

Abstracts

Session One: From The beginning - the history of Birds NZ

Formal conference opening

David Lawrie; President Birds New Zealand

From rugged individuals to digital networking – a brief history of Birds New Zealand

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For the first four decades of the 20th Century, bird study in New Zealand was undertaken by a handful of professional ornithologists and a few keen amateurs, in the absence of any national organisation. The initiative to form the Ornithological Society of New Zealand came from Robert Falla at Canterbury Museum and Brian Marples of the University of Otago. Among the 34 members who paid their 5 shillings before the first meeting in May 1940 were many people who are now considered legends of New Zealand ornithology. From the outset, the focus of OSNZ was bird study, as distinct from bird protection, which was “the province of an already existing body”. Results of the studies were promulgated through annual reports, which evolved through *NZ Bird Notes* into *Notornis*, which was named following the rediscovery of the takahe in 1948. Social networks, the regional branch structure and national studies have remained the strengths of the society, but it is our brand and publications that provide our public face and legacy. Major publications by OSNZ have included four editions of the *Checklist*, and the 1985 and 2007 *Atlases*. In addition to numerous books and our quarterly journal and magazine, the society now produces digital outputs, including the society’s website, the website *New Zealand Birds Online*, and a Facebook page. Other recent changes have included re-branding both the society and our magazine as *Birds New Zealand*, and our ‘AGM and conference’ as the New Zealand Bird Conference.

Trials and tribulations of field ornithology: looking at 75 years of day trips and longer expeditions to watch birds.

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Since the founding of the Ornithological Society of New Zealand, field trips have been a major part of the focus of the Society. Fostering the study and enjoyment of birds is much easier when out in the forests, wetlands, waterways and islands of New Zealand tracking down birds and nests. Field trips have varied from daytrips to overnight or multiple nights at various locations including local parks and greenspaces, Council Reserves, Regional Parks, National Parks and Island Sanctuaries. During OSNZ field training camps, young Junior and Student members discovered the benefits of field experience when researching aspects of the biology and behaviour of birds; many of these members have taken this experience into professional ornithological careers. Field trips have been well organised and focused on gathering valuable information on a range of New Zealand species. However, this does not always mean things go to plan as discovered by members who joined the OSNZ 25th anniversary field trip to Raoul Island in 1965. This talk covers some of the adventures of OSNZ field trips over the past 75 years.

Session Two: Thinking big – Birds NZ National Projects.

Wandering the tidelines: wader studies and the OSNZ

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Waders (or shorebirds) have long held the interest of birdwatchers in New Zealand. The first Annual Report of the Ornithological Society reported on special investigations into oystercatchers, Banded Dotterel, New Zealand Dotterel, Wrybill and Bar-tailed Godwit, and the pages of *New Zealand Bird Notes* and *Notornis* are full of tales of vagrancy and discovery. Formal counting started in the Auckland region in the mid-1940s, waders continued to register in the OSNZ calendar with field courses at wader-rich spots in the 1960s (Farewell Spit, Southland, Kaipara Harbour). This ongoing interest crystallised into a series of formal projects from the 1980s onwards, starting with the National Counts in 1983. Ray Pierce headed a study into the movements of Banded Dotterels from 1985–1990 and another around the same time into Pied Stilt movements. In the 2000s, the OSNZ undertook a major study of the movements of godwits and Red Knots in New Zealand. OSNZ members also established allied groups that undertake banding programmes (Pukorokoro Miranda Naturalist's Trust, New Zealand Wader Study Group). It has been challenging for the OSNZ to undertake and maintain its major projects, but the contributions it has made are undeniable. Currently, long-term census data are being used by researchers to estimate rates of change in shorebird populations across Australasia, and banding work to estimate changes in survival rates of godwits and knots. Birds NZ/OSNZ can be rightly proud of its contributions to our knowledge about the distribution, numbers and movements of waders in New Zealand.

New developments in the Beach Patrol Scheme for recording and reporting information about seabirds found dead on New Zealand coastlines

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The 'Birds New Zealand' Beach Patrol Scheme commenced in 1951 and for more than 60 years has aimed to systematically document the identity and numbers of seabirds found dead on New Zealand beaches. Regular beach patrols by members provides a unique long-term record and the data collected has helped to establish the occurrence and to some extent the distribution of more than 110 seabird species in New Zealand coastal waters. It has also provided information leading to an improved understanding of the seasonal movements, migration and causes of seabird deaths. However, it is now recognised that the present system has distinct technical limitations which has contributed towards inadequate data analysis and reporting since 1996.

The development of a new internet-based data management system has commenced that is intended to overcome existing technical shortcomings and is expected to engage a wider group of society members who can share in the beach records entry effort thereby ensuring that the database archive and data analysis is kept up-to-date. Features of a redesigned internet-based system are a new beach records archiving, analysis and reporting system that it will provide open-access to data for scientists and others thereby allowing and indeed encouraging collaboration and partnerships with interested persons. Open access will allow the broader benefits of beach patrol data to be realised and will have the advantage for 'Birds New Zealand' of increasing the visibility and value of this important database. The data will remain copyright to 'Birds New Zealand', but users would be free to use it for research, governmental and educational purposes.

Development is expected to take about three years, starting in 2015. The design and testing of a new internet-accessible data entry interface for beach records and the integration of pre-2000 records commenced in March 2015 under contract to Dragonfly Science in Wellington. More than 36,000 records have now been scanned. Data entry will commence this year and will continue into 2016 and

2017 by engaging the volunteer support of interested society members, including appropriate training. In 2016 a reporting interface that will enable data summaries and trends to be assembled will be designed and tested under contract to Dragonfly Science. It is hoped that data analysis will commence by interested members and wide database use by others will be encouraged. In 2017 at least one paper on the significant trends of seabirds found dead on beaches since 2001 will be published in *Notornis*, together with one or more papers on long-term trends since the 1940's for seabird species having a conservation threat ranking. Further data analysis and reporting will be encouraged and will hopefully lead to further volunteer beach patrols by society members well into the future.

Mana Island Field Camp 2015 – Worth doing again???

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Designed for teen birders, we ran a field camp on Mana Island during April 2015. The aim was to teach basic birding and bird study skills in a memorable setting and to foster a sense of community among the participants. Particular emphasis was placed on an introduction to mist netting and banding with participation in on-going seabird monitoring projects). We have tried to give an idea of some of the avenues open to motivated people interested in birds and to provide encouragement for them to continue building their interest.

We were attempting to gauge the appeal of this kind of activity for younger people, and to see if it could draw them into a future with Birds New Zealand. We regard this camp as a pilot, and, if successful, hope to improve the model and run similar events throughout the country in the future

Is the red-billed gull population in New Zealand declining or just shifting around?

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Despite having an apparently large population, the red-billed gull *Larus novaehollandiae scopulinus* in New Zealand is classed as Nationally Vulnerable. This is primarily because of apparent recent and predicted ongoing declines in numbers of 50–70%, especially at the country's largest colonies (Kaikoura, Mokohinau and Three Kings Is). Yet there is also evidence of increasing numbers at some smaller colonies, particularly in Otago. Is this increase being replicated elsewhere or is it just a regional phenomenon? What is the current status of the species across New Zealand as a whole? There has been no reliable national survey beyond a synthesis of known breeding colonies covering a period from the late-1800s to the mid-1960s. Accordingly, Birds New Zealand, in conjunction with the Department of Conservation, has initiated a two-part survey designed to fill this knowledge gap. The initial stage (2014/15) entailed checking previously reported breeding sites and locating new ones, where possible, along with obtaining order-of-magnitude estimates of colony size. The second stage (2015/16) will involve more accurate surveys of these colonies by various means, depending on their location and accessibility. This paper reports on progress with the initial, scoping phase, of the project, identifying some emerging patterns and the upcoming challenges of accurately estimating the size of reported colonies. Although reports are still being submitted, preliminary results suggest proportionately more small colonies (<10 pairs: 21% of 127 reported colonies vs 10% of 142 colonies pre-1965) and fewer larger ones (>100 pairs: 30% vs 38% pre-1965).

Session three: The glue of Birds NZ - Regional Projects.

A review of current Birds New Zealand regional research activities

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Birds New Zealand has long had a strong regional structure built around a system of regional representatives and recorders charged with, among others, encouraging, organizing and promoting the study of birds and their use of habitat. Both through their efforts and the initiatives of individual members, a wide range of research projects and related activities have been undertaken. This review summarises current (2010-2014) activities to see what kinds predominate, their scale and scope, and how the level of activity relates to regional membership. All regions contribute to one or more national projects. Beyond that, local projects (50) predominate over regional ones (21). Surveys, counts and monitoring of some kind make up about 63% of all projects (97), followed by single-species studies (including reintroductions, 9%) and population studies involving bird banding (6%). Promotional activities (6%), and education and training (3%) constitute the balance. Around 44% of studies focus on one or other type of wetland (estuaries, coastal wetlands, freshwater lakes and rivers), with forest and bush (15%), island and coastal habitats (both 14%) urban areas (9%), exotic forests and mixed habitats (both 1%) making up most of the rest. The number of activities increases linearly with membership of a region, but with considerable variation especially in the larger regions. There is no relationship with the average attendance at either branch meetings or field trips. Some 'network effect' is apparent below a branch size of 60, suggesting that developing working groups could enhance the level of activity in the larger regions.

50 Years of Wader Counts in the Manukau Harbour - what has been learnt?

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Twice yearly wader counts have been undertaken around the Manukau Harbour since 1962. This activity has required input from a large number of individuals to achieve what is reputed to be the longest continuous shorebird dataset in the world. Apart from providing valuable information that has been used for a number of reports this activity also provides a valuable training ground to upskill individuals in bird identification and methods of counting birds. We discuss in this presentation these aspects while also presenting some of the base line data.

Not just another gull...

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The black-billed gull is the most endangered gull species in the world. It is endemic to New Zealand, and has suffered serious population declines of 78% in the last 30 years. Based on the New Zealand Threat Classification System, its status was worsened from "Threatened, Nationally Endangered" to "Nationally Critical". Very little is known about this species, thereby making conservation difficult. This talk will explore some of the outcomes of research done in the Marlborough and Tasman regions. Chicks have been annually banded there since 2009, and this has provided an excellent sample of known-age birds to study survival and movements during the breeding and non-breeding seasons. The results have been quite surprising with lots of movements between river catchments of both breeding and non-breeding birds, and low site fidelity. Birds New Zealand members have played

a large role in helping to band chicks every summer, as well as going out to resight banded birds at all times of the year.

South Kaipara Lakes (Auckland) – surveys and changes since the 1960s

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The South Kaipara Lakes include natural dune barrier lakes and artificially ponded areas, predominately within the sand dune systems of the Kaipara South Peninsula. They are recognized as having regional significance for both flora and fauna. Monitoring of the bird diversity and abundance had its beginnings in the late 1960s, with the exercise subsequently adopted as a regional project. Surveys of 24 lakes are now an annual event carried out by OSNZ members assisted by the South Kaipara Landcare group. Throughout the survey period, the waterfowl populations have shown distinct fluctuations, observed to be associated with changes in water levels of the lakes. The coastal sand dunes west of the lakes were planted in pine in the early 1930s to stabilise creeping dunes, and to generate work during the Great Depression. These plantations now form Woodhill Forest. The cyclic forestry activities of planting, growth and harvest are implicated in fluctuations of water levels, and subsequently bird abundance on the lakes.

Preliminary observations from a survey of shags in the Wellington Region

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In 2014 the Wellington Branch of OSNZ embarked on a survey of shags in our region. The survey is being done to establish a comprehensive set of baseline data so that subsequent changes in shag populations can be determined. The emphasis of the first year of the survey is to document the location and number of active nests. Currently, little shags, black shags, pied shags and spotted shags nest in our region. Initial findings from the survey show a continuing spread of pied shag colonies as well as the ongoing occupation of very long established black shag colonies. A notable observation has been the finding of mixed species colonies. These include black, little and pied shags nesting at Zealandia, a number of colonies of pied and little shags, and little shags nesting with spotted shags. Little black shags currently do not nest in the Wellington region but are regular winter visitors. The survey is being run in conjunction with the Wairarapa region which has a number of colonies of nesting shags, including little black shags nesting at Matthews Lagoon.

Caspian Tern studies in Nelson

Willie Cook

Birding Checklist Smartphone Application

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In 2011 the Birding Checklist application for Android Smartphones was presented at the OSNZ conference; that was soon after the release of the NZ Birding Checklist. This application allows bird sightings to be recorded along with GPS location, and the daily sighting logs can be uploaded to eBird. In the subsequent 4 years similar applications were released for Australia, United States, UK and Europe, South Africa, South America and the Pacific Islands. These applications have now been

downloaded and used by thousands of people in many countries across the globe. The NZ checklist has been linked to NZ Birds Online. This presentation will provide an update on the successes and shortcomings of the application based on feedback from the worldwide user-base. We will discuss the widely diverse ways the application is used, along with the many requests for enhancements and the difficulty satisfying the needs of all birders.

Session four: Looking ahead: the future of Birds New Zealand

A Strategy for the Society: 2015-2014

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To remain relevant to its members and objects the Council of the Society needs to continually evaluate the direction of the Society and how the Council as leaders of the Society are meeting the needs of the members. The Society is mature and has contributed a depth of knowledge to New Zealand which is without parallel. In the modern world how does a Society which at its core is made up of volunteers maintain its relevance and deliver services which its members value and wish to be part of?

Over the last two years the Council has been grappling with these and related matters. We are now at a stage where our work is being appraised by you our members and we are seeking a sign off at this 75th AGM of the Society. Core to the Society's values are the commitment to encouraging the study and enjoyment of birds. Council is committed to this through encouraging and assisting members to study and gain enjoyment from birds. We also hold dear the need for rigorous science in our projects and publications and a commitment to the dissemination of the knowledge that our studies have gained. The Strategy develops these themes and sets tangible targets for Council to deliver on. This presentation will develop some of the key ideas in the implementation of the Strategy for the Society.

OSNZ making a difference

David Melville

The students and the Birds (New Zealand) - a study of a mutually beneficial relationship

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In this talk I will explore the role that students play in the Society and how they contribute to our knowledge and understanding of New Zealand birds. I will present examples of outstanding student research in the field of ornithology and how Birds New Zealand has made valuable contributions to some of these projects. Further I will introduce the plans for building a network of student representatives around the country and the first students who have enthusiastically taken on these new roles. We hope this network will facilitate an interactive student community and with it increase collaborations between universities and Birds New Zealand.

Seabird translocations in New Zealand – achievements and lessons learned from the past

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Seabird translocations in New Zealand began in 1986 when Mike Imber shifted black petrel chicks from Great Barrier to Little Barrier Island to boost numbers after cat eradication. Birds New Zealand organised the first project (lead by Brian Bell) to create new seabird colonies in New Zealand by moving 334 fluttering shearwater chicks from Long to Maud Is (Marlborough Sounds) over 6 years. This transfer was successful as chicks returned to breed at the new site. The authors initiated projects on Mana and Cuvier Islands from 1997-2004 to move chicks of diving and Pycroft's petrels and fairy prions. All were successful in getting chicks to return and breed. In the early 2000's, chick translocation projects were organised by Department of Conservation but most are now lead by community groups. By 2015, 23 different seabird chick translocation projects involving 13 species were initiated. Birds New Zealand members have helped on these projects by finding chicks for transfer, feeding chicks, and weighing and measuring chick growth. At 7 sites, sound playback systems and/or decoys are used as the sole method for attracting seabirds. These have resulted in gannets forming two new breeding colonies. While these early successes suggest seabird colony establishment is becoming routine, there are many issues that still need to be addressed. Improvements made over time include changes to food hygiene and preparation, diet type and quality, selection criteria for chicks, customised feeding regimes, nest box design, sound attraction equipment and post-release monitoring.

Important Areas for New Zealand Seabirds – engagement and the role of Birds NZ

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Important Bird Areas (IBAs) are sites that are recognised as internationally important for bird conservation and known to support key bird species and other biodiversity. To have such sites recognised as IBAs provides objective endorsement of their global importance. Elsewhere in the world, the general approach has been to look at all bird populations and identify IBAs on that basis. In New Zealand, where seabirds make up over half our endemic and native bird species, identifying IBAs for seabirds first and foremost recognises New Zealand's rich and diverse seabird fauna. Adding the New Zealand component to the global IBA assessment fills a vital piece of the puzzle in our understanding of the critical sites for seabird conservation worldwide. The programme to date has been led by Forest & Bird, BirdLife International's New Zealand partner, with Birds New Zealand (OSNZ) members, in particular seabird scientists and researchers, playing an vital role supplying data and other information about seabirds, and reviewing draft material, site profiles, species lists and site maps. The IBA network for New Zealand will only be complete when sites are identified for other groups of birds, that is, sites other than those primarily for seabirds. There are considerable challenges ahead, especially when considering those birds which will figure as trigger species for an IBA. Birds New Zealand, working with Forest & Bird are ideally placed to progress the IBA programme. Not only in completing the identification of sites, but also setting out a long-term monitoring plan for all New Zealand IBAs, working with agencies, Mana Whenua and community groups prioritising the need for conservation action, and disseminating information about them.

Session Five: Members contributed papers

Holocene fossils reveal extent of human-caused devastation on the Pitt Island (Chatham Islands) avifauna

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Pitt Island (Rangiauria) is the second largest island in the Chatham group and was first settled by Polynesians less than 800 years ago. Here, we review the extensive mid-late Holocene avifaunal assemblages from the island. More than 11,500 bones from at least 3,252 individual birds of at least 61 species have been collected from the island revealing that the Holocene avifauna of Pitt Island was a subset of that on the larger Chatham Island, with some species notably absent, including Chatham Island duck (*Anas chathamica*) and Chatham Island merganser (*Mergus milleneri*). The avifauna was dominated by Procellariiformes, with penguins and flightless rails being common also. This seabird driven ecosystem has been almost entirely wiped out. Several large and flightless birds were extirpated from Pitt Island soon after human settlement, including a crested penguin (*Eudyptes* sp.), northern royal albatross (*Diomedea sanfordi*), Chatham Island coot (*Fulica chathamensis*) and Chatham Island kaka (*Nestor chathamensis*). High representation of penguins, waterfowl, shags and pigeons in assemblages where bones are likely derived mainly from midden deposits, shows the hunting preferences of early settlers, and suggests that hunting played a major role in bird species losses. Further extinctions followed European settlement; primarily a result of smaller species being predated by cats and pigs. Today introduced birds and post-human colonisers are as dominant in the avifauna as indigenous bird taxa.

Native predators are causing the continued decline of an Eastern Rockhopper Penguin colony on Campbell Island

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Identification of factors causing population declines is a critical prerequisite for conserving threatened species. The most likely cause of dramatic decreases in the three species of Rockhopper Penguins in the 20th century is oceanographic change reducing food availability. The massive decline of the 'Nationally Critical' Eastern Rockhopper Penguin (*Eudyptes chrysocome filholi*) on Campbell Island, New Zealand (94.6%, 1942–2012) has been attributed to climate change. This decline was paused in the mid-1990s by a shift to favourable conditions, but a localized decline continued at a small, fragmented population (Penguin Bay; one of five sub-colonies extinct in 2010, 3,012 pairs in 2012, down from 7,360 in 1984). Emerging concerns for endangered penguins are the effects of increased predation from native predators (Subantarctic Skuas (*Catharacta antarctica*) and New Zealand sea lions (*Phocarctos hookeri*) at Campbell Island). We found that penguin eggs and chicks in exposed, peripheral nests in small sub-colonies were most vulnerable to predation by skuas, so that average reproductive success was 25% lower at the smallest sub-colony than at the largest. Sea lions were estimated to depredate 6% of the adult penguin population each year, which modelling identified as the most important driver of the population's negative growth rate ($\lambda = 0.905$, -0.095%/yr). We conclude that although occasional years of very poor food availability may exert a larger 'bottom-up' effect on penguin demographic rates, the 'top-down' effects of high avian and pinniped predation rates can be sufficient to drive the decline of small penguin populations.

Research and Management priorities for New Zealand Penguins

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At the 2014 Oamaru Penguin Symposium we reviewed, reassessed and refined the recommendations for penguins arising from the May 2013 seabird research workshop. Prior to the Oamaru workshop we requested that people undertaking research or management on New Zealand penguins provide an outline of their current or recently completed work. These fact sheets were circulated to participants prior to the workshop and are appended to the 2014 workshop report available at http://www.bluepenguin.org.nz/wp-content/uploads/Penguin-priorities-Oamaru_final-Aug-2014.pdf.

Workshop participants identified the need for a regularly updated, online archive of data and reports from past projects, particularly those which remain unpublished. This applies to all species but in particular little penguins where a number of community groups and university researchers appear unaware of similar previous studies. This issue was also raised during the DOC review of the research permit system.

For several species, but in particular yellow-eyed and little penguins, management has been reactive and the gulf between researchers and managers is perceived to have grown over the last 10-20 years.

People working with yellow-eyed and little penguins highlighted the value of DOC recovery plans in guiding their research and the credibility these give non-DOC researchers when seeking funding and permits. The draft Fiordland crested penguin recovery plan had not previously been available outside DOC. Its limited release helped kick start two projects a few months later.

In this presentation we will discuss some of the priority projects for each of New Zealand's six breeding species, in particular those which OSNZ members could assist with.

Water-birds at Waiaatarua Reserve 2009 -15

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Attempts in the late 1980s to restore a boggy wetland on the border of Remuera and Ellerslie in Auckland resulted in misplaced channels that directed water and about 130 tons of sediment annually into an outlet tunnel draining into the Orakei Basin. Resource consent for an improved storm-water management plan for the reserve was received in 1996 but later overturned following concerns expressed by the Orakei Bay Protection Group and Ngati Whatua. Further planning and negotiation continued until the final revision in 2002. The restoration was completed and the Auckland City Council re-opened the Waiaatarua Reserve to the public in late 2004. The aims of the restoration were to provide for storm-water treatment, human recreation and a wildlife refuge. This study focusses on its role as a wildlife refuge and began in 2009. Since then throughout each year from April 2009 to April 2015 regular five minute counts of the birds present at observation points around the reserve have continued. These have provided data on water bird species and numbers. We will present results for relative numbers of all water-birds seen in the reserve over the last six years. During this period growth of vegetation around and within the wetland has altered areas of open water with some being reduced and others disappearing. The aim of this study is to gain some insight into whether the changes in the reserve over this period has impacted its role as a "refuge for water birds".

Migration and breeding season movements of Norfolk Island wedge-tailed shearwaters

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Wedge-tailed shearwater populations in the New Zealand subtropics were thought to largely sedentary or weakly migratory. Observations of migrating birds suggested movements to the central northern and eastern Pacific but only four of >19,500 birds banded on Norfolk Island were recovered away from the island, three on the Queensland coast and one in Fiji. Eight geolocator tags were deployed in March 2008; three of five tags retrieved (two in December 2008; one in early March 2009) contained data. All three birds migrated northeast in early May, reaching the eastern tropical Pacific in late May, at longitudes 70-80° east of Norfolk Island, just north of the Equator. One bird remained c. 45° east of Norfolk Island, southeast of Hawaii during June and July then flew 30° east. Two birds began their return migration in mid-October, reaching Norfolk Island by late October or early November. The third moved south to about the latitude of Norfolk Island in mid-September, but was still c. 80° east of Norfolk Island when its geolocator failed. Early breeding season foraging trips were within an area 15-30°S, between 5° west and 12° east of Norfolk Island. Later in the breeding season, all three birds foraged over the subtropical convergence off Fiordland. Carbon and nitrogen isotopic ratios of feathers from two cat-killed juveniles showed values consistent with the parents having foraged over both subtropical and convergence waters. Patterns of distribution of all three birds were unrelated to either sea surface temperature or areas of highest productivity.

Migratory bird flyways – priorities for New Zealand

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The East Asian-Australasian Flyway is complex and supports many species. It extends from Awarua Bay to North Alaska and from Bangladesh to north eastern Russia. NZ has identified work priorities in the flyway as bar-tailed godwits and red knots. These species make long, energetically expensive migration flights and use extensive intertidal areas in the Yellow Sea as stop-over sites, making that region essential to the completion of their annual cycles. The Yellow Sea is under intense pressure from development (MacKinnon, Verkuil & Murray 2012) and most populations of migratory shorebirds that use the Yellow Sea are in decline.

We will discuss the balance between these international pressures and domestic needs and outline the intended programme of work multi-laterally, bilaterally and domestically to deliver for our priority species.

eBird and the Birds New Zealand/ OSNZ: Seven Years On

R. Paul Scofield, Vanesa L. De Pietri

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Since 2008 Birds New Zealand/ OSNZ has been an active part of the international bird logging and databasing project known as eBird. eBird was designed and run by Cornell University and is considered a leading example of crowdsourcing and citizen science. It has been hailed as an example of democratizing science, treating citizens as scientists, allowing the public to access and use their own data and the collective data generated by others. New Zealand were the first country outside the Americas to become involved and The eBird database now has more than 200 million observations, and data for all 10,240 species in the world. In this talk we outline the breadth of information in eBird New Zealand, talk about ways the data has been used and suggest possible future uses.

The Ohau black-fronted terns – a success story?

Susan Anderson

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Project River Recovery has been running a multi-year multi-faceted pest control project to protect a colony of black-fronted terns on an island in the upper Ohau River in the upper Waitaki basin. I will describe the approach that has been trialled and present results from the first 5 years of the project.

Positive trends in bird numbers on the Ashley/Rakahuri River.

Nick Ledgard and Bev Alexander

Ashley/Rakahuri Rivercare Group Inc.

Data gathered since 2000 for the major species were statistically analysed. The trend lines are positive for the six core species, with numbers of black-fronted tern, banded dotterel and pied stilt increasing significantly, while those for wrybill, black-billed gull and S. Is pied oystercatcher are not statistically significant. None of these species showed a decline in numbers.

Breeding data gathered since 2004 for wrybill and black-fronted tern were statistically analysed. The trend line for chick numbers was positive for both species, but not statistically significant. The trend was the same for tern productivity, but not for wrybill, which was slightly negative. Colonies of breeding black-billed gulls have not been present frequently enough to allow such analysis of breeding trend.

Trap-catch data gathered since 2004 were statistically analysed, and showed a significant downward trend. It is postulated that these encouraging trends are the result of management practices carried out by the Ashley-Rakahuri Rivercare Group since 2000.

Productivity and survival in a marked population of banded dotterels

Aalbert Rebergen

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I studied the breeding biology of a population of individually marked banded dotterels on the Ahuriri River near Omarama, during four breeding seasons, by closely monitoring over 200 nests/broods. Nest success and nesting behaviour varied among years. Hatching success (percentage of nests that hatched at least one chick) varied between 41.3 and 79.2%. Fledging success (percentage of nests that produced fledged young) varied between 25.4 and 56.8%. Females would re-nest after losing eggs or young; up to five clutches in a season. Average annual female productivity during the final two seasons of the study was 1.68 and 0.93 fledged juveniles. Average annual adult survival rate over

the four year study period was at least 84.7% (for males and females combined). Double brooding, were pairs re-nest after successfully fledging chicks, was observed in every season but was variable (4-40% annually). Early brood desertion and sequential polyandry were also observed annually. Using individually marked female banded dotterels I will discuss the fortunes of birds over four seasons and explain why individual nest outcome is not a good measure of success.

Building trustworthy biodiversity indicators

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To effectively track the state of New Zealand's biodiversity, we need trusted and useful indicators. Developing such indicators is tricky for three reasons. The first challenge is understanding what matters to the diverse range of people and organisations involved, and how to engage them in the research. The second challenge is determining how to best collect and use biodiversity data. The third challenge is working out how to best report and communicate the findings to reach the target audiences. Using birds as a test case, our project aims to learn how to overcome these challenges.

New Zealand King Shag (*Leucocarbo carunculatus*) – An update.

Rob Schuckard

New Zealand King Shag (King Shag) is one of the rarest seabird species in the world, endemic to the Marlborough Sounds. The average total population of King Shags is estimated to be 645 birds, with 92% of all existing birds located at four distinctive colonies; Duffers Reef, Trio Islands, Sentinel Rock, and White Rocks.

The criteria of the International Union for Conservation of Nature and Natural Resources (IUCN) for threatened species has identified King Shag with 32 other New Zealand Birds as "VULNERABLE", where this "species is facing a high risk of extinction in the wild in the medium-term future". The status of this bird is based on the latest 2000 criteria of IUCN: Area of occupancy estimated to be less than 2000 km². They are known to exist at no more than 10 localities. Population estimated to number less than 1000 mature individuals.

In New Zealand, the conservation status of King Shag is Nationally Endangered based on its small population of between 250-1000 individuals. Duffers Reef and Trio Islands have the highest numbers of King Shags of all colonies where Duffers Reef also has the highest recruitment of all colonies.

With funding from Friends of Nelson Haven and Tasman Bay Inc., members from the Ornithological Society of New Zealand have, been able to fund further research into the prey selected by this species. For the first time ever, all colonies have been visited to collect shag regurgitations.

New Zealand King Salmon has expanded its operations in the Marlborough Sounds with three new farms. As a part of the conditions, they are required to provide a King Shag Management Plan. An aerial survey was used for the first time to establish a baseline of the number of shags prior to the establishment of the new farms. The total number is more than previous boat-based surveys. The survey was a synchronized count of all colonies within 40 minutes. However, the survey also reflects an increase in numbers due to some colonies never been counted before. Also, some changes in numbers cannot be excluded.

Corticosterone responses and personality in birds: individual variation and the ability to cope with environmental change

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Birds secrete the hormone corticosterone in response to threatening or potentially threatening stimuli from the environment, and corticosterone helps birds adjust to or cope with the stimulus. There is considerable variation between birds in their responses to the same stimulus, and some birds have little or no response to a stimulus that evokes a large response in other birds. These differences between birds in hormone responses reflect differences in the sensitivity of birds to changes in their environment. Individual birds also have characteristic patterns of behaviour, and the size of a bird's corticosterone response is linked with the type of behavioural response it has to environmental stimuli. Birds with relatively low corticosterone responses and active behavioural responses are said to have proactive personalities, and birds with relatively high corticosterone responses and passive behavioural responses are said to have reactive personalities. Examples of proactive and reactive birds will be presented, and characteristics of these birds in relation to their abilities to cope with environmental changes will be discussed. It is proposed that birds with low corticosterone responses and proactive personalities are likely to be more successful (have greater fitness) in constant or predictable conditions, whilst birds with reactive personalities and high corticosterone responses will be more successful in changing or unpredictable conditions. Studies of corticosterone responses and personality will be useful for understanding relationships between individual characteristics and success in birds, and for predicting how birds might cope with changing environmental conditions associated with climate change.

POSTER PAPER ABSTRACTS

Dispersal pattern of recently translocated compared to established male kiwi at Mataia Restoration Project, Kaipara New Zealand

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In New Zealand, all five species of kiwi (*Apteryx* spp.) have been in decline since European settlement with the current rate being between 2 – 5% per year. Translocation for the re-establishment of viable populations in their former range has become a valuable conservation tool. Mataia Restoration project, Kaipara, aims to establish a founder population of 40 individuals with the aim of later dispersal into the greater Southern Kaipara Region. Post-release monitoring of species is important to determine dispersal and success of translocation. Dispersal patterns of five established male kiwi (*Apteryx mantelli*) released in 2013 and eight recently translocated male kiwi of the same species were determined at Mataia, in April and May of 2014. Radio-telemetry was used to monitor all kiwi three times a week for the first three weeks post-release. Multiple bearings were used to calculate the estimated location of each bird and this was then mapped using Arc GIS 10.2 and a Minimum Convex Polygon method was used to determine the area of landscape utilized by all birds after the release event. The newly introduced males utilized significantly more of the landscape than the established males. Ranges of new males overlapped with each other but not with males released in 2013. With the exception of one individual, newly released male kiwi stayed in close proximity to their release site. The results suggest that newly translocated male kiwi will actively seek out habitat unoccupied by other established males possibly to reduce intraspecific competition.

Seasonal and annual variation in foraging of little penguins

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Seabirds must alter their foraging strategies throughout the year in order to cope with variation in prey availability and the demands of breeding. We sampled foraging locations and diving behaviour of breeding little penguins (*Eudyptula minor*) at Oamaru, New Zealand, using Global Positioning System and time-depth recording devices. We attached the devices during pre-egg, incubation and chick-rearing stages over three breeding seasons (2010, 2011, and 2012). We aimed to determine how little penguins adjust their foraging in response to different stages of breeding and to determine if variation in foraging relates to reproductive performance. Foraging variables were related to the duration since the start of the breeding season rather than the stage: distance travelled increased, and dive depth decreased, as the season progressed. In all seasons there was no difference in the distance travelled per day and the total diving duration during incubation compared to chick-rearing. Among seasons, differences were found in the diving activity during the rearing of second broods (of double-brooding pairs). An increase in the total diving duration per day paralleled a reduction in breeding success during 2010. The reduction in breeding success was attributable to the occurrence of a storm event during the 2010-11 austral summer, however during the same period the total diving duration was already high. We conclude that extrinsic factors were more important than stage-related demands of breeding in influencing little penguin foraging strategies at Oamaru.