



NZ BIRD CONFERENCE & BIRDS NZ AGM

Nelson, 1 to 3 JUNE 2024

The Trafalgar Centre, Nelson



Conference Programme

Friday 31 May	18:00 – 19:30	Registration	Tides Hotel
Saturday 1 June	08:00 – 08:30	Registration	Trafalgar Centre
	08:30 – 09:00	Opening ceremony	Trafalgar Centre
	09:00 – 16:45	Scientific programme day one	Trafalgar Centre
	17:00 – 19:00	Workshops, Drinks	Tides Hotel
	19:00	Informal Dinner	Trafalgar Centre
Sunday 2 June	08:00 – 08:30	Registration	Trafalgar Centre
	08:30 – 15:00	Scientific programme day two	Trafalgar Centre
	15:30 – 16:45	AGM and Awards	Trafalgar Centre
	19:00	Conference Dinner	Trafalgar Centre
Monday 3 June	Field trips		



1 JUNE

CONFERENCE PROGRAMME DAY 1

08:00-08:30

Registration

08:30-09:00

Conference opening & Welcome

Session 1:

Session Chair: Michelle Bradshaw

09:00-09:30

Graeme Elliott

[33 years of monitoring wandering albatrosses on Antipodes and Adams Islands. The sorrows and joys of a long-term study.](#)

09:30-09:45

Richard Holdaway

[Would the real pipiwharauoa please stand up? A comparison of morphometric patterns and intraspecific taxonomy of the shining cuckoo](#)

09:45-10:00

Kevin Parker

[Using count data and estimates of connectivity to quantify and predict the success of popokatea/whitehead translocations](#)

10:00-10:15

Lawson Davey

[47 years of Monitoring the Central New Zealand Black Swan Population](#)

10:15-10:30

Rob Schuckard

[Fine-tuning the ageing of juvenile, subadult and adult South Island Pied Oystercatchers](#)

10:30-11:00

Morning tea



Session 2: Session Chair: David Melville

11:00-11:15	James Braund	<u>Ornithological results of the Austrian Novara expedition's visit to Auckland in 1858-1859</u>
11:15-11:30	Emma Williams	<u>Birds beyond borders – Shorebirds that are connecting places and people to maximise New Zealand's national conservation efforts</u>
11:30-11:45	Kath Walker	<u>Comparative analysis of plumage, morphology and biology of Antipodean and Gibson's wandering albatrosses</u>
11:45-12:00	Biz Bell	<u>Towards understanding tākoketai/black petrel recruitment on Aotea/Great Barrier Island</u>
12:00-12:15	Johannes Chambon*	<u>Survival modelling of the Critically Endangered Chatham Island tāiko</u>
12:15-12:30	Hiltrun Ratz	<u>New Zealand Penguin Initiative: what's up with Kororā?</u>

12:30-13:30 Lunch

Session 3: Session Chair: Kevin Parker

13:30-13:45	Caitlin Lavery	<u>Observations on the Pīhoihoi (New Zealand pipit) on the Te Ahu a Turanga Highway project</u>
13:45-14:00	Brian Gill	<u>Gorging on insects: diet of the shining cuckoo in New Zealand</u>
14:00-14:15	Dan Burgin	<u>New Zealand Bird Atlas summary and what lies ahead</u>
14:15-14:30	Inka Pleiss*	<u>Negligible Impact of Tape- and Harness-Mounted GPS Data Loggers on Adult Sooty Shearwaters and their Chicks</u>
14:30-14:45	Robin Toy	<u>Post-translocation roroa great spotted kiwi monitoring, how much is enough?</u>
14:45-15:00	Katherine Chamberlain; Simon Hoyle	<u>Volunteer-based five-minute bird counts and their usefulness for assessing bird activity over time</u>

15:00-15:30 **Afternoon tea; Poster session**

Session 4: Session Chair: Graeme Elliott

15:30-15:45 Neil Fitzgerald

[Movement and feeding behaviour of North Island kākā wintering in rural Waikato](#)

15:45-16:00 Alan Tennyson

[Recent advances in New Zealand prion research](#)

16:00-16:15 Viktorija Povilionytė*

[Behavioral database from camera traps in North Atlantic burrow-nesting seabirds](#)

16:15-16:30 Sabrina Leucht

[Impact of decreased ocean productivity on seabirds and the importance of wildlife hospitals as a conservation tool](#)

16:30-16:45 Soapbox session

Short presentations of general interest from various Regions

Maria R. Düssler*

[Comparative study of the diving behaviour of three Procellaria petrel species](#)

17:30-18:30 Tides Hotel: Banding Gathering & Atlas Workshop

19:00-21:30 **Informal dinner**

2 JUNE

CONFERENCE PROGRAMME DAY 2

08:00-08:30

Registration

Session 1:

Session Chair: Alison Ballance

08:30-09:00

Natalie Forsdick

[An overview of current applications of genetic/genomic data for avian conservation in Aotearoa New Zealand](#)

09:00-09:15

Yvonne Taura

[Taonga manu: Exploring the significance of local manu through a hapū lens with primary school students](#)

09:15-09:30

Oscar Thomas*

[On the brink: status, movements and variation of the tūturiwhatu | southern New Zealand dotterel](#)

09:30-09:45

Maia Gerard*

[Bird counts of a fragmented forest landscape in Banks Peninsula](#)

09:45-10:00

Philippa Agnew

[Comparing the use of flipper bands vs PIT tags for marking kororā at Ōamaru](#)

10:00-10:15

Claudia Mischler

[Black-billed gull national census – a follow-up to the 2016/17 census](#)

10:15-10:30

Georgia Thomson-Laing

[Using environmental DNA in lake sediment cores to detect historical changes in bird communities](#)

10:30-11:00

Morning tea; Poster session



Session 2: Session Chair: Kristal Cain

11:00-11:15	Jonathan Rutter*	<u>Immersion regularity predicts vessel following by albatrosses</u>
11:15-11:30	Imogen Foote*	<u>Whole-genome analyses reveal genetic structure in the highly threatened Antipodean and Gibson's albatrosses</u>
11:30-11:45	Bruce McKinlay	<u>High Pathogenicity Avian Influenza in wild birds and potential implications for New Zealand</u>
11:45-12:00	Wendy Fox*	<u>Local movements of colony-based karoro/Southern black-backed gull in Canterbury</u>
12:00-12:15	Jodanne Aitken*	<u>Over the hills and far away: how to best utilise GPS technology to answer kea movement ecology questions?</u>
12:15-12:30	Brenda Greene	<u>Little birds, big data</u>

12:30-13:30 **Lunch**

2 JUNE

CONFERENCE PROGRAMME DAY 2

Session 3: Session Chair: Ron Moorhouse

13:30-13:45	Michelle Hawinkels*	<u>Why are there so many feral pigeons in a predator-free ecosanctuary?</u>
13:45-14:00	Matt Rayner	<u>Bird counts reveal changing structure of the terrestrial bird community on Rangitāhua/Raoul Island, 1967 – 2023</u>
14:00-14:15	Georgia Gwatkin*	<u>A place to call home: investigating the terrestrial habitat selection of kororā at Pōhatu/Flea Bay</u>
14:15-14:30	Colin Miskelly	<u>Every Last Bird – Atlassing the Te Araroa Trail</u>

14:30-14:45 Soapbox session Short presentations of general interest from various Regions

14:45-15:00 Closing ceremony

15:00-15:30 **Afternoon tea**

15:30-16:45 AGM and awards

19:00-21:30 **Conference dinner**



1&2 JUNE

POSTERS

Anya Benavides*	<u>Continuing the Mo'olelo: Revisiting Palila Ecology, Demography, and Predator Impacts to Sustain Hope for Species Survival</u>
Mike Bell	<u>Determining the timing and duration of moult in fluttering shearwater from images submitted to eBird.</u>
Samantha Ray	<u>Extensive breeding failure of toanui/flesh-footed shearwater following extreme weather events</u>
Paul Fisher	<u>Preliminary observations comparing the moult and morphometrics of the North Island and South Island Fernbird</u>
Chase Leathard*	<u>Endocrine underpinnings of reproductive cycling in captive gentoo penguins, alongside the use of GnRH contraceptive implants</u>
Johannes Chambon*	<u>Foraging ecology of breeding Chatham petrel</u>
Alanah Grassick*	<u>Long-Term Trends of Avian Assemblages in <i>Pinus radiata</i> Plantation Forest: 1977-2024</u>
Natalie Forsdick	<u>Reinvigorating an ornithological treasure trove - the Birds New Zealand Library</u>
Simon Lamb	<u>Stronghold in the Sounds: A population estimate for sooty shearwater breeding on Titī island, Marlborough Sounds</u>
Henry Elsom	<u>Foraging behaviour and range overlap between two neighbouring little penguin colonies</u>



Eleen Strydom	<u>Secretarybirds hunting on foot: the dietary link between wetlands and population health</u>
Erin Kennedy	<u>A spatially explicit approach for assessing human-wildlife interactions and conflict in the kea</u>
Ricky-Lee Erickson	<u>The discovery and investigation of tridactyl fossil footprints discovered in the Kaipara, North Island</u>
Rachel Hufton	<u>Makarora Whio (Blue duck, <i>Hymenolaimus malacorhynchos</i>), a significant remnant population of Aotearoa New Zealand's, South Island.</u>
Angela Brandt	<u>The New Zealand Garden Bird Survey: Making our garden birds count since 2007</u>
Viktorija Povilionytė*	<u>Double cone distribution in high-resolution areas of foveate and afoveate avian retinas</u>
Lynn Miller	<u>Research and Wildlife Rehabilitation – a match longing to be made</u>
Annemieke Hendriks	<u>Longevity records of New Zealand birds from banding data</u>
Rachel Hickcox	<u>The quest for long-term monitoring, research, and conservation of the little penguin/kororā</u>
Richard Holdaway	<u>Understanding the “Odd Emeid Out” State of research on the rain forest specialist ‘little bush moa’ (<i>Anomalopteryx didiformis</i>, Emeidae, Dinornithiformes)</u>



33 years of monitoring wandering albatrosses on Antipodes and Adams Islands.

The sorrows and joys of a long-term study.

Graeme Elliott¹ and Kath Walker¹

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Monitoring of Gibson's wandering albatrosses on Adams Island started in 1991 and an almost identical programme of monitoring of Antipodean wandering albatrosses started on Antipodes Island in 1994. Both programmes have continued annually, except for one missed year on each island. Both programmes have involved estimating survival by banding and re-sighting birds, monitoring nesting success, tracking birds at sea using satellite and geolocator tags, estimating the size of the population by undertaking whole island censuses, and tracking population change by annual counting of nesting birds in representative portions of the islands. Both populations increased up until 2005 but then crashed with numbers continuing to fall for about 15 years, until Antipodean albatrosses were about 42% and Gibson's about 47% of their pre-crash levels. Satellite and geolocator tracking of both taxa have enabled accurate description of their foraging ranges and identified that a large number of birds have been killed by tuna long-liners, particularly in the waters to the northeast of New Zealand. Tracking has revealed that although their foraging ranges overlap, Gibson's mostly forage in the Tasman Sea while Antipodean mostly forage in the eastern Pacific. Such long-term monitoring programmes have involved half of our lives' summers and several hundred days of sea-sickness, but we now know exactly what the two albatross populations are doing in good detail and we've had the joy of interacting with a wide range of rarely seen subantarctic birds.



Would the real *pipiwharuroa* please stand up? A comparison of morphometric patterns and intraspecific taxonomy of the shining cuckoo

Richard N. Holdaway¹, Karen Rowe², Mark Adams³

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Four subspecies of shining cuckoo (*Chrysococcyx lucidus*) are presently recognised by most authorities. Two, the Australian breeding *C. l. plagosus* and the New Zealand breeding *C. l. lucidus* are migratory, both spending the non-breeding season in the tropics. The other two are thought to be sedentary, *harterti* on Rennell and Bellona Islands south of the Solomon Islands, and *layardi* on New Caledonia, the Loyalty Islands, and Vanuatu. A male cuckoo that came aboard ship 400 nautical miles north of North Cape, New Zealand, just east of Norfolk Island, in October 1954 and which is now preserved in Museums Victoria, Melbourne, Australia had been provisionally identified as *C. l. lucidus*. Its 30 g mass is the highest listed in the *Handbook of Australian, New Zealand & Antarctic Birds*. We assessed its relationships using principal component analysis, non-metric non-dimensional scaling, and discriminant function analysis of the measurements of its bill width (at proximal edge of the nares), bill length (chord of culmen to frontal feathers), wing length (wing flattened, not straightened), and tail length in comparison with these dimensions in 146 cuckoo skins in the museum collections in New Zealand, Australia, the US and the United Kingdom, including the 6 syntypes of *C. l. layardi* and the holotype of *C. l. harterti*. The ‘North Cape bird’ was in one of four morphometric groups identified whose distributions did not accord with those of the present subspecies. Potential implications of the mismatch for our understanding of the species taxonomy and migrations are discussed.



Using count data and estimates of connectivity to quantify and predict the success of popokatea/whitehead translocations

Kevin A. Parker¹, Zoe Stone², Sandra Anderson³, Mike Graham[†], Neil Fitzgerald⁵, Tim G. Lovegrove^{6, 7}, Colin Miskelly⁸, Doug P. Armstrong²

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³ University of Auckland, Private Bag 92019, Auckland 1010, New Zealand

[†] Deceased

⁵ Manaaki Whenua – Landcare Research, Private Bag 3127, Hamilton 3240, New Zealand

⁶ 6 Deuxberry Ave, Northcote, Auckland, New Zealand

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⁸ Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington 6140

The reintroduction biology literature is characterised by calls for improved post-release monitoring to improve translocation success. Frequently, this call has manifested as post hoc analyses of success rates using easy to measure predictor variables, such as the number of animals released, or the release method, such as delayed versus immediate release. However, these data are not useful for predicting translocation success when compared to predictions of population growth and persistence generated from vital rates (i.e. survival and productivity), count and occupancy data. Bird counts are frequently conducted at reintroduction and restoration sites in Aotearoa New Zealand. Provided skilled observers are used they can generate useful long term data sets for investigating the impacts of site management, such as invasive predator control, and site characteristics, such as landscape connectivity. Here, we use five minute and transect count data from eight sites, along with measures of landscape connectivity, to quantify the success of popokatea / whitehead (*Mohoua albicilla*) translocations. We then use these data to predict population growth and persistence at two new reintroduction sites, one where birds have recently been released (2022) and one where a release is planned for 2025.



47 years of Monitoring the Central New Zealand Black Swan Population

Lawson Davey¹, Allen Stancliff², and Dr Matt Kavermann³

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Black Swans (*Cygnus atratus*) were first introduced into NZ in 1863, by the Nelson Acclimatisation Society. Observations at the time, however indicated natural immigration was also likely to be occurring. Pre-1840 fossil records of bones recovered from Maori midden deposits indicate the species was present in NZ, prior to the introduction in 1863.

Black Swans are classified as Game birds under the Wildlife Act 1953 and managed by Fish & Game Councils pursuant to their responsibilities under the Conservation Act 1987. Swans constitute a relatively minor, though valued bird for hunters in many districts. Banding studies conducted in the 1970s, indicate that there are several semi-distinct regional populations.

Farewell Spit is a major moulting site for juveniles and non-breeders for the “Central NZ Black Swan population” which is made up from sub-populations largely from the Wairau (Vernon) Lagoon, Lake Wairarapa, Manawatu/Wellington West and Wanganui. Nelson Marlborough Fish & Game has annual monitoring data for the Farewell Spit and Westhaven swan population dating back to 1977, with data for Wairarapa and Manawatu/Wellington West since 1979 and the early 1990s for Marlborough and Wanganui.

The Farewell Spit population has been relatively stable, albeit some quite significant variations between years, ranging in population size from 4,277 to 14,680 birds. Other populations have been fairly stable until the past couple of years, where the Marlborough & Wairarapa populations have shown a dramatic increase. Anecdotal reports suggest the aquatic vegetation *Ruppia* is likely to be the driver for the population increase in the Wairau Lagoons.



Fine-tuning the ageing of juvenile, subadult and adult South Island Pied Oystercatchers.

Rob Schuckard¹, David S. Melville², Willie Cook³ and Mark Ayre⁴

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Accurate determination of age is fundamental to a detailed understanding of avian ecology; age at maturity and the timing of first breeding are important life history traits, while different age classes of migratory shorebirds may, for example, utilize different staging and non-breeding areas which has implications for conservation management. The OSNZ/Birds NZ National Shorebird Banding Project presents an analysis of almost 1300 South Island Pied Oystercatchers (*Haematopus finschi*) caught between 2000 and 2024 throughout the year. Considering differences in iris colour, moult, bill colour, leg colour and feather wear we can distinguish Juvenile (Year 1) sub-adult (Year 2 and Year 3) and adult (Year 3+ and 4+) birds. This provides a more detailed set of ageing criteria than previously available.



Ornithological results of the Austrian *Novara* expedition's visit to Auckland in 1858-1859

James Braund¹

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Shortly before Christmas 1858, the Austrian frigate SMS *Novara* called at Auckland as part of a round-the-world flag-waving voyage. Although tasked primarily with exploring opportunities for territorial acquisition and trade in the Far East, the *Novara* also brought with it a small but highly capable scientific team that included the zoologist Georg Frauenfeld (1807-1873) and his assistant Johann Zelebor (1819-1869). Over the course of two weeks' hectic collecting activity conducted in and around Auckland, during which time they were assisted by local residents and other members of the *Novara*'s crew, the two men managed to acquire specimens of more than 20 New Zealand bird species and record at least 5 more. The ornithological results of the *Novara*'s visit remain largely unknown locally to this day, but they are historically interesting and helped lay the foundations of an important scientific connection between New Zealand and Austria. This presentation will briefly 1/ introduce the main protagonists; 2/ identify their main sites of collecting activity in Auckland and its environs; and 3/ summarize the results of their fieldwork and outline where and when these were published.



Birds beyond borders – Shorebirds that are connecting places and people to maximise New Zealand's national conservation efforts.

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In New Zealand, conservation management efforts for threatened species largely concentrate on the protection of individual sites and reserves, with a focus on plantings and predator control. Yet, 57% of threatened bird species spend at least part of their life cycle outside of New Zealand's protected area network, at sites with varying levels of protection. Little is known about: a) how to maximise the efficiency of local conservation management projects so that they also contribute to national conservation efforts, b) how different sites are linked throughout the annual cycle, or c) how best to protect additional threats such as those to stopover sites and flyways. BirdsNZ, the Department of Conservation and Manaaki Whenua – Landcare Research, together with other partners, have established a research partnership to address these knowledge gaps for shorebirds. Together we have been tagging and tracking tōrea/South Island pied oystercatcher from Nelson, Firth of Thames, Avon-Heathcote and the Rangitata River. This presentation provides an update on ongoing research, showcasing how tōrea/South Island pied oystercatchers connect distant sites and are helping to identify threats along their flyways.



Comparative analysis of plumage, morphology and biology of Antipodean and Gibson's wandering albatrosses

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Identification of Antipodean and Gibson's wandering albatrosses (*Diomedea antipodensis antipodensis* and *D. a. gibsoni*) at sea has been difficult due to a lack of quantitative comparative morphometric and plumage data on subadults and adults on their breeding grounds, respectively the Antipodes and Auckland Islands. Since 1994 annual banding of chicks produced and adults mating and breeding in study areas on both islands has allowed the collection of photographic records of plumage changes in known age, sex, and origin individuals over their lifetimes. The presence (in female Gibson's) or absence (in female Antipodean) of white feathers on the upper wings at the "elbow" was found to reliably distinguish the two taxa. For both sexes, the combination of wing and toe length measurement correctly identified taxa 85% of the time, with longer wings and shorter toes in Antipodean than Gibson's albatrosses. The biggest change in plumage of Antipodean females comes not with age as in most wandering albatrosses, but after a successful breeding season when extensive wear of brown-tipped body feathers exposes white feathers below, giving the birds a spotty appearance, and causing taxon confusion at sea. Median lay date for the 2 taxa differed by 15 days (Gibson's albatross 10 Jan [26 Dec–7 Feb]; Antipodean albatross 25 Jan [6 Jan–15 Feb]). No Gibson's albatrosses foraged in the south-eastern Pacific and off Chile, whereas Antipodean albatrosses of both sexes regularly did. Given the diagnosability of female Gibson's and Antipodean albatrosses, restoration of their former taxonomic status as species would be appropriate.



Towards understanding tākoketai/black petrel recruitment on Aotea/Great Barrier Island

Elizabeth Bell¹, Samantha Ray¹, Campbell Maclean¹, and Dan Burgin¹

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Monitoring of tākoketai/black petrels (*Procellaria parkinsoni*) has been undertaken at their breeding colony on Hirakimata/Mt Hobson, Aotea/Great Barrier Island since 1995. Over this period, the population trend suggests a stable or slightly declining population, which appears to be related to low juvenile survival and recruitment into the population. As these low rates may be related to recapture effort at the colony, recent expeditions focused on increased nocturnal surveys to capture as many tākoketai on the surface as possible, as well as capturing individuals at-sea. Comparison between on-land and at-sea 'returned chick' recapture rates indicate that on-land effort is more effective in resighting 'returned chicks'. Over 28 years of tākoketai monitoring on Aotea, 141 'returned chicks' have been recaptured over 228 night surveys with an average 0.62 returned chicks caught each night. The recent focused effort in 2021/2022 and 2022/2023 (22 nights surveys) increased that rate to an average of 2.3 returned chicks recaptured per night. In comparison, from six at-sea capture expeditions extending over three years and 15 days cumulatively, 3 tākoketai originally banded as chicks were recaptured (average 0.2 per day). Continued effort to recapture 'returned chicks' at the Hirakimata study colony is recommended to enhance population trend models and risk analyses.



Survival modelling of the Critically Endangered Chatham Island tāiko

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The Chatham Island tāiko *Pterodroma magentae* has been intensively monitored since the species' rediscovery in 1978, however, the difficulty of finding burrows at its breeding grounds on the main Chatham Island has always been a limiting factor to the estimation of the species population size. An accurate estimation of population size and/or trend is fundamental to the assessment of a species recovery, and it can be obtained by combining estimates of survival and productivity. Using the 46 years monitoring datasets, I built a multievent model that estimated the annual survival and detection probabilities at different stages of the species life cycle and across management units subject to different conservation methods (i.e., predator control vs predator proof fence). Adult survival is high for both birds with burrows protected by predator control (93.2%; 95% CI: 91.2-95.5%) and burrows within the predator proof fence (98.4%; 93.7-100%). Juvenile survival is also high (93.2%; 86.1-98.8%). For all groups, survival has been consistent since monitoring began. Detection probability varied over time but systematic use of PIT tags and recorders since 2006 significantly increased the detection probability for adults using known burrows (c. 98%). The low detection probability of birds not associated with a known burrow, ranging from 3 to 53% over the years depending on search effort, suggests a significant number of birds might breed in unknown burrows. This model is the first part of an integrated population model that will enable the estimation of taiko population size and the projection of population trends.

*PhD student



New Zealand Penguin Initiative: what's up with Kororā?

Hiltrun Ratz¹ and Melissa McLuskie¹

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The New Zealand Penguin Initiative (NZPI) was established in 2019 as an independent, privately funded penguin conservation organization with the aim to enhance and protect all New Zealand penguin species and habitats. Supporting individuals and groups, NZPI facilitates primarily monitoring of Little penguins/ Kororā by volunteer groups to gather valuable data about their local populations, breeding success and survival. Numbers and trends are unknown for many parts of New Zealand, and anecdotally Kororā numbers appear to be declining but little data is available. NZPI's advocacy involves collaboration with the Department of Conservation and councils to protect and enhance local populations. Groups can commit to three levels of Kororā monitoring: Tier 1, the highest commitment, includes micro-chipping adults and chicks and regular and long-term monitoring (weekly or fortnightly); Tier 2 groups commit to regular monitoring of their unmarked population; and Tier 3 groups deploy trail cameras and count footprints on beaches to determine presence and number of penguins. There are 21 groups working with NZPI in April 2024 and 37 groups have expressed interest. NZPI provides support through expertise, assists with permit applications, micro-chip certification, advocacy, provides a standardised method of data collection, a network of like-minded groups for feedback and exchange of ideas, resources and a centralised database culminating in a website accessible dashboard displaying basic population parameters. NZPI is working towards a national overview of the Kororā population, and we want to talk with anyone that knows about penguins especially in areas where their distribution and abundance is unknown.



Observations of the Pihoihoi (New Zealand pipit) on the Te Ahu a Turanga Highway project

Caitlin Lavery¹

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In order to comply with environmental consent conditions, ecologists on the Te Ahu a Turanga Highway project regularly surveyed the 11.5km project route to identify NZ pipit habitat during the August to March period. Nesting surveys were conducted every three days before grass stripping in identified habitat areas until complete. Due to the lack of detailed behavioural studies on NZ pipits, a lot of learning had to be done through trial and error in the field, or from reading overseas research. Over time our surveying methodology improved and nests started being found in active construction areas. Eventually we were able to recognise early pipit nesting behaviour, which allowed us to cordon off areas to protect breeding pairs from unnecessary stress before laying. This presentation is a record of two years of observations and discoveries, featuring; breeding behaviour, defensive displays and ideal nesting sites in grassland-hill habitat. Also included are recommendations for future construction projects to help protect this species from disturbance.



Gorging on insects: diet of the shining cuckoo in New Zealand

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Shining cuckoos are summer migrants to New Zealand where they inhabit most habitats with trees and shrubs. In this opportunistic project, cuckoos found accidentally dead and brought to Auckland Museum during 39 years were examined and dissected to record biological information including stomach contents. Migrants arriving in spring were all in adult plumage. Juveniles occurred mainly from January to March. I examined 91 gizzards containing food and identified 3754 arthropod food items, 94% of which were insects (10 orders). Shining cuckoos ate small prey, mostly 1–10 mm long (44%) and 11–20 mm long (43%). The main foods were caterpillars (larval Lepidoptera, 55% of items) and beetles (Coleoptera, 24%). Other important categories were craneflies (Tipuloidea, 6%) and plant-hoppers (Hemiptera: Auchenorrhyncha, 3%). "Spiny" or "hairy" caterpillars made up roughly 8% of total caterpillars, and ladybirds (Coccinellidae) 21% of beetles – insects that are supposedly distasteful to birds. Shining cuckoos therefore exert predatory control on insects that other birds avoid. By gorging (up to 258 insects per stomach) the cuckoo might dampen the impact of herbivorous insects (e.g. caterpillar or plant-hopper infestations) on plants.



New Zealand Bird Atlas summary and what lies ahead

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The New Zealand Bird Atlas community will have completed the five-year data collection period by the end of May 2024. An estimated \$3.5million worth of volunteer effort has gone into the project from over 1,600 Atlasers, with over 450,000 checklists of birds submitted. 97% of the 3,232 Atlas grid squares received data over the five-year period, with an impressive 308 species documented across the country. The three most ubiquitous species were pahirini/common chaffinch (*Fringilla coelebs*), manu pango/Eurasian blackbird (*Turdus merula*), and tauhou/silvereye (*Zosterops lateralis*). A detailed summary will be provided on how this nationally significant project went, and key updates will be shared detailing the next steps for the project, and the Atlas community. An important message will be that even though the Atlas has ended, the community and Birds New Zealand members are encouraged to continue to positively inform bird conservation and research in Aotearoa, by continuing to regularly enter their bird observations through eBird wherever they are, and whenever they can.



Negligible Impact of Tape- and Harness-Mounted GPS Data Loggers on Adult Sooty Shearwaters and their Chicks

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Rapid technological advancements in data loggers have given rise to an increased effort in seabird tracking. Whilst this has led to some important breakthroughs in our understanding of seabird ecology and conservation, logger deployments pose a risk to manipulated individuals. Data loggers can increase energy requirements, lead to nest abandonment, or result in mortality. The consequences of deployment vary greatly by species, logger specifications, attachment techniques, and external conditions impacting seabird health. Any researcher considering a large-scale tracking study should first assess device impacts on their target species. In this pilot study we assess the impact of Global Position System (GPS) devices and their attachment on Sooty shearwater (*Ardenna grisea*) adults and their chicks. We deployed ten GPS devices on Sooty shearwater adults on Mana Island, Wellington during early-mid chick rearing, alternating between tape attachments on the upper back and body harnesses. We set up camera traps to compare colony visitation rates of GPS tagged birds and their untagged partners. To further investigate the impact of deployments, we took chick measurements from manipulated and unmanipulated burrows during late chick rearing. Colony visitation did not differ significantly between tagged individuals and their untagged partners. Similarly, proxies of body condition (mass, wing length, tarsus, bill) did not differ significantly between chicks from manipulated and unmanipulated burrows, regardless of attachment style. These findings suggest that light-weight GPS devices attached via body harness may be suitable for long-term data logger deployments in future Sooty shearwater tracking studies.

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Post-translocation roroa | great spotted kiwi monitoring, how much is enough?

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Roroa disappeared from the Flora area of Kahurangi National Park about 40 years ago. After dog and mustelid control were established, the volunteer conservation group Friends of Flora, in partnership with the Department of Conservation, reintroduced roroa by wild-to-wild translocation of 44 adult kiwi. Each kiwi was fitted with a VHF transmitter and their subsequent locations were monitored for two to eight years by radio-telemetry. Trail cameras were used to monitor breeding success. We showed that short to medium-term translocation goals relating to survival, home range establishment and successful breeding were met. The monitoring prompted us to expand the mustelid trapped area to 10,000 ha and relocate wandering kiwi back into the core of the project area. Transmitters were removed in 2018, but we continue to track progress towards our long-term goal of a sustainable population using a network of acoustic recorders and *ad hoc* placement of trail cameras. These are showing the range roroa occupy is expanding, and there is new recruitment to the population. It is also showing feral cats and ferrets are emerging threats. All this monitoring is a significant effort, but fourteen years since the first translocation is short in comparison with roroa life expectancy of 57 years. How much monitoring is enough, and are we doing it most-effectively?



Volunteer-based five-minute bird counts and their usefulness for assessing bird activity over time

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The five-minute bird count (5MBC) is a standard technique in New Zealand used to measure bird activity and provide an index of bird abundance through time. Counts are affected by detectability as well as abundance, so the method requires all factors that affect detectability to be held as constant as possible. Some factors cannot be controlled, but these can be recorded and adjusted for during statistical analysis. A team of volunteers has been conducting quarterly five-minute bird counts at 20 sites within the Brook Waimārama Sanctuary since 2009, providing data on bird activity during the years prior to and following both the construction of an Xcluder pest-proof fence in 2016 and aerial drops of brodifacoum in 2017. There are many advantages to using volunteers, not least of which is affordability. However, the use of volunteers does challenge the consistency of 5MBC surveys. Ability and judgment always vary among individuals, but the potential for variability is greater among volunteers. Volunteers also may be inconsistent in their availability and adherence to protocol. In this presentation, we describe the volunteer-based program, document patterns of variation in measured covariates such as time-since-dawn, month, weather, and the identity of the volunteer, and estimate the effects of these covariates on bird counts by species. With the large sample sizes available from volunteers, we model the data to produce reliable, adjusted counts by species from the 5MBC technique.



Movement and feeding behaviour of North Island kākā wintering in rural Waikato

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Kākā are usually associated with mature native forest particularly where key mammalian predators (stoats and brushtail possums) are absent or controlled to low densities. However, North Island kākā are known to range widely and, outside of the breeding season, are regularly seen at some rural Waikato locations that are devoid of native forest. Between September 2020 and September 2022, we attached GPS or VHF radio tags to 44 North Island kākā captured at rural and peri-urban sites near Hamilton to monitor movement. Feeding and other behaviours in this highly modified landscape were also recorded. In September–October, most of the tagged kākā moved large distances to known predator-free breeding sites. The captured birds were disproportionately female (64%) and nearly half (49%) were in their first year, suggesting partial migration of subordinates, perhaps due to winter food scarcity at summer breeding sites. In this presentation, we describe the patterns of movement, feeding, and habitat attributes of kākā that seasonally visit rural and peri-urban Waikato.



Recent advances in New Zealand prion research

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Prions (*Pachyptila* spp.) are an abundant group of southern petrels that remain remarkably poorly known. In recent years, great advances have been made in understanding their classification and their New Zealand distribution. In 2016, 124 prion colonies of 4 species were documented in New Zealand: (1) 1,500,000 pairs of fairy prion (*P. turtur*) at 64 colonies; (2) 350,000-1,000,000 pairs of Antarctic prion (*P. desolata*) at 8 colonies; (3) 350,000 pairs of broad-billed prion (*P. vittata*) at 44 colonies; (4) 31,000-36,000 pairs of fulmar prion (*P. crassirostris*) at 8 colonies. A survey of the Bounty Islands in 2019 found fulmar prions breeding on 12 islands; their distribution within the group had not previously been documented. A 2020 summary of birds at the Auckland Islands documented 5 fulmar prion colonies (2 more than previously), and 10 Antarctic prion colonies (3 more than previously). From 2016-2021, the Fiordland coastline was surveyed, documenting 16,895 broad-billed prion burrows in 28 colonies (22 more than previously). Since 2021, two subspecies of prion have been elevated to full species: (1) McGillivray's prion (*P. mcgillivrayi*) long known from St Paul Island (Indian Ocean) and recently discovered on Gough Island (South Atlantic); (2) The Pyramid prion (*P. pyramidalis*) from the Chatham Islands. In 2022, tracked McGillivray's prions were shown to fly to the Tasman Sea. In 2024, genetic research differentiated Auckland Island breeding Antarctic prions from those from other colonies. These discoveries have prompted current studies re-examining the identity of prion specimens in museum collections.



Behavioral database from camera traps in North Atlantic burrow-nesting seabirds

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The procellariiform Cory's Shearwater (*Calonectris borealis*) is the most abundant seabird in the archipelago of Azores, Portugal, North Atlantic. Even though this species is mainly pelagic it is important to understand their land behavior. It has been shown that chicks making longer excursions to train wing motion fledged earlier and with higher body mass, yet characterization of other land-based behaviors, from any age group is lacking. Land visits occur exclusively at night during the breeding season, so this research leveraged infrared camera technology to develop a behavior catalog for Cory's shearwater, both adults and chicks. Four infrared motion cameras were deployed across three Azorean colonies from 2018 to 2020: Capelinhos (Faial Isl), Miradouro (Corvo Isl), and Vila Franca Islet (São Miguel Isl). A total of 35.5 hours of video footage were manually inspected and details such as datetime, individuals present, and behavior(s) were recorded. In total seven different behaviors were observed. Adults displayed distinct behaviors to chicks. Chicks primarily engaged in wing training motion, with training duration and synchronization increasing over the nesting period. Chicks tended to walk less than adults and walked more on the tarsometatarsus, not metatarsal pads and digits, as adults did. Chicks spent more time near the nest, and as they grew, they became more explorative. Adult preening movements were long and straight motions. Adults also tended to preen other conspecifics, while juvenile preening looked more like short scratching and only preened themselves. This study sheds light on the land behavioral dynamics of Cory's shearwaters across age groups.

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Impact of decreased ocean productivity on seabirds and the importance of wildlife hospitals as a conservation tool

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Seabirds are the most threatened group of vertebrates in the world, declining faster than any other group of birds. In New Zealand 90% of seabirds are threatened with extinction. Warming sea surface temperatures drive krill and shoaling fish to cooler depths out of reach of surface feeding and diving seabirds. Many species are unable to forage effectively due to decreased prey availability, which is further compounded by overfishing from depletion of fish stocks. Decreased ocean productivity results in poor body condition, high parasite loadings, delayed breeding, decreased reproductive success and increased mortality. This is particularly pronounced during the breeding season when adults must forage for chicks, while inexperienced fledglings struggle to forage in challenging conditions. In some species few chicks survive to adulthood, with low juvenile recruitment resulting in ageing populations. In Kaikōura, a global biodiversity hotspot and seabird capital, die-offs have become increasingly apparent, with significant numbers of malnourished birds requiring hospital care. This is unprecedented and cannot be attributed to short-term periodic conditions at sea. Seabirds are indicators of ocean health, highlighting concerning ecological changes in the marine ecosystem as a result of human related impacts. Increasing numbers of seabirds are being admitted to wildlife hospitals and bird rescue centres nationally, which are a critical conservation tool to ensure survival and preserve future breeding potential in populations. Wildlife hospitals are crucial intervention tool to aid threatened species by alleviating suffering, addressing animal welfare, offsetting human impacts, stabilising declines, and facilitating research to inform conservation management.



Comparative study of the diving behaviour of three *Procellaria* petrel species

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The ongoing impact of fishery bycatch on seabird populations suggests bycatch mitigation measures are insufficient or ill-informed. For these measures to be appropriately revised, a thorough understanding of seabird foraging behaviour is necessary. My thesis aims to examine and compare the foraging behaviour of three *Procellaria* petrel species, all of which are vulnerable to bycatch in longline fisheries. Using data from time-depth recorders (TDRs) deployed on 23 Westland (*Procellaria westlandica*), 10 white-chinned (*P. aequinoctialis*), and 9 black petrels (*P. parkinsoni*), we retrieved dive depths, durations, descent rates, and dive profiles. Preliminary results show white-chinned petrels dive less frequently but deeper than Westland petrels, with maximum depths of 17.31 m and 21.72 m, respectively. Further results will have the potential to inform the necessary sink rates of hooks and the depths to which hooks must be protected. Additionally, we deployed global positioning system (GPS) tags alongside the TDRs on 7 black petrels. Pairing GPS data from birds and fishing vessels will allow us to investigate whether petrel diving behaviour differs around fishing vessels. Should behaviours differ, previous mitigation measures based on undefined diving behaviour may need to be revised. By employing a comparative approach across three species, we begin to understand potential parameters influencing the foraging behaviour, and thus the bycatch risk, of different seabird species.

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An overview of current applications of genetic/genomic data for avian conservation in Aotearoa New Zealand

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To achieve Aotearoa New Zealand's national strategy for biodiversity, Te Mana o te Taiao, diverse and innovative approaches are required to protect, restore, and enhance our biodiversity for the future. One tool in the conservation toolbox is the use of genetic and genomic data, providing a lens to understand the past and present status of populations and their relationships to one another through DNA. Incorporating this knowledge with other aspects of conservation biology builds a deeper understanding of conservation needs, and leads towards robust, evidence-based management strategies for threatened species.

Conservation genetics/genomics is a discipline that has experienced rapid development in recent decades. This fast-paced growth has resulted in a suite of tools available to address a broad array of conservation questions. However, this swift change combined with the perceived impenetrability of genetic principles may have left conservation practitioners and the wider public somewhat bewildered by these tools. Here, I will describe the relationship between genetics and genomics, and provide an overview of the conservation applications of these tools. Along the way, I will weave in case studies of these tools being integrated into conservation of Aotearoa New Zealand's avifauna from the mountains to the sea.



Taonga manu: Exploring the significance of local manu through a hapū lens with primary school students

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Te Tatauranga o ngā manu māra o Aotearoa – The New Zealand Garden Bird Survey (NZGBS), hosted by Manaaki Whenua – Landcare Research, is a citizen science initiative, commonly utilising a Western science framework, to create a long-term data that can analyse changes in bird populations across Aotearoa New Zealand over time and create a robust long-term dataset for environmental monitoring. We saw an opportunity to develop a Te Ao Māori framework utilising a hapū centric driven approach to manu education.

This research engaged with a primary school (English and Māori medium school) based in the coastal urban city of Tauranga, Bay of Plenty. The kura is situated on a traditional pā site where the progression of urban residential development has occurred extensively. The kura has a strong relationship with the local hapū who support the development of a cultural narrative curriculum which focuses on teaching ākongā (students) tribal pūrākāu (stories), hītori (history), and ancestral interactions with te taiao (environment). This case study provided an ideal opportunity for ākongā to learn about culturally significant birds from a hapū perspective. Local kaumātua were integral to share hapū-based pūrākāu that featured manu from the area. Additionally, ākongā were guided through hands-on manu-related activities to learn about bird habitat and local environmental conservation to develop their understanding of kaitiakitanga.

A collaboration with The Science Learning Hub resulted in the development of online educational resources that support primary school engagement with the NZGBS. Based on the guidance of the Tauranga-based kura, specific resources were developed to suit the needs of kaiako (teachers) and ākongā Māori to explore the importance of manu from a cultural lens.



On the brink: status, movements and variation of the tūturiwhatu | southern New Zealand dotterel

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The critically endangered southern New Zealand dotterel (tūturiwhatu, rako, *Charadrius obscurus obscurus*) continues to decline after peaking at 290 individuals in 2009. With less than 126 left as of 2023, predation by feral cats on the subalpine nesting grounds is thought to be the primary cause of this downward trend. Te Papa Atawhai/Department of Conservation runs a trapping network around a core area of breeding territories on Rakiura/Stewart Island, however this only holds around 20% of the population. We will determine where the missing southern dotterel individuals travel during their summer breeding season through tracking. In 2023, we piloted Druid GPS tags at Awarua Bay, revealing repeated movements across Foveaux Strait and visits to several different peaks before settling into a nesting territory. Early results using Lotek Sunbird satellite tags in 2024 provide insight into the regular movements of a bird from the Mason Bay flock. We will also investigate the habitat and environmental characteristics of where southern dotterels choose to nest. Furthermore, plumage variation will be analysed to determine how it is linked to age and sex, using DNA sexing of banded individuals to see if they can be distinguished consistently in the field. The outcome of this research will fill critical knowledge gaps and significantly contribute to the adaptive conservation management of southern dotterels. Importantly, our findings will help inform Te Papa Atawhai on where best to implement intensive and innovative predator control measures in order to have the greatest positive outcome going forward.

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Bird counts of a fragmented forest landscape in Banks Peninsula

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Native forest regeneration requires functioning bird-plant mutualisms for the pollination of flowers and dispersal of seeds. Agricultural areas set aside for native forest restoration are often highly fragmented, which can have a negative impact on native avifauna that carry out these bird-plant mutualisms. Te Whenua Ora/High Bare Peak (HBP) is an example of a fragmented forest landscape transitioning back into forest. Five-minute bird counts were used to compare the diversity and abundances of bird species at HBP with that of Hinewai Reserve, an ecological restoration project that has transitioned back into forest over more than 30 years. HBP was found to have more introduced bird species than Hinewai, likely due to the forest patches being smaller and in close proximity to pasture. However, combined mean counts of bellbird (*Anthornis melanura*), kererū (*Hemiphaga novaeseelandiae*), silvereye (*Zosterops lateralis*), blackbird (*Turdus merula*) and song thrush (*T. philomelos*) were found in similar numbers between Hinewai and HBP. These birds were the most important pollinator and seed dispersing bird species observed during the counts, suggesting sufficient bird-plant mutualisms at HBP for natural regeneration. The numbers of birds observed at HBP also suggest sufficient flowers should be pollinated and seeds dispersed for natural regeneration of native forest. Small forest patches, especially those that are within flying distance of other patches, can play an important conservation role through maintenance of bird species which are important for the restoration of native forests.

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Comparing the use of flipper bands vs PIT tags for marking kororā at Ōamaru

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Individually marking penguins using flipper-bands was common practice for decades, beginning in the 1950s. With the development of Radiofrequency Identification (RFID) techniques small enough for use in animals, an alternative to banding in the form of Passive Integrated Transponders (PIT), became the preferred method of marking penguins globally. This occurred particularly in response to documented detrimental effects of flipper bands on individuals. Kororā (little penguins, *Eudyptula minor*) were first flipper-banded in Ōamaru in 1985 which became consistent as part of a regular monitoring programme, beginning in 1993. The use of PIT tags was introduced in 2010, as part of a wider research project that involved the installation of fixed RFID readers at the colony entrance.

The monitoring and research work involved marking all fledglings and breeding adults, and then examining long-term trends in reproductive and survival parameters. The impacts of flipper-banding on the survival of the penguins was assessed during three breeding seasons (2015-2017), in which previously unmarked fledglings and adults were marked with either a flipper-band or had a PIT tag inserted. A sample of previously known adults with flipper bands attached, also had the band removed and a PIT tag inserted. The results show there were no statistically significant differences in the survival of flipper-banded penguins compared to PIT-tagged penguins in each survival analysis. Ōamaru penguins exhibit higher breeding success and survival rates than at other sites, which may represent improved feeding conditions compared to sites where negative impacts have been observed, such as Phillip Island, Australia.



Black-billed gull national census – a follow-up to the 2016/17 census

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Black-billed gulls are endemic to Aotearoa/New Zealand, with most breeding on braided rivers in the South Island and a potentially expanding population in the North Island. A comprehensive national count was carried out in 2016/17, and the total number of breeding birds counted was higher than expected. The NZ Threat Classification System downgraded the threat classification of black-billed gulls from 'Threatened – Nationally Critical' to 'At Risk – Declining' but highlighted the difficulty in assessing population trends due to inaccurate historical data. A census using the same methodology and recommendations from the 2016/17 census was conducted over the 2023/24 season. Following a ground survey to determine the stage of breeding, all suitable rivers were flown in the South Island. Using a camera mounted under the aircraft, aerial photographs were taken of all colonies found. Within 5 days post flights, several colonies were ground truthed to determine a correction factor to apply to counts from photographs. The North Island was surveyed on the ground by BirdsNZ volunteers. Counts reveal a stabilization in the black-billed gull population. This highlights the importance of repeating full surveys at regular intervals to determine population trends particularly for species facing a myriad of threats to breeding productivity.



Using environmental DNA in lake sediment cores to detect historical changes in bird communities

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‘Our lakes’ health; past, present, future (www.lakes380.com)’ was a national scale project that set out to characterise the current and historical health of our lakes. To achieve this the team collected sediment cores from over 300 lakes across Aotearoa New Zealand. Lake sediments are natural archives that continuously record environmental history, providing measures of historical changes in the lake and surrounding landscape. Until recently, methods for reconstructing biological communities from sediment cores have been limited to taxa that leave microfossils or biomarkers in the sediment (e.g., algae, pollen). The advent of environmental DNA (eDNA) enables the composition of soft-celled, micro, and macro-organisms in sediment cores to be investigated. Although the Lakes380 programme was primarily focused on aquatic organisms, DNA from terrestrial organisms is also archived in the sediment cores. A surprising discovery was that the DNA from many birds, in particular our flightless ground dwelling taxa like moa and kākāpō, were often present. In this presentation we show preliminary data from two case study lakes that highlight the potential of this approach for determining the presence of bird species (current or historical) in a catchment and possibly exploring the timing of regional extinctions.



Immersion regularity predicts vessel following by albatrosses

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Abstract:

Many oceanic seabird species are threatened by bycatch in fisheries. Bycatch risk assessments benefit from quantifying individual seabird interactions with fishing vessels, including their frequency, duration, and impacts on seabird behaviour. However, interaction analyses are often limited by low-resolution seabird tracking data and incomplete fisheries tracking data. Here we examine the potential of leg-borne GLS-immersion loggers to detect seabird-fishery interactions from simple wet-dry patterns when tracking data are lacking or incomplete. We first identified 46 discrete seabird-vessel interactions by spatiotemporally matching high-resolution GPS data (0.0024-1 Hz) from 45 black-browed albatrosses (*Thalassarche melanophris*) breeding in the Falkland Islands to Automatic Identification System (AIS) data from vessels near their trajectories. We subsequently observed highly stereotypical patterns of immersion (i.e., regular landing and taking off) when birds were following trawler vessels. Then, using only wet and dry durations derived from immersion data (0.1667 Hz), we developed a temporal metric to identify these periods of behavioural regularity. This metric alone successfully identified one-third of vessel following events, with no false positive detections. Thus, we demonstrate the potential of immersion loggers to detect vessel following by seabirds, even in the absence of tracking data for both seabirds and vessels. This result provides a foundation for more comprehensive seabird bycatch risk assessments that quantify previously hidden seabird-vessel interactions, such as those involving migratory life history stages and illegal, unreported, or unregulated (IUU) fishing vessels.



Whole-genome analyses reveal genetic structure in the highly threatened Antipodean and Gibson's albatrosses

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The Antipodean and Gibson's albatrosses (*Diomedea antipodensis antipodensis* and *D. a. gibsoni*) are highly threatened NZ taxa whose conservation management has been hindered by ongoing taxonomic uncertainty. Single locus genetic studies revealed low levels of genetic differentiation informing the current taxonomy of subspecies, but the potential of genomic data to reveal population structure in these taxa has not previously been explored. Here, we present whole-genome data for these two taxa to examine population genetic structure and genomic differentiation. We produced whole genome sequence data for 86 individuals across both populations and aligned to high quality reference genomes to generate a dataset of 60,488 high-quality neutrally evolving Single Nucleotide Polymorphisms (SNPs). Assignment tests and Principal Component Analyses (PCA) revealed two distinct clusters relating to the subspecies groupings. Analysis of Molecular Variance (AMOVA) showed these two groupings to be significantly differentiated. A genome-wide scan for loci putatively under selection also provide evidence of adaptive divergence between the taxa. These results indicate that genetic differentiation between these albatross taxa is higher than was previously estimated using single locus genetic markers and reveal the potential for genomics to identify structure in closely related albatross taxa. Given the high level of threat these birds face and the continued population declines, particularly of the Antipodean subspecies, these results should be used to help define species taxonomy and inform updated conservation management.

*PhD student



High Pathogenicity Avian Influenza in wild birds and potential implications for New Zealand.

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Highly Pathogenic Avian Influenza (HPAI, H5N1), has spread globally to all areas except Oceania since December 2021. HPAI particularly affects birds that congregate in nesting colonies and moulting sites. Also susceptible are scavenging species. There are reports from Europe of seabird colonies having lost c. 1/3rd of nesting birds. HPAI has also adversely affected sealions with 100% mortality in some sites in Argentina.

HPAI has never been detected in Aotearoa New Zealand. Biosecurity New Zealand and DOC continue to actively monitor disease spread, particularly towards the Ross Sea region of Antarctica. A DOC HPAI Incident Management Team has been established to plan for the potential arrival of this virus, to work closely with lead agency Biosecurity New Zealand, and to promote a coordinated approach within DOC.

The risk of HPAI arriving in New Zealand is currently assessed as low but this will change as the virus is detected in new regions. At this stage the most likely scenario is that wild birds will bring HPAI to NZ and it is expected that it will become endemic quickly. Biosecurity New Zealand will take the lead in any response, working closely with DOC and the Ministry of Health.

This presentation will provide an update on current DOC planning and discuss what preparedness is happening. I will discuss the current advisory issued by DOC to bird banders and outline current planning work and what Society members can contribute.



Local movements of colony-based karoro/Southern black-backed gull in Canterbury

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Karoro/Southern black-backed gull (*Larus dominicanus*) are a large, opportunistic native gull. Karoro have successfully exploited anthropogenic activities and are considered 'super abundant' in Canterbury. Despite their size and abundance, little is known about their movements within the landscape, foraging preferences, and flying range. A pilot study deploying 10 transmitters on karoro from colonies of the lower Hakatere/Ashburton River was started in November 2022. The majority of foraging was within 10 km of the colony in the surrounding farmland with much variation between individuals and sexes. A small proportion of their time was spent at sea. We have since increased to 40 gulls with transmitters for the 2023–24 breeding season, with a total of 20 transmitters deployed on the lower Hakatere/Ashburton River and 20 transmitters deployed on the Waimakariri River. The behaviour patterns were largely similar between colonies from both rivers, although the gulls in the upriver section of the Waimakariri River have dispersed substantially further from their colonies post-breeding season than gulls from the lower elevation colonies.

*PhD student



Over the hills and far away: how to best utilise GPS technology to answer kea movement ecology questions?

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Abstract: Kea (*Nestor notabilis*) are large, nationally endangered endemic parrots from the South Island of New Zealand. Historically, research on kea movement ecology has been limited to band resighting or VHF radio-tracking studies. In recent years, the use of GPS units on kea has begun to show promise as a tool for understanding kea movements through their habitat. We examined kea movements, habitat use, and how to best utilise GPS technology to answer these fundamental questions. We measured the performance and effectiveness of different GPS units for following kea movements. We were able to follow kea through multiple habitats (plantation forests, scrounge sites, eastern beech/alpine forests and lowland productive rain forests). Breeding adult male kea movement were specifically targeted. We discuss what we have learned from our use of GPS technology to understand kea movements. We will present some preliminary results about kea movements.

*PhD student



Little birds, big data

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Changes detection rates of two small native insectivorous bird species - titipounamu (riflemen, *Acanthisitta chloris*) and riroriro (grey warbler, *Gerygone igata*) – were compared in native forest on the three main islands of New Zealand using two independent big data sets: the structured DOC Tier 1 national biodiversity monitoring data 2011-2021 and unstructured e-Bird data for the same period. Generalised linear models (GLM) were used to compare changes in the detection rates of both species in the two data sets, particularly changes over time, altitude and latitude. Any trends might have been obscured by time of year, time of day, forest type, forest area and sampling effort, so these variables were included in the analysis. The altitudinal distribution of the two species was markedly different. Titipounamu were most common at high altitudes, whilst riroriro were most common at low altitudes. Titipounamu were most abundant in the south of New Zealand but have declined throughout their range. In the middle and north of New Zealand, titipounamu appear almost locally extinct at low and middle altitudes, but are still common, though declining, in the middle and south at high altitudes. Riroriro detection has changed little over time in the Tier 1 data but appears to have declined in the e-Bird data. Both datasets showed decline in titipounamu.



Why are there so many feral pigeons in a predator-free ecosanctuary?

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Feral pigeons in Christchurch have been found nesting on the ground in large numbers within the predator-free sanctuary of Pūtarīngamotu, Riccarton Bush. Since the sanctuary lacks ground-based mammalian predators, pigeons may be nesting within in large numbers due to increased nest success compared to areas outside the sanctuary. To answer this question, nest success was compared between Riccarton Bush and the University of Canterbury campus, which represents a more typical urban nesting site. As expected, nest success was lower during the incubation period (0.55 vs 0.72) among the University of Canterbury pigeons, but unexpectedly higher during the hatchling (0.89 vs 0.65) stage. To determine if the high number of pigeons might be the result of birds being more sedentary in the predator-free sanctuary, GPS trackers were placed on pigeons caught from both study sites to monitor their movements. Some pigeons made daily foraging trips, returning to either campus or Riccarton Bush at night, while others stayed away for longer before returning. Pigeons visited sites up to 30km away, with most frequenting pig farms and horse stables. Pigeons returned to the same foraging sites repeatedly, suggesting a preference to return to known locations. There was no evidence that pigeons in Riccarton Bush were more sedentary than those on campus. If feral pigeons begin to nest in predator-free sanctuaries in large numbers, such areas may become sources of pests for nearby agricultural fields. Further research is needed to manage introduced birds and prevent them from nesting at densities in predator-free sanctuaries.

*MSc Student



Bird counts reveal changing structure of the terrestrial bird community on Rangitāhua/Raoul Island, 1967 – 2023

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Rangitāhua/Raoul Island is one of New Zealand's most isolated ecosystems where flora and fauna are recovering following pest eradications in the late 20th and early 21st centuries. During a joint Ngāti Kuri/Auckland Museum expedition in November 2023 we conducted 109 2-minute counts of terrestrial birds, using the same methods as previous counts, which began in 1967. In total, 901 terrestrial birds were counted during the 2023 survey, with indigenous birds comprising over 75% of total birds counted. Nine species were recorded: spotless crake, pūkeko, kākārīki, kingfisher, tūī, welcome swallow, European blackbird, song thrush and common starling. Tūī was the most abundant species followed by kākārīki, spotless crake, blackbird, starling, song thrush, pūkeko, kingfisher and welcome swallow. Comparing 2023 survey data with those of previous years since 1967, the composition of Rangitāhua's terrestrial avifauna has switched from one dominated by introduced species to one where indigenous species are now dominant. Tūī, kākārīki and spotless crake in particular have made strong recoveries. Kākārīki did not feature in counts before 2008, but in 2023 they comprised 33% of total birds counted. Spotless crake, absent in 1967, are now abundant across the island. The surprising absence of small forest birds such as silvereys is discussed, along with the relative roles of isolation, habitat suitability and competitive exclusion. Increasing dominance of indigenous birds has been reported at other New Zealand sites with multi-species pest control or removal and our findings show a similar trend on remote Rangitāhua.



A place to call home: investigating the terrestrial habitat selection of kororā at Pōhatu/Flea Bay

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Little penguins/kororā (*Eudyptula minor*) depend on their terrestrial environment for nesting and breeding, spending approximately 20% of their lives on land. Therefore, kororā may select particular nesting locations which could improve breeding success or survival. However, such selections by kororā differ across colonies due to varying threat and habitat contexts and require further investigation at local scales. Focusing on the kororā colony at Pōhatu/Flea Bay, we seek to improve our understanding of the fine-scale habitat characteristics these birds favour when selecting amongst the available nest boxes. To explore this aspect of their ecology, we collected information on fine-scale habitat characteristics at 235 nest boxes around the colony, including aspect, elevation, vegetation cover, and tick (*Ixodes eudyptidis*) presence. We summarise nest box occupancy across 171 survey days in 2022-2024 from the ongoing kororā conservation monitoring conducted by the Helps Pōhatu Conservation Trust. We investigate which habitat characteristics have the greatest influence on nest box occupancy over two years. This research serves as one of the first steps to gaining valuable insights into the interactions between kororā and their terrestrial environment at a local scale. It will also inform nest box placement and habitat protection for kororā and provide an important platform for further study on their terrestrial habitat interactions.

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Every Last Bird – Atlassing Te Araroa Trail

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Te Araroa (New Zealand's Trail) runs for more than 3,200 km along the length of Aotearoa New Zealand's two main islands. Between 2 November 2023 and 11 March 2024, I counted all birds seen and heard on 1,726 contiguous transects while walking south along the trail (84.7% of transects were 2 km long). Counts of nocturnal birds were made at 98 sites, producing a total of 1,823 checklists for the New Zealand Bird Atlas Scheme. A total of 106,539 individuals of 111 species was recorded. The most abundant species was house sparrow (12,517 individuals, 40.2% of daytime checklists) and the most frequent species was chaffinch (5,806 individuals, 62.1% of daytime checklists). In addition to summarising the most abundant and most frequently recorded birds encountered along the trail, birds of the North vs South Islands are compared, along with the difference that pest control makes for selected species. Birding highlights of Te Araroa are also summarised.



Continuing the Mo'olelo: Revisiting Palila Ecology, Demography, and Predator Impacts to Sustain Hope for Species Survival

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The sole remaining palila (*Loxioides bailleui*) population has declined by over 75% since 2007, however, the causes for this decline remain poorly understood. We understand that introduced predators have an immense negative impact on native bird populations in Hawai'i. Previous research from 1998-2004 indicated that feral cats (*Felis catus*) are the most impactful nest predators, with small Asian mongoose (*Herpestes javanicus*) and black rats (*Rattus rattus*) also preying on nests at lower rates. Therefore, the Mauna Kea Forest Restoration Project's predator control efforts have focused on removing feral cats from the mountain since 2007, with the addition of mongoose and rat trapping in 2016. In that time, we have removed over 1,500 cats, mongoose, and rats from Mauna Kea and expanded our trapping area to include much of the Mauna Kea Forest Reserve. We have found that when cat capture rates outside of occupied palila habitat increased, capture rates inside decreased. These encouraging results suggest that landscape-scale trapping efforts surrounding areas where endangered birds currently reside could have immediate benefits. While predator control has benefitted palila, it is evidently not the sole solution for the recovery of this critically endangered species. Given the dire situation of the species, we are refocusing our efforts to better understand the rapid decline of the palila and how our predator control efforts, current demographic rates, and habitat quality are impacting the population's recovery. Answering these questions will build upon our current management efforts to ensure the palila's continued survival as a species.

*MSc student



Determining the timing and duration of moult in fluttering shearwater from images submitted to eBird.

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Citizen science databases such as eBird and the Macaulay Library contain an increasing number of images of birds, often with images of individual species throughout the year and their geographical range. These are increasingly being used by researchers to study aspects of bird biology, including moult studies. To investigate if these image libraries could be used to investigate moult in a seabird species, all images of fluttering shearwater in the Macaulay Library submitted by birders via eBird were assessed for birds in active moult. Sufficient images were identified, enabling both adult and juvenile moult timing and duration to be described. These results identify a biologically important period in the fluttering shearwater life cycle and highlight the value of citizen science image libraries for moult studies in birds.



Extensive breeding failure of toanui/flesh-footed shearwater following extreme weather events

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Extreme weather events have the potential to cause devastation for human life and wildlife. For seabirds that exemplify the long-lived slow reproducing life-histories, the impact of an extreme weather event may be far reaching on its population dynamics. Long-term monitoring is vital to understand how species will fare under the changing climate. Wildlife Management International Ltd. (WMIL) have been running a monitoring program to understand toanui/flesh-footed shearwater (*Ardenna carneipes*) breeding demographics on Ohinau Island (off the Coromandel peninsula) since 2016. A series of 271 marked burrows ('study burrows') across five of the 12 colonies are monitored twice a year for their productivity and breeding success. In 2023 flooding events, ex-tropical Cyclone Hale and Cyclone Gabrielle laid destruction and caused billions of dollars in damage across the northern and north-east of New Zealand and passed over Ohinau Island during flesh-footed shearwater incubation and the early hatching period of chicks. Breeding success within study burrows was estimated at 10.1%, a sharp drop-off compared to previous seasons where success typically ranges between 51-67%, with two of the five monitored colonies failing to produce any chicks to fledging. Extreme weather events are predicted to increase in their frequency and intensity under current climate change scenarios. This highlights the potentially stark long-term impacts of extreme climatic events on this species and seabirds as a whole.



Preliminary observations comparing the moult and morphometrics of the North Island and South Island Fernbird

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The moult and morphometrics of the mātātā North Island Fernbird (*Poodytes p. vealeae*) has been studied at Whangarei banding sites over the last breeding season. The preliminary observations of the morphometrics and post juvenile moult strategies are compared with the South Island Fernbird (*P. p. punctatus*), including partial, eccentric, complete and suspended moult. The use of moult and morphometric characteristics to age and sex birds are briefly discussed for conservation management.



Endocrine underpinnings of reproductive cycling in captive gentoo penguins, alongside the use of GnRH contraceptive implants

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Hormones play a critical role in regulating reproductive behaviour, with their levels fluctuating with respect to the breeding cycle. In understanding this hormonal patterning, further insights into an animal's reproductive biology and overall ecology are gained. Current knowledge on penguin reproductive endocrinology is primarily limited to free-living individuals and specific periods of the year, with gaps in the understanding of sex and species-related variations and other life stages. Furthermore, the hormonal action and efficacy of GnRH agonist implants - a contraceptive device used worldwide to treat reproductive disorders - are poorly understood in birds. Across one breeding cycle, the concentration of numerous hormones was tracked in captive gentoo penguins (*Pygoscelis papua*) at SEA LIFE Kelly Tarlton's Aquarium, including testosterone, oestradiol, progesterone and luteinising hormone. Liquid-chromatography mass spectroscopy was used to analyse the hormone levels of faecal samples. Using these data we test for sex and seasonal differences and map those differences onto breeding behaviour. Moreover, we contrasted the hormonal profiles of GnRH-implanted individuals with un-manipulated individuals to determine which hormones are affected, how quickly the hormonal changes occur and how long the effects last. This research will help captive wildlife facilities two-fold. It will assist in the organisation of captive breeding programmes by providing insights into captive breeding behaviour and physiology, and allow vets to make more informed decisions about future care and treatment. Furthermore, investigating hormonal regulation in common species can aid in understanding closely related but endangered species like the hoiho.

*MSc student



Foraging ecology of breeding Chatham petrel

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The Chatham petrel *Pterodroma axillaris* is one of the rarest seabird species in the world (c. 1100 adults, Vulnerable). While major threats on land have been identified and are being managed, at sea threats are largely unknown. Improving our understanding of the species foraging ecology is crucial to identify the full spectrum of threats the species is facing. Adult Chatham petrels breeding on Rangatira Island were tracked in 2023 (n=7) and 2024 (n=6) using GPS loggers from incubation to late chick rearing. During incubation the trips lasted on average 9.97 ± 2.50 days (mean \pm SD), with a maximum distance from the burrow of $1,239 \pm 372$ km, and a length of $5,414 \pm 1,247$ km. Chick rearing foraging trips were shorter (duration = 3.70 ± 2.29 days; length = $1,732 \pm 1,074$ km) and closer to the burrows (maximum distance = 357 ± 230 km). The birds flew mostly south of the Chatham Islands with very few locations recorded north of Rangatira Island. They appeared to avoid the Chatham Rise and the Campbell Plateau with most tracks recorded over the Bounty Fan and the lower end of the Bounty Trough. The tracking data shows indication that wind direction might be a key factor affecting the birds' movements with foraging trips' spatial and temporal pattern seemingly matching that of the region's wind circulation driven by eastwards drifting low- and high-pressure systems. These results will help assess the impact of fisheries and the effect of climate change on Chatham petrel population dynamics.

*PhD student



Long-Term Trends of Avian Assemblages in *Pinus radiata* Plantation Forest: 1977-2024

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Deforestation is a significant contributing factor to the global decline in biodiversity. The use of managed forestry plantations to restore local biodiversity is increasing; however, their contribution to avian conservation is still debated. Although pine plantations constitute c.7.9% of mainland New Zealand, little is known about the habitat value of production landscapes for indigenous avian populations. Long-term research in this area is particularly scarce. Here, we investigated whether the composition of avian assemblages has changed over time while also evaluating the suitability of select indigenous species as ecological indicators. Five-minute bird counts (5MBC) were conducted on predetermined transects in a commercial pine plantation, the Kaingaroa Forest, Bay of Plenty. Sites were selected based on their similarity to historical study conditions from 1977-78. The richness and diversity of avian communities in relation to this historical study will be analysed using a series of generalised linear mixed models. A multivariate linear regression model will be fitted to assess the suitability of each species as an ecological indicator, and further evaluated against fixed criteria from existing frameworks. We predict that indigenous avian richness and diversity will increase relative to historical counts, while introduced species will remain similar. We also expect that miromiro (*Petroica macrocephala*) or toutouwai (*Petroica longipes*) may constitute an ideal ecological indicator species. This research aims to provide an effective tool for long-term monitoring of avian populations within pine plantations and improve management decisions, with an emphasis on enhancing conservation of avian biodiversity within production landscapes.

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Reinvigorating an ornithological treasure trove - the Birds New Zealand Library

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One of the objectives of the Birds New Zealand Strategy (2015-2025) is to maintain a library of ornithological literature and other media for the use of members. The Birds New Zealand Library currently contains over 300 books and 110 periodicals, and is housed at the Auckland War Memorial Museum. This represents a comprehensive resource on ornithological knowledge from around the world, but usage has declined in recent times. Birds New Zealand Council set out on a project to revitalise the Library as a key resource for ornithologists and others with an interest in avian research. The first step in this project was to conduct a survey to better understand the needs of the Birds New Zealand membership regarding access to Library materials. Through this survey, we assessed the extent of recent usage and predicted future usage prior in the absence of any change in strategy. This facilitated identification of pinch points in access to Library materials by members. Alongside the survey, we are undertaking a stocktake of Library materials with the support of local volunteers to ensure our catalogues are accurate and up to date. The catalogue can then be considered in relation to existing digital access to materials through external sources. In combination, the survey data and stocktake are highlighting gaps and opportunities for Birds New Zealand to continue supporting the changing needs of our membership in this increasingly digital age.



Stronghold in the Sounds: A population estimate for sooty shearwater breeding on Tītī island, Marlborough Sounds

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The sooty shearwater (*Ardenna grisea*) also known as tītī, is a native procellariid and one of New Zealand's most abundant seabirds. The species breed at hundreds of sites across New Zealand, however, only the large southern New Zealand populations are well understood. Knowledge of the sooty shearwater breeding colonies in the Marlborough Sounds is limited. Here we present a population estimate for sooty shearwater on one of the main breeding islands within the Marlborough Sounds, Tītī Island. We surveyed the island from 8 to 17 January 2022 during late egg incubation to determine the number of burrows occupied by breeding sooty shearwaters on the island. We estimate that there are 1,038 (544 – 1,533, 95% CI) sooty shearwater breeding pairs on Tītī Island. Combining the results of this study with historic estimates, we posit that the population is trending upwards since the eradication of rats on the island in the 1970's. Tītī Island thus represents one of the largest concentrations of sooty shearwater breeding in the northern South Island and continues to be a stronghold of the species within the Marlborough Sounds. Continued monitoring at this colony is recommended to better understand long-term trends.



Foraging behaviour and range overlap between two neighbouring little penguin colonies

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Little penguins in Oamaru are primarily distributed between two distinct colonies located 1km apart. The Oamaru Blue Penguin Colony (OBPC) is run as an ecotourism operation, whilst the Oamaru Creek Penguin Refuge (creek) is closed from public access. Despite the colonies' proximity, penguins typically return to the colony from which they fledged. Furthermore, each colony has comparable survivorship and breeding success. However, little was known about the foraging behaviour of creek colony birds.

Hence, we investigated and compared the foraging behaviour of birds from each colony. 25 birds were tracked using data loggers, which recorded both location and depth data, with 54 foraging tracks recorded. Penguins from each colony did not exhibit any notable differences in foraging behaviour. Furthermore, we investigated whether birds from each site foraged within the same area. Neighbouring seabird populations of conspecifics often show a degree of spatial segregation between their foraging zones. This is thought to reduce inter-colony competition. However, penguins in Oamaru exhibited broadly overlapping foraging ranges, though, creek colony birds did have a larger foraging range per trip compared with their OBPC counterparts. The lack of spatial segregation may suggest limited competition between colonies. This is supported by the high breeding success observed within these colonies.

Furthermore, the study identified notable behavioural variation between trips, a decrease in mean dive depth throughout the study period, and a high incidence of dives that appear to be benthic.



Secretarybirds hunting on foot: the dietary link between wetlands and population health

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The nesting diet of a raptor population mirrors the food availability and climate under which the birds hunt, and once unravelled, the information can be employed to manage such a population. The Secretarybird (*Sagittarius serpentarius*) is an Afrotropical species mostly found in open arid and mesic southern Africa. A dietary study was conducted in the Greater Wakkerstroom area in Mpumalanga, South Africa. Prey remains in the form of regurgitated pellets were collected from in and under 16 nests found in the study area. Hundred and seventy seven pellets were processed and identified to the lowest taxa. The most dominant prey species were Brown Locust (*Locustana pardalia*) (36%), beetles (Coleoptera) (19%), Rinkhals (*Hemachatus heamachatus*) (3%) and Vlei Rat (*Otomys irroratus*) (2%). Diets of birds nesting near agriculture lands were then compared with birds nesting near wetlands. Brown Locust and beetles are associated with both agricultural lands and wetland areas. In terms of biomass, Rinkhals and Vlei Rat were the most important prey and both are narrowly associated with wetlands. Given that the Secretarybird is deemed a bird of arid and mesic areas, the narrow association between wetlands and Secretarybirds was a surprise. Managing and protecting the Wakkerstroom wetlands is therefore crucial for the survival of this population.



A spatially explicit approach for assessing human-wildlife interactions and conflict in the kea

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Avian-human conflict is an issue of growing concern globally, yet little is known about how humans influence the patterns of movement, space-use, and behaviour of wild, free-ranging birds. These changes in movement behaviour can lead to persistent conflicts with humans causing population decline. Kea (*Nestor notabilis*) are an endangered parrot who are suffering ongoing population decline due, in part, to conflicts with humans. We used precision GPS telemetry to track the movements of kea near Arthur's Pass Village, New Zealand. We then applied a switching Hidden Markov Monte Carlo model and spatial point-pattern analyses to assess how patterns of kea behaviour varied in relation to the proximity of anthropogenic landscape features. Preliminary findings show that the kea's rate of behavioural change was lower in human areas, likely signifying the higher concentration of food resources and play objects. Keas were attracted to these resources which greatly increase their chances of human-induced mortality, particularly by being hit by cars. Our study provides an unprecedented look at the movement and space-use patterns of free-ranging birds in areas of high human activity, and provides information that may be critical for informing management of avian species in human-dominated habitats.



The discovery and investigation of tridactyl fossil footprints discovered in the Kaipara, North Island

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Fossil trackways record snapshots of the lives of ancient animals. A short trackway of unwebbed tridactyl footprints from the Kaipara Harbour region of the North Island of New Zealand contributes to the growing record of fossil footprints discovered in Aotearoa. A Pleistocene age has been inferred for the trackway. The trackmaker for the continuous series of four hypo-relief footprint casts and one isolated footprint mould was likely a species within Dinornithiformes. Measurements of tarsometatarsi from four species within Dinornithiformes were collected for comparison, using Auckland Museum's moa collection. The preserved trackway sequence is approximately 970 mm long and the footprint casts have an average length, width and depth of 203.8 mm, 85.2 mm and 8.7 mm respectively. The distal width of the tarsometatarsus estimated for the trackmaker ranged from 86.2 mm to 90.8 mm, which was larger than the distal tarsometatarsus widths measured for adult *Anomalopteryx didiformis*, *Euryapteryx curtus* and *Pachyornis geranoides*, and smaller than adult *Dinornis novaezealandiae*. Measurements of footprint size and spacing were used to estimate the body mass, hip height and walking speed of the currently unidentified trackmaker.



Makarora Whio (Blue duck, *Hymenolaimus malacorhynchos*), a significant remnant population of Aotearoa New Zealand's, South Island.

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The Makarora whio (Blue duck, *Hymenolaimus malacorhynchos*) population has been a mystery for some time, this research has uncovered some vital information about this ancient waterfowl species within the South Island of New Zealand. Not only is this remnant population crucial for maintaining genetic diversity, it also has the potential to bridge the gap between the Fiordland and West Coast Recovery Sites.

Despite its importance, comprehensive surveys of the Makarora whio population have been lacking since the 1980s. This work sheds light on the population status, distribution, and potential breeding areas of whio within the Makarora catchment.

The study also reveals that whio from the Makarora catchment were not included in past phylogeographic studies of the species, meaning the relationship of this population to others in the South Island was previously unknown. The detection of a new genetic maternal lineage in whio within the Makarora/South Westland area highlights the importance of this locality for national whio recovery.

This work also provides important insight into whio dispersal between the east and the west of the Main Divide (Southern Alps Kā Tiritiri o te Moana).



The New Zealand Garden Bird Survey: Making our garden birds count since 2007

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The [New Zealand Garden Bird Survey](#) (NZGBS) is the longest running national annual survey of biodiversity in Aotearoa New Zealand. Founded by Eric Spurr in 2007, it has engaged tens of thousands of New Zealanders, who have submitted over 70,000 surveys. The primary aim of the NZGBS has been to develop a long-term dataset for environmental monitoring that complements monitoring done in natural areas. Surveys are submitted by citizen scientists, which means that most data come from urban gardens. We produce an annual [State of NZ Garden Birds | Te Āhua o ngā Manu o te Kāri i Aotearoa](#) report, showing 10- and 5-year trends in 14 common garden bird species (five native and nine introduced species). We use a robust analysis that takes several factors into account, including whether the participant feeds birds in their garden and whether the garden is urban or rural, so we can be highly confident in the trends we report. For example, three native species have consistently shown increases in counts nationally in recent reports, and a few introduced species have shown declines. We produce national, regional, and sub-regional trends in our report to support monitoring and decision-making at multiple spatial scales. To enable wider use of the data for research and monitoring purposes, we are also uploading the annual NZGBS datasets to the online Global Biodiversity Information Facility (GBIF). [Five years of data are online now](#), with the data from the 2023 survey to come soon.



Double cone distribution in high-resolution areas of foveate and afoveate avian retinas

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Double cones are the predominant photoreceptor type in avian retinas, constituting up to 40-55% of all photoreceptors. Their exact function remains unclear, although it is commonly assumed that single cones are responsible for chromatic vision, while double cones handle achromatic vision in bright light conditions. However, recent studies have challenged this notion, revealing a double cone-free zone in the fovea of birds of prey and some other foveate species. In afoveate birds' high-resolution areas, double cone distribution has not been investigated yet. In this study, we compared the distribution of double cones in foveate and afoveate bird species. Our study focused on the retina of common starlings (*Sturnus vulgaris*), which possess a central fovea, and domestic chickens (*Gallus gallus domesticus*), which lack a fovea. Histological analysis of retinal tissue revealed distinct differences in double cone distribution in high-resolution areas between foveate and afoveate species. In starlings, a double cone-free zone with an ellipsoidal shape was observed. Conversely, no such zone was found in the chicken retina, although fewer double cones were present in the high-resolution area compared to the mid-peripheral retina. The absence of double cones might be related to the presence of a fovea and it supports the idea that avian single cones could serve both chromatic and achromatic vision functions. Our study sheds light on the enigmatic role of double cones and underscores the need for further investigation into their function in various bird species.

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Research and Wildlife Rehabilitation – a match longing to be made

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Wildlife rehabilitation is often an unrecognized resource for researchers to explore wildlife issues linked to primarily anthropogenic impacts. Wildlife rehabilitators are provided a unique opportunity to obtain quality data for a wide variety of related fields, including ecology, biology, toxicology, veterinary medicine, and even sociology. It begins with the admission data gathered providing insight into factors such as species, location found and the reason for admission. Then with some 60% of all admissions requiring euthanasia or succumbing to their injuries, disease or immaturity, these cadavers provide a potential goldmine to explore. The data gathered can include anatomical and morphological features, assist with disease monitoring, confirm causes of mortality, identify gender and reproductive status, assist with feather banking, to name a very few areas. This presentation will review research highlighting the collaboration between rehabilitation and academia both here in New Zealand and globally with some interesting and unexpected outcomes. These often will open avenues of further research and collaboration and maybe spark new initiatives



Longevity records of New Zealand birds from banding data

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Longevity is an important life history parameter used to calculate generation length and survival of species, which in turn can be used to inform their threat status and priority for conservation management. Few longevity records have been published for New Zealand birds, and, when present, are often based on unattributed evidence or expert opinion rather than specific records. Given the current biodiversity crisis, an accurate understanding of life history parameters, such as longevity, is essential to ensure threatened species are adequately protected. This paper presents new longevity records for taxa in New Zealand based on bird banding data. As well, published longevity records or estimates are summarised for 209 taxa. These new records provide updated information for threat classifications both in NZ and internationally. Given the small numbers of birds banded in New Zealand and low recovery rate for many species, the longevity for many NZ bird species is likely underestimated.



The quest for long-term monitoring, research, and conservation of the little penguin/kororā

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Long-term research projects are vital to implementing effective conservation management and advancing knowledge about a species. In some instances, repeated data collection over many years results in post-recognition of the project as long-term. Alternatively, a project is started with the intention of becoming a long-term programme. While some actions are unique to managing a specific project, both ways follow a common process of (1) conceptualisation and defining objectives, (2) creating the initial project plan, (3) applying for permits and funding, (4) refining protocols and methodologies, (5) preparing for field work, (6) training, (7) annual data collection, (8) data analysis, and (9) sharing results and measuring conservation success. Here we present these steps specific to the establishment of the Pōhatu/Flea Bay little penguin (*Eudyptula minor*) long-term monitoring and research programme by the Helps Pōhatu Conservation Trust. On the quest to better understand the population dynamics of the largest mainland colony of little penguins in New Zealand and to develop effective conservation strategies, we monitor a subsection of over 200 nest boxes using a combination of field observations, transponder marking, and GPS tracking. We also conduct research on penguin habitat use, foraging behaviour, and diet. Preliminary breeding summaries and GPS foraging data will be presented. We believe that this programme provides a model for the establishment of similar long-term projects for other penguin and marine species around the world.



Understanding the “Odd Emeid Out” State of research on the rain forest specialist ‘little bush moa’ (*Anomalopteryx didiformis*, Emeidae, Dinornithiformes)

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Unlike the other emeid moa – those in the genera *Pachyornis* and *Euryapteryx* – which lived in dry forest and shrublands, the ‘little bush moa’ (*Anomalopteryx didiformis*, ANDI to its - rather too few - friends), lived in lowland rain forest. Here, I summarise what we think we know about ANDI, in the hope that someone will undertake further research on this fascinating but enigmatic bird. The geographic patterns in size and body proportions did not match patterns in genetic relationships as presently understood. At the most basic level, these potential mismatches between size and genetic data suggest that the systematics of *Anomalopteryx* are not yet understood. Large regional samples of genetically characterised and sexed, radiocarbon-dated individuals of *Anomalopteryx*, with their stable isotopes, will be required before we can come to grips with what constituted “ANDI”, what it - or they - did in the pre-human environment, and what it (or they) can tell us about climate through time.

