two a little further north at Kariotahi Beach. A further nine birds have been seen at sites on the southern Manukau Harbour and one has been seen at Whatipu. JAJ, banded at Karekare December 2021 was seen in March and June 2022 at Clarks Bay, South Manukau Harbour, and then again on Te Motu in Kawhia Harbour in July 2023. Perhaps it has settled there now - Te Motu is rarely visited by birders. To the north, two have been seen briefly at Muriwai. I was expecting many of the birds to join the autumn non-breeding flocks in the Kaipara Harbour but only one has been seen there - CHR.

Sightings on Auckland's East Coast

Five west-coast-flagged birds have been seen on the east coast of the Auckland region. CLH, banded at Piha in January 2018, was seen at Shoal Bay, Waitemata Harbour in April 2018 and then from January to September 2019 at Whitford, east Auckland but not seen since then. CNU, banded at Piha in December 2020 was seen at Omaha between February and August 2021. Many non-breeding NZD gather in autumn at Omaha before dispersing again to breeding sites. Most interesting are the three birds that have been seen between Kaiaua and Pūkoro Miramira on the Firth of Thames, a distance of at least 80 km from their banding sites. JAB, banded at Piha as a chick in December 2021, was seen on the Firth of Thames in June 2023 and then returned to Karekare in January 2024.

Westie birds returning to breed

Of the 37 chicks banded on the four west coast beaches since 2018, only two have been recruited back to these beaches as parents, with a third breeding further south on the Manukau. Likely more will return, since they generally do not breed until at least two years old. Of these returning birds, none is breeding at the same beach where it hatched. Returning locals are:

- CHR, banded at Piha February 2019 and seen 101 times up and down the West coast. It has bred in the scientific reserve at Karekare beach each year since 2021 and two of its chicks, JAW & JAX, were banded in February 2023.
- CNZ, banded at Karekare February 2021 has been seen at North Piha regularly since July 2022 and has been breeding with HAB (a banded adult) since then.
- CHT, banded Piha February 2019, is now resident at Big Bay, Awhitu Peninsula and is breeding there.



Do Easterners ever come west?

Of interest is the fact that 95 NZD have been banded and fitted with flags at other sites around Auckland since 2011. Not one of these has been seen on the west coast as yet.

It is still very early days in the NZD banding project, and we expect to learn much more over the coming years.

Adrian asks us to keep looking for tuturiwhatu and report the flag details to him

SIGHTINGS

- A great knot has been present at Miranda
- 83 little black shags/kawau tui were present one day last week at the ponds at Wattle Downs
- 47 black backed gulls/karoro were present at the Wattle Downs pond
- A large flock of pied stilts/poaka were also present
- 28 NZ dotterel/tuturiwhatu were spotted on Pararekau Island, Karaka Harbourside
- 55 wrybill/ngutu pare were also seen at Harbourside along with 38 godwit/kuaka
- Black billed gull E194219 was spotted at Wattle Downs. This manu was banded at Miranda in 1997

Adrian reported that a godwit/kuaka (with a location transmitter) who departed Miranda recently was noted as having stopped in New Caledonia – the manu is now back in New Zealand, enjoying itself on the Manukau. Will it try again to migrate north or will it choose to spend the winter here? Only time will tell.



The great knot at Miranda

THE GREAT KNOT

The great knot (*Calidris tenuirostris*) is a larger cousin of the red knot, and in non-breeding plumage the two are moderately similar in appearance. In breeding plumage, the great knot is unmistakable with a spotted black breast and bold red patches on the scapulars. A Siberian breeding species, it winters in southern Asia and Australia and small numbers turn up in NZ most years.



Great knot



Red knot

NZ BIRD ATLAS PROJECT

April marks the second month of the final autumn season of the Atlas Project, and the penultimate month before the Atlas finishes. The chart to the right shows some stat's for the project.

As we pointed out last month, many of the squares for our rohe are lacking counts for birds at night. We want to continue to encourage our readers to gather observations, especially night-time counts outside of the urban areas.



So, if you, or friends/relatives, live rurally it would be great if you could do some night counts before the end of May.

Progress continues in adding to the daytime effort in some of the Coromandel and Hauraki squares. Nigel Milius recently managed to visit square AA78 which contains Whale Rock, and added two new species to the nine that Wendy Hare had seen there in February. Many thanks to both of them for making the effort to put some birds on the map for one of our far-flung squares, and also to Ross Liggins for taking them out there on his boat.

Have you heard morepork around your place? Don't forget we need more nocturnal counts.

Nocturnal checklists start earlier than 40 minutes before sunrise, or later than 20 minutes after sunset.

It's getting dark earlier now, so have a listen out and let me know what you hear. Even if you see or hear nothing, let us know as that is also useful information. Make a note of the details below and send through to Sue:

- Exact location of sighting, Date, Start Time, duration of count, Species, Number of birds seen/heard

Come on everyone, let's get out there and overwhelm the system with night counts!

UNCOVERING THE SECRETS BEHIND THE SILENT FLIGHT OF OWLS

Researchers investigate the aeroacoustic mechanisms that allow owls to fly silently using numerical simulations.

Owls produce negligible noise while flying. While many studies have linked the micro-fringes in owl wings to their silent flight, the exact mechanisms have been unclear. Now, a team of researchers has uncovered the effects of these micro-fringes on the sound and aerodynamic performance of owl wings through computational fluid dynamic simulations. Their findings can inspire biomimetic designs for the development of low-noise fluid machinery.

Owls are fascinating creatures that can fly silently through some of the quietest places. Their wings make no noise while flying, enabling them to accurately locate their prey using their exceptional hearing ability while remaining undetected. This unique ability depends on many factors and has long been a hot research subject.

Studies have found associations between the ability to fly silently and the presence of micro-fringes in owl wings. These trailing-edge (TE) fringes play a crucial role in suppressing the noise produced by wing flap-induced air movement. Studying these fringes can lead to the development of promising methods to reduce noise caused by fluid machinery. While many studies have evaluated these fringes using flat plates and airfoils, their exact mechanisms and effects on the interactions of feathers and the different wing features in real owl wings remained unknown.

To unravel the secrets of silent owl wings, Professor Hao Liu and colleagues, from the Graduate School of Engineering and Dr. Yajun Jiang and Dr. Masashi Murakami from the Graduate School of Science at Chiba University in Japan, investigated how TE fringes influence both the sound and aerodynamic performance of owl wings.

To understand how owl wings work, the team constructed two three-dimensional models of a real owl wing -- one with and the other without TE fringes -- with all its geometric characteristics. They used these models to conduct fluid flow simulations that combined the methods of large eddy simulations and the Ffowcs-Williams-Hawkings analogy. The simulations were conducted at the speed of the gliding flight of approach of a real owl.

Simulations revealed that the TE fringes reduced the noise levels of owl wings, particularly at high angles of attack, and maintained aerodynamic performance comparable to owl wings without fringes. The team identified two complementary mechanisms through which the TE fringes influence airflow. First, the fringes reduce the fluctuations in airflow by breaking up the trailing edge vortices. Second, they reduce the flow interactions between feathers at the wingtips, thereby suppressing the shedding of wingtip vortices. Synergistically, these mechanisms enhance the effects of TE fringes, improving both aerodynamic force production and noise reduction.

Emphasizing the significance of these results, Prof. Liu says, "Our findings demonstrate the effect of complex interactions between the TE fringes and the various wing features, highlighting the validity of using these fringes for reducing noise in practical applications such as drones, wind turbines, propellers and even flying cars."

Source: Chiba University. "Uncovering the secrets behind the silent flight of owls." ScienceDaily. ScienceDaily, 23 January 2024. www.sciencedaily.com/releases/2024/01/240123122156.htm

Note: Content has been edited for style and length.

AOTEAROA/NEW ZEALAND OWLS



little owl



ruru/morepork



barn owl

The little owl was introduced to the South Is from Germany in the early 20th C with the idea of controlling the large flocks of small birds (e.g. house sparrows, finches, and white eyes) wreaking havoc on grain and fruit crops. A total of 219 owls were released by the Otago Acclimatisation Society, with additional releases in the Canterbury region. They spread rapidly and are now common throughout eastern Sth Is.

The little owl is small, plump grey-brown owl, much streaked and spotted with white and are slightly smaller and much paler than the ruru. The little owl also has a shorter tail and a more flattened top to its head.

The two species rarely occur in the same sites and habitats, as ruru are scarce or absent from much of the dry, open farmland of the Sth Is, and little owls do not live in the bush. Unlike the ruru, little owls are often seen perched out in the open during the day.

Barn owls are widespread on mainland Australia and the islands of the SW Pacific. They have been reported from various parts of NZ over the years with breeding observed near Kaitaia since 2008. In our region barn owls have been reported from the Hunua's and Pokeno.

Source: NZbirdsonline.org



Whekau/laughing owl (male)

The whekau/laughing owl (*Sceloplaux albifacies*) was a NZ endemic species. It was rare in 1892 when this unique photograph of a live bird was taken. It was one of pair kept by Walter Buller.

Buller arranged for the photograph to be taken before he sent the owls, in 1893, to the British collector Lord Walter Rothschild. Buller remarked that it was highly probable that this live pair "shall be the last we ever get". He wasn't wrong!

The last confirmed record of a whekau was in 1914.

Source: National Library

STUDY UNCOVERS MAJOR HIDDEN HUMAN-DRIVEN BIRD EXTINCTIONS

December 19, 2023 Source: UK Centre for Ecology & Hydrology

Scientists say 1 in 9 species have been lost -- double the current estimate

As we know, many of the world's islands were previously untouched paradises, but the arrival of people to places like Hawaii, Tonga, New Zealand and the Azores led, over time, to far-reaching impacts including deforestation, overhunting and the introduction of invasive species. Consequently, bird species were wiped out. While the demise of many birds since the 1500s has been recorded, our knowledge of the fate of species before this relies on fossils, and these records are limited because birds' lightweight bones disintegrate over time. This conceals the true extent of global extinctions.

Researchers now believe 1,430 bird species -- almost 12% -- have died out over modern human history, since the Late Pleistocene around 130,000 years ago, with the vast majority of them becoming extinct directly or indirectly due to human activity.

The study, led by the UK Centre for Ecology & Hydrology (UKCEH) and published in *Nature Communications*, used statistical modelling to estimate the undiscovered bird extinctions. Lead author Dr Rob Cooke, an ecological modeller at UKCEH, says: "Our study demonstrates there has been a far higher human impact on avian diversity than previously recognised. Humans have rapidly devastated bird populations via habitat loss, overexploitation and the introduction of rats, pigs and dogs that raided nests of birds and competed with them for food. We show that many species became extinct before written records and left no trace, lost from history."

Dr Søren Faurby of the University of Gothenburg, a co-author of the study, adds: "These historic extinctions have major implications for the current biodiversity crisis. The world may not only have lost many fascinating birds but also their varied ecological roles, which are likely to have included key functions such as seed dispersal and pollination. This will have had cascading harmful effects on ecosystems so, in addition to bird extinctions, we will have lost a lot of plants and animals that depended on these species for survival."

Observations and fossils show 640 bird species have been driven extinct since the Late Pleistocene period – 90% of these on islands inhabited by people. These range from the iconic Dodo of Mauritius to the Great Auk of the North Atlantic to the lesser-known Saint Helena Giant Hoopoe. But the researchers estimated there have been further 790 unknown extinctions, meaning a total of 1,430 lost species -- leaving just under 11,000 today.

The scientists say their study has uncovered the largest human-driven vertebrate extinction event in history, during the 14th century, estimating that 570 bird species were lost after people first arrived in the Eastern Pacific, including Hawaii and the Cook Islands -- nearly 100 times the natural extinction rate. They believe there was also a major extinction event in the ninth century BC, primarily driven by the arrival of people to the Western Pacific, including Fiji and the Mariana Islands, as well as the Canary Islands, and highlight the ongoing extinction event, which started in the mid-18th century. Since then, in addition to an increase in deforestation and spread of invasive species, birds have faced the additional human-driven threats of climate change, intensive agriculture and pollution.

Previous research by the authors suggests we are at risk of losing up to 700 additional bird species in the next few hundred years, which would be an unprecedented human-driven decimation of species. But Dr Cooke points out: "Whether or not further bird species will go extinct is up to us. Recent conservation has saved some species and we must now increase efforts to protect birds, with habitat restoration led by local communities."

The study team based their modelled estimates on known extinctions and the extent of relevant research effort in regions compared to NZ. The country is the only place in the world where the pre-human bird fauna is believed to be completely known, with well-preserved remains of all birds there. The fewer studies in a region, the more incomplete the fossil record is expected to be, and the greater the number of estimated undiscovered extinctions.



Birds New Zealand Research Fund

This important national fund is managed by Birds New Zealand on behalf of a New Zealand Charitable Trust. We invite applications from individuals or organisations prepared to make a difference through ornithological research, with outcomes likely to provide for better management of New Zealand birds or their environment. This year's closing date is **15 June 2024**. For details visit www.birdsnz.org.nz/funding/birds-nz-research-fund/

Are You Interested In Birds?

Birds New Zealand is a voluntary charitable society that depends on the enthusiasm, active participation, knowledge and financial support of its members.

We encourage and promote the study of birds by organising projects and activities at national and regional level. We help fund studies and support the wider knowledge and enjoyment of birds. We encourage members to learn more about birds, where to find and how to study them. We publish the quarterly scientific journal *Notornis* and the popular magazine *Birds New Zealand*.

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