Kotuku at Tomahawk Lagoon
Craig McKenzie

"He kotuku rerenga tahi" – "a white heron's flight is seen but once"

This is a whakatauki or proverb, which is used to indicate a very special and rare event and is also applied to visitors of importance; to compare a visitor to a kotuku is meant as a high compliment.

The Otago Branch extends a hearty southern welcome to you all to this OSNZ conference, the first to be held under the banner of the New Zealand Bird Conference, and the first to be held in the south for over two decades.

As a sign of good things to come, we in Otago have been favoured this May by the presence of six white herons, kotuku, which turned up together at nearby Tomahawk Lagoon, and also several others at estuaries around the area. This number has not been seen for decades.

We trust that this exciting occurrence bodes well for an enjoyable and informative conference, where you will renew old friendships, make new ones, share birding experiences, hear the results of current research on our NZ birds and learn new things at the workshops. Dunedin is an important site for birds and we trust that many of you will have the chance to encounter some of them while you are here.

Regional Representative, Otago Branch, Mary Thompson

Our evolving view of the kakapo and its allies.

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We show how molecular and morphological work on parrots over the last 20 years and it has re-shaped popular and scientific views regarding the endemic New Zealand taxa. Recent research that the kakapo (*Strigops habroptilus*) is not closely related to counterparts in Australia, but in fact is a member of an ancient and exclusively New Zealand clade together with the kea and the kaka (*Nestor* spp.). Superficially similar Australian nocturnal taxa, the night and ground parrots, are members of an altogether different family. At the same time, parrots as a larger group have more or less retained their sense of Gondwanan identity, but with an increased focus on Australasia as a centre of origin. The previous paradigm of contemporary parrot diversity suggested evolution was brought about exclusively from vicariant speciation has been to some extent supplanted with the realisation that dispersal events occurred, for example from Australia across the chain of Indian Ocean Islands to Africa.

Classification of the World's Cormorants and Shags.

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Relationships among the 40 or so extant species of cormorants and shags have been obscured by their morphological similarities, many of which we have recently shown to be the result of convergent evolution. Previous attempts by other workers to derive an evolutionarily justifiable classification for this group of birds using osteological and behavioural data have been hampered by these similarities. We present a well-resolved evolutionary tree for some 40 taxa based on the results of extensive genetic work that produced over 8000 bases of mitochondrial and nuclear DNA sequence. This tree implies a novel classification for the cormorants and shags, which reflects their evolutionary history. Some of the relationships among the species are well-known but many are previously unrecognized. Nevertheless, much of the classification makes sense in terms of biogeography.

Phylogenetic history of the Blue-eyed shags.

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The world's Blue-eyed shags have a complicated taxonomic history. Some authorities recommend giving all the different forms specific status, while others give sub-specific status to each form within the New Zealand and South American Blue-eyed shag complexes, and others still suggest a mixed model with the New Zealand Blue-eyed shags each having specific status and the South American Blue-eyed shags being given sub-specific status. We present the preliminary results of molecular phylogenetic studies that address these issues, looking at the levels of diversification within these groups and the processes that may have generated the diversity (or lack thereof) that we see today. These studies include a phylogeographic study of the Blue-eyed shags as a whole, and a targeted study of the New Zealand Blue-eyed shags, including utilizing ancient DNA techniques to investigate prehistoric samples from now extinct populations.

New Zealand's merganser(s): a reappraisal.

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New Zealand's fish-eating duck, the merganser (*Mergus australis*)*,* is a duck that "got away". It was still present at the Auckland Islands in the mid-19th Century, a place which we might have imagined would have been a safe haven given that none other of its avifauna went extinct. However, a flurry of specimen collecting, urged by that ornithological "noble" Walter Buller and carried out with vigour by a determined Governor-General, Ranfurly, it only just survived to the 20th Century. A re-appraisal of its scant written record, and use of modern chemical analyses and computer simulations, has helped reveal the ecology and adaptations of this, the smallest *Mergus*. But a spectacular find on Chatham Island in 1989…of approx. 50 merganser specimens in a single cave….has recently provided a further twist to the merganser's tale.

Natural science collections and their role in research.

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Museums have historically held an important role in society, as a repository for examples of the flora and fauna of our environment, and as providers of education about them. The Otago Museum's natural science collection spans over 140 years and thus serves as a historical archive of the diversity and distribution of extant and extinct animal species in New Zealand.

The Museum's ornithological collection is stored in several ways, each of which can provide different types of information to researchers. Storage methods include specimens and specimen parts which are stored in alcohol; taxidermied skins mounted for display or study; skeletons and dried material such as eggshells and feathers. We will review the different methods of storing ornithological collections, and how these specimens can be useful for research.

Research is fundamental to the activities of the Otago Museum. It contributes to increasing and sharing the knowledge we have of our world, through our exhibitions, education programmes and community events, as well as using collections for scientific research to gain a better understanding of species or ecosystems. As science progresses, the research undertaken might change focus but the goals are likely to remain the same: to learn more about the world we live in.

Loss of genetic diversity and a bottleneck in Kea (*Nestor notabilis*).

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The impact of a bottleneck is an important factor in the survival of natural populations as it can considerably limit evolutionary potential and increase susceptibility to stochastic events. Kea (*Nestor notabilis*) have undergone a long-lasting persecution between the mid 1800's to 1970's, where an estimated 150,000 birds were culled under a governmental bounty scheme. Anecdotal evidence suggests that upon European arrival, the species was quite rare, but that it quickly expanded its range thanks to new introduced food sources (i.e. stock). Presently, the species numbers between 1000 to 5000 individuals in the wild and it is likely that such a population decline might have dramatically impacted on the genetic diversity and evolutionary potential of the species. To assess the outcome of the population reduction, I first compared modern and museum genetic diversity to look for a potential loss caused by the extensive cull. Secondly, I used two method of bottleneck detection to look for a signal of recent population reduction in modern samples. Results did not show any loss of genetic diversity, as all alleles (microsatellite data) or haplotypes (mitochondrial data) found in museum samples were present in modern samples. Despite this, the mitochondrial data suggested a more homogeneous historical population structure. Additionally, only one population (Mt Cook NP) showed a signal of recent decline. Despite the apparent large number of Kea killed during the bounty, my data does not suggest that the species has been dramatically impacted by such a massive cull. However, a loss of genetic diversity cannot be totally excluded and the use of fossil samples would be ideal to further investigate the question. I discuss potential factors that could have prevented the detection of a signature of bottleneck, such as rapid demographic recovery, immigration, and local variation in intensity of the cull and variation in duration of the bottleneck.

Rock wren (*Xenicus gilviventris*): Population structure in an alpine archipelago.

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The rock wren (*Xenicus gilviventris*) is a threatened alpine passerine belonging to the endemic New Zealand wren family (Acanthisittidae). This largely flightless family was once represented by at least seven species, however due to the impacts of introduced mammalian predators, only two species remain. Conservation management of rock wren has only recently commenced via translocation of individuals to offshore islands, but genetic considerations are not currently a part of management practices. Here we investigate genetic population structure by sampling rock wren (n=216) from throughout their range, including the type locality of the putative sub-species (*Xenicus gilviventris rineyi*) (Falla, 1953). Using both nuclear and mitochondrial DNA, we describe significant differences in genetic variation and differentiation between rock wren populations across the South Island. A significant North – South divergence is identified, consistent with the 'biotic gap' hypothesis. These results indicate that separate management units need to be conserved to maintain the genetic diversity of rock wren.

Population viability of highly inbred black robins.

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The Chatham Islands black robin, one of New Zealand's iconic bird species, has recovered from a single-pair bottleneck in 1979-1982 to around 250 adults today. The species currently exists in three small subpopulations on two geographically and genetically isolated islands. All individuals are highly inbred. Some inbreeding depression has been observed, raising concerns about the long-term viability of the species. We assessed the effect of inbreeding on demographic rates and population viability and found that inbreeding depression is a potential problem for this species. The species is likely to persist for the next 100 years, but only if habitat regeneration continues. Population growth will be limited by inbreeding, and one population is likely to become extinct. If populations remain small and inbreeding continues, the black robin will not be able to survive indefinitely. We will discuss these findings in the context of implications for management of this endangered species, including the potential value of efforts to reduce inbreeding or increase habitat availability and quality.

Rectifying several major misconceptions about the Takahē Recovery Program.

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The takahē (*Porphyrio hochstetteri*) is one of the most widely studied bird species in New Zealand. Since Orbell's discovery in 1949 takahē have been the focus of significant research and conservation efforts. Takahē remain, however, critically endangered. Fewer than 60 breeding pairs exist at safe and secure locations, the only wild population of takahē is in the Murchison Mountains of Fiordland. This population has recently been subjected to significant episodic predation events following stoat irruptions in 2007 and 2012. The Murchison Mountains population is not considered to be self-sustaining under current ecosystem management.

Historical debates about takahē ecology and the ongoing "critically endangered" threat status of takahē have marred the many accomplishments of the Takahē Recovery Programme. In spite of a revised adaptive management strategy for takahē, application of smart technology for planning and monitoring, cessation of intensive puppet-rearing at Burwood, better genetic and productivity management of the meta-population, and a significant sponsorship contract with Mitre 10, misconceptions still exist with regard to the current programme. Here we seek to address some of these misunderstandings including the perceived failings of the programme and lack of strategy or conservation goal, the future for takahē in the Murchison Mountains, security of the species by way of the meta-population, and the contribution that captive rearing and reintroductions have made to the programme.

Shooting at a moving target: Hōiho conservation in Coastal Otago.

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Yellow-eyed penguins/hōiho (*Megadyptes antipodes*) have been monitored in Coastal Otago for 33 years. Research in the 1980s indicated that the continued trend of heavy predation of chicks by introduced mammalian predators would render the species extinct on mainland New Zealand by 2020. In addition, observed chick starvation events appeared to be increasing in frequency due to an assumed shortage of food, and the disturbance posed by livestock was also impacting heavily on reproductive success at key breeding sites. Over the years of monitoring conservation managers have had to deal with disease, marine perturbations and adhoc predation events. How has the conservation management of this species changed as new threats to the species have emerged? This monitoring programme has its roots firmly footed within Coastal Otago communities, with individuals, landowners, tour operators, scientists and students all working with DOC to manage and mitigate the threats posed to yellow-eyed penguins by what Lance Richdale called ‘man’s destructive agencies’. Are we winning?

Population decline of hihi (*Notiomystis cincta*) on Hauturu, Little Barrier Island, New Zealand.

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Hihi (*Notiomystis cincta*) were once widespread throughout the North Island and offshore islands of New Zealand By the late 19th century hihi had become restricted to a single island – Hauturu (Little Barrier Island), in the Hauraki Gulf. Predation by introduced pests, habitat loss and possibly disease are thought to have led to the extinction on the New Zealand mainland. Cats and kiore were the only predators introduced to Hauturu but these were eradicated in 1980 and 2004 respectively. Since the 1980's hihi have been translocated to several sites, but they have only persisted at sites where supplementary feeding has been provided. Hauturu remains the only population thought to be self-sustaining. During the period 1975-1989 hihi numbers were estimated along line transects (Angehr, 1984; Girardet et al, 2001). Since 2005 annual estimates of hihi density have been made using distance sampling. This presentation summarises hihi population densities over the period 2005-2012. Despite considerable inter-annual variability a significant decline is apparent. Reasons for this decline are discussed.

Southern New Zealand Dotterel Conservation.

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The New Zealand Dotterel was once a super-abundant species throughout New Zealand. The Northern sub-species (*Charadrius obscurus aquilonius*) now occurs largely in the North Island and numbers >1500 individuals. The nationally critically endangered Southern sub-species (*C. o. obscurus*) is now restricted to Stewart Island and the Awarua wetlands, and reached a population low of 62 birds in the early 1990s, which instigated a programme of work to evaluate agents of decline and enact conservation management to enable recovery. Predation from introduced cats (*Felis catus*) was identified as a likely cause of decline. A toxin control programme targeting cats in nesting habitat, appears to have enabled the sub-species to recover to just less than 300 individuals by 2009-2010.

Subsequently, the population appears to have reached a plateau and currently numbers approximately 270 birds. The cause of this apparent population plateau has been the focus of this pilot study. Density dependent effects or a change in predator impacts may be speculated on as causes. Equally mortality away from nesting sites may be contributing to the apparent change in the population trajectory.

Our study has three aims: 1. Characterise nesting success within and outside of current management areas; 2. Conduct nest monitoring to test the assumption that cats remain the major predator of nesting birds and 3. Consider how current population parameters retrospectively fit the observed historic recovery.

Claims about cats and birds: what does the evidence tell us?

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The Gareth Morgan Foundation's media campaign made some assertions about impacts of cats on wildlife and how they should be managed. While it is unclear whether the campaign changed peoples' attitudes it certainly generated discussion. New Zealand is not the only country embroiled in arguments over this issue. Management of cats is a hot topic, particularly in the USA. In this presentation I will review (1) the research investigating impacts of domestic cats on wildlife; (2) the range of management options proposed (3) the evidence as to whether management such as Trap/Neuter/Return or complete confinement, is effective; and (4) public perceptions and attitudes about the ecological impact of cats, and cat management.

Fossil bird remains from subantarctic Macquarie Island

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Holocene fossil bird bones recovered from several sites on subantarctic Macquarie Island, southwest of New Zealand, provide a novel source of information about the island's history. There has been heavy modification through human activities, including the introduction of foreign mammals and the predatory weka (*Gallirallus australis*). The extinction of two endemic birds - the Macquarie Island rail (*Gallirallus macquariensis*) and the Macquarie Island parakeet (*Cyanoramphus novaezelandiae erythrotis*) - was documented in historic times. Fossils from the island include both these extinct species and provide evidence of a probable third global bird extinction - a teal (*Anas* sp.). Most fossil remains are from king penguins (*Aptenodytes patagonicus*) and royal penguins (*Eudyptes schlegeli*) but several other species of seabird are represented, including one widespread species not previously reported from the island - the subantarctic little shearwater (*Puffinus elegans*). The fossils provide evidence of population declines of several species.

Bird dispersal of environmental weeds in New Zealand.

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The seeds of fleshy-fruited environmental weeds are likely to be widely dispersed by birds in New Zealand. Knowing where and when this occurs could help managers a) determine the rate and pattern of spread of specific environmental weeds across the landscape, and b) assess feasibility of eradication. We reviewed the literature on seed dispersal of fleshy-fruited environmental weeds in New Zealand. Specifically, we investigated the following questions: (1) What proportion of environmental weeds in New Zealand have fleshy fruits? (2) Which bird species are the major dispersers of fleshy-fruited weeds in New Zealand? (3) How do fruit traits and disperser attributes influence weed dispersal patterns?

Of 295 non-native, terrestrial, environmental weed species in New Zealand, 32.5% have fleshy fruits that are likely to be dispersed by birds. With the exception of two species (both with a restricted distribution), all of these species have either fruits that are small enough to be swallowed whole or small-seeded fruits that can be eaten in pieces. Most weed species in New Zealand produce ripe fruits from midsummer to late autumn or early winter. However, several weed species have ripe fruits during winter, spring and early summer, when native fruits are scarce.

Blackbirds, silvereyes and starlings are likely to be the most significant dispersers of environmental weed seeds in New Zealand. Birds disperse most seeds within 100 m, although seeds may also be dispersed several kilometres either regularly (by starlings) or occasionally (by kereru, tui and myna).

Response of a reintroduced bird population to a rat reinvasion and aerial poison eradication

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The reintroduction of species to island sanctuaries free of introduced predators is a successful conservation strategy, especially in New Zealand. Nevertheless, reintroduced populations, even those that reach high densities, are still vulnerable to predation in the event of a rat reinvasion, and may also be susceptible to non-target poisoning during a subsequent eradication operation. We quantify for the first time the changes in population size and survival rate of Stewart Island robins (*Petroica australis rakiura*) following the reinvasion and eradication of Norway rats on Ulva Island, in 2011. In the breeding season following the rat reinvasion and eradication, the robin population declined by nearly one-third (31.5%; 432 to 296 adults). The survival rate of robins just prior to the poison operation was slightly lower than previous seasons, indicating that the growing rat population may have had only a minor negative effect on robin survival. In contrast, the majority of the decline occurred immediately following the poison operation. This suggests the robins were susceptible to non-target poisoning from the brodifacoum poison bait. Our results indicate the importance of developing permanent surveillance systems on island sanctuaries to detect and kill rats upon arrival in order to avoid the potentially high rates of non-target poisoning associated with post-invasion, large-scale eradication operations. Nevertheless, subsequent monitoring has indicated the robin population has returned to its pre-decline numbers one year after the rat eradication.

A banding study of tui and bellbirds in Dunedin City.

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Over the last five autumns, in excess of 500 tui and bellbirds have been colour banded in one Dunedin garden. Resightings in that garden, across the city, and beyond, provide evidence on seasonal movements and survival. We summarise results to date and pose some questions for further research.

Dunedin Botanic Garden a Dunnock Heaven.

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Around 150 years ago, English settlers introduced dunnocks (*Prunella modularis*) in New Zealand. Dunnocks have become one of the most common species in New Zealand. Our group established a study population in the lower Dunedin Botanic Garden, where most of the birds are uniquely marked with colour rings and monitored for a period of 4 years. There is extensive literature on the biology of dunnocks in the UK, so that we are able to compare two geographically separated populations. Although, UK and NZ dunnocks show only a low genetic and morphological differentiation, we have found differences in behaviour, for example in the complex mating system (including monogamy, polyandry, polygyny and polygynandry). In 2012, we started to investigate variation in behavioural traits (referred to animal personality) of dunnocks what will be one of the main topics of research the next few years. I will discuss an overview of this new project.

Project Kereru – Dedicated to the Rehabilitation and Release of the New Zealand Pigeon.

NIK HURRING

Project Kereru, c/o 19 Elwyn Crescent, Green Island, Dunedin 9018.

Project Kereru is a Community-based Conservation Project that has been changing the fate of sick and injured Kereru (New Zealand Pigeon) around Otago and surrounding areas for almost 20 years.

Kereru face many threats – most commonly impact injuries from flying into windows and cars. We have an aviary dedicated to the care of injured birds where it is likely that there will be a successful outcome allowing release back into the wild.

An outline of the project will be given including the factors that need to be considered before a bird is accepted for rehabilitation. Ways of preventing injuries such as window-strike will be outlined.

Two interesting rehabilitation cases will be discussed and figures given to show the number of successful releases after treatment.

Further information on the project can be found at info@projectkereru.org.nz

The return of fairy prions (*Pachyptila turtur*) to breed.

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Banding of fairy prion chicks and adults in 90 nest boxes on the cliffs of St Clair, Dunedin, began in 2000 in an endeavour to describe the return and breeding success of known age birds. 600 chicks have now been banded. Some individuals return in their third spring (i.e. more than 25 months later) and some form successful breeding partnerships in the following year. Data is slow to accumulate. Last summer, 2012/13, 38 known age birds participated in 79 breeding attempts. There were six pairs of known age birds. 18 of the 48 chicks fledged had a known age parent. There has been higher turnover of nest box occupants than anticipated. This paper describes the return, breeding success and partner characteristics of known age birds.

Seasonal movements of the Royal Spoonbills breeding in Otago.

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Royal Spoonbills (*Platalea regia*) have established breeding colonies in Otago. To determine the movements of birds, 60 chicks were marked with unique colour-band combinations during 10 nesting seasons on Green Island between 1994 and 2005. OSNZ members were asked to report sightings of these birds. By 2012, a total of 311 resightings had been recorded by the National Banding Office. 75% of the banded birds were resighted, with 61% of individuals being resighted on more than 2 independent occasions. 62% of birds were resighted away from their banding/natal area.

All movements from summer to winter locations were northwards. No banded birds were seen around the Dunedin estuaries in winter from April through October. 89% of all winter resightings were north of Kawhia/Thames, over 1000 km away from the breeding site. The furthest movement was to Parengarenga (1288 km). Adult birds were seen in the north in all months from March to September. Adult birds moved south in summer and were seen in the Dunedin area as early as 1 November.

Juvenile birds, in contrast, did not move back to their natal area at the end of their first year (12 months after fledging). No young birds were seen in the Otago area until the January two years after banding, at the start of the bird's 3rd year of life. The only evidence of southern movement by juveniles was three resightings, one each at Auckland, Whanganui, and Christchurch in November or December.

Nesting success and causes of nest failure in two coastal breeding populations of banded dotterel (*Charadrius bicinctus*) in the Wellington Region.

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Nesting success of banded dotterels (*Charadrius bicinctus*) was monitored at two coastal sites in the Wellington Region over two consecutive breeding seasons. Rates of nest failure at both sites were extremely high, much higher than that typically reported from SI braided rivers but similar to that reported from the Ashley Spit, the only other coastal site at which banded dotterel nesting success has been monitored. Infra-red, motion-activated cameras were used to identify the causes of nest failure for 12 of the 56 nests monitored. Predators accounted for 10 of the 12 nest failures that were filmed; one further nest was washed out by a rogue wave and another nest was deserted part-way through incubation. The results of this investigation have allowed more informed decisions to be made regarding how these two coastal sites should be managed to improve banded dotterel nest success in the future.

China's new Great Wall: challenges for migrant waders in the Yellow Sea.

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New Zealand hosts internationally important populations of 3 arctic-breeding waders: Bar-tailed Godwit (*Limosa lapponica*), Red Knot *(Calidris canutus*), and Turnstone (*Arenaria interpres*). All 3 stage in the Yellow Sea on northward migration - Bar-tailed Godwits migrate there non-stop, as do at least some Red Knots – migrations of Turnstone are little known.

Some 70% of NZ's godwits stage at Yalujiang NNR, Liaoning and many knots at Nanpu, Hebei. Both sites are threatened by reclamation, as is much coast of the remaining Yellow Sea – Jiangsu Province alone plans to reclaim 1,800 sq km by 2020 (an area 4.5 times greater than South Korea's infamous Saemangeum project).

Results of a survey of China's Yellow Sea coast in April/May 2013 will be presented.

Population sizes of shearwaters (*Puffinus* spp.) in New Zealand with recommendations for monitoring.

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We reviewed population data for the 9 taxa of shearwaters (*Puffinus sp*.) that nest in the New Zealand Region . Data for 265 sites was found, and each species nested at between 2 and 153 localities. We reviewed the information to assess time-series of information for each population, and where possible to determine trend and total population size. However, few of the species had robust enough information to allow those assessments to be made. We recommend high priority sites for future monitoring, and encourage other researchers to publish or make available findings from previous work to assist in building a comprehensive picture of the status of shearwater populations.

Research and management priorities for New Zealand seabirds.

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New Zealand probably has more species of threatened seabirds than any other nation, yet our seabirds have received less attention than their terrestrial counterparts. This presentation will discuss research priorities identified by a petrel and albatross workshop in August 2012 and a meeting to discuss priorities for all seabirds in May 2013. Required information that can be obtained by OSNZ members will be identified.

The August meeting identified a number of taxonomic uncertainties suggesting there are more taxa of petrels than are currently recognised. Of greatest concern are the Kermadec storm petrel and the Codfish Island population of South Georgian diving petrel. If, as some studies suggest, these comprise distinct species they would become two of the world's rarest petrels. Also of concern was the status of the New Zealand region white-chinned petrels.

The albatrosses are covered by the international Agreement on the Conservation of Albatrosses and Petrels (ACAP), and although some excellent research is underway, the resources available in this country fail to reflect the importance of the New Zealand region in albatross diversity.

So little is known of the status of the burrow-breeding petrels that it was hard to decide where research priorities should lie. Seabird surveys are underway along the north-eastern coast of the North Island, but few other island surveys have been done since the 1980's. Fiordland, Ruapuke Islands and Stewart Island are particularly poorly surveyed. Counts of breeding seabirds anywhere in New Zealand would be of value; OSNZ members can help provide such data.

Secretary Island Reintroductions and Introductions.

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Secretary Island is the second largest inshore island in the Fiordland National Park, is naturally free of rodents and possum, and since 2006 has been the focus of a pest eradication programme for stoats and red deer. Whilst neither stoats nor red deer have been successfully eradicated, their populations are suppressed by current management which has enabled conservation managers to begin the reintroduction of threatened fauna able to recover under these low pest abundances. Since 2008 South Island robin (*Petroica australis australis*), mohua (*Mohoua ochrocephala*), takahē (*Porphyrio hochstetteri*), North Island kokako (*Callaeas cinerea wilsoni*) and rock wren (*Xenicus gilviventris*) have all been transferred to the island. Motivation for these transfers has included species recovery goals and ecological restoration. Notable amongst the translocations is the use of North Island kokako as an ecological surrogate for the extinct South Island kokako. All species transferred have been observed breeding on Secretary Island. However, recent monitoring suggests that whilst mohua have established a robust and growing population on the island, takahē have so far failed to fledge any chicks, South Island robin and North Island kokako have failed to establish and rock wren establishment is yet to be confirmed. Five-minute bird count data also depicts a variable response amongst both native and introduced species. These patterns raise a number of issues requiring research and highlight the value of high-resolution post release monitoring for furthering our understanding of reintroduction biology.

Use of acoustic recorders in a community-group's kiwi re-establishment project.

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Kiwi disappeared from the Flora Stream catchment of Kahurangi National Park some 30 years ago. In 2001 a community group, Friends of Flora Inc., began a programme of pest control with the aim of restoring the biodiversity values of the area. In 2010 a long-term project to establish a self-sustaining population of great spotted kiwi (*Apteryx haastii*) was initiated with a wild-to-wild translocation of 12 kiwi into the Flora stream area. The project is complex because of the remoteness of the area, the low population density of kiwi and, in part, because relatively little is known about the ecology of great spotted kiwi. We have used acoustic recorders to help overcome these difficulties. In this presentation we discuss their use to determine the need for additional translocations; to investigate reports of kiwi from the general public; to identify the optimum time of year for surveys; to survey suitable source sites for additional translocations; to determine whether apparent incubation is real and to locate kiwi that have dropped their radio transmitters.

It's not all Tooth and Claw out there.

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In 2007 a predator proof fence was built around 307 hectares of regenerating forest in the Orokonui Valley 20km north of Dunedin and predators and browsing animals were removed. Two years beforehand we started five minute bird counts, based upon Dawson and Bull's work, at 30 stations inside the proposed fence and 8 stations in two areas outside; one immediately adjacent and another 3km to the south west.

We now have 2 years of data pre-fence, one over the pest removal period and 5-post fence. It is often claimed that the removal of predators will result in large, if not spectacular increases in bird numbers and furthermore that this will spill over into adjacent areas. However for all but 3 species that were present before fence construction, little change in counts has occurred and trends inside the fence are similar to those in the adjacent and distant control areas. The exceptions are bellbird, tomtit and rifleman which all show higher post breeding counts inside than outside the fence.

By the following spring, counts of both tomtit and rifleman have returned to their previous spring levels. Only bellbird counts are increasing as the high counts in autumn translate to higher counts the following spring. These results suggest that factors other than predation are important in limiting bird numbers and indicate that winter survival and habitat quality are involved.

POSTER
Establishing a Second Breeding Colony of Chatham Island Albatross.

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The Chatham Islands Taiko Trust proposes to establish a second breeding population of Chatham Island albatross (*Thalassarche eremita*) at a site on Main Chatham. This endemic species is listed as Vulnerable by the International Union for the Conservation of Nature (IUCN), and is restricted to a single breeding location on The Pyramid; consequently, threats to the population are magnified with only one breeding site. The population appears stable at 5,000 pairs, but lack of additional breeding space may be limiting growth. Establishing a second colony would mitigate against present and future population threats, such as global climate change, habitat degradation due to severe storms, illegal chick harvest, contaminants, and disease outbreaks. The release site is near Point Gap, a protected area on private land on the southwest coast of Main Chatham. It is adjacent to where birds regularly commute past, and has suitable infrastructure nearby to support the project. A chick translocation program, following methods developed during the Yamashina Institute for Ornithology's successful short-tailed albatross (*Phoebastria albatrus*) translocation program, will be used to achieve the project goals. Chicks will be collected from The Pyramid, transferred by boat to Point Gap, and fed daily until fledging in 3-4 months time. The project has strong community involvement, aiming to educate and encourage the Chatham Island community to enhance seabird conservation on private land.

POSTER
Human Disturbance and Blue Penguins.

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A major way of increasing the value of wildlife to the public is to allow the public access. This places increasing pressure on wildlife managers to allow close contact with animals. However, the impacts of human disturbance on wildlife remain largely unstudied. Subtle sub-lethal physiological changes such as increased heart rate may ultimately cause population-level effects by reducing the energy fraction available for essential processes and behaviours.

Blue penguins (*Eudyptula minor*) are considered relatively robust to human disturbance, as they do not exhibit overt behavioural responses. However, physiological responses of Blue penguins to human disturbance have not yet been quantified. My investigation will seek to determine the effects of both researcher and tourist disturbance on a physiological parameter, namely heart rate, of Blue penguins at the tourist-oriented colony at Oamaru, New Zealand.

Heart rate of incubating adult penguins was recorded using an artificial egg, minimizing disturbance associated with recording apparatus. To determine the effects of researcher disturbance, penguin heart rate was recorded in relation to controlled disturbance stimuli. Furthermore, to determine the effects of tourist disturbance, penguin heart rate was recorded in relation to the proximity of tourist pathways to nesting boxes. Preliminary results indicate that human-induced disturbance stimuli produce a stronger HR response than natural stimuli. The results of my investigation will be important for future management decisions at the Oamaru Blue Penguin Colony, as well as other Blue penguin colonies.

POSTER

Making a rock-solid rebuild or still hopping towards local extinction? The population dynamics of Eastern Rockhopper Penguins on Campbell Island in the past 27 years.

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Over the 43 year period from 1942 to 1985 the population of Eastern Rockhopper Penguins (*Eudyptes chrysocome filholi*) on New Zealand's sub-Antarctic Campbell Island declined by an estimated 94%, from ~800,000 to ~51,500 breeding pairs. Concurrent and on-going population declines of a similar proportion have been documented at multiple other breeding sites throughout the species' range, resulting in an IUCN threat ranking of 'vulnerable' and 'nationally critical' in New Zealand. The most important cause of these declines is likely reduced food availability related to ocean warming.

I estimated colony-specific population changes over the 27 year period from 1985 to 2012 by comparing colony areas and nest densities from photographs and physical measurements. I found a huge degree of inter-colony variation in recent population change from a decline of ~60% to an increase of ~30%. This variation appears related to how the physical characteristics of some colony sites facilitate predation, rather than being linked to differences in food availability. The current overall population trend on Campbell Island appears relatively stable compared to the previous period of rapid decline. The mean air temperature at Campbell Island was warmer in the past 27 years than during the previous 43 years, so that the relative stability of the Eastern Rockhopper Penguin population in recent years is unexpected. Additional research on oceanographic conditions and how they relate to food availability is required.

POSTER
Population Genetics of the New Zealand Falcon (*falco novaeseelandiae*).

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The New Zealand falcon (*falco novaeseelandiae*) is currently a single species with 3 recognized morphs or races (Bush, Eastern & Southern). The morphology, ecology and to some extent geographic ranges support this but no genetic work supporting this has been conducted. The question I wish to answer is should the three distinct forms of New Zealand falcon be treated as distinct conservation units and if so at what taxonomic unit should they be split? This research will be very influential to management of the New Zealand falcon, it is unclear presently as to whether the 3 morphs should be managed as separate taxonomic units/sub species or as a species as a whole. There is no current management plan in place for the New Zealand falcon; this research will provide a basic knowledge of the population structure and a basis for a management plan. It will also assist in decisions about future translocations and reintroductions of individual falcons. An analysis of the correlation of population genetic structure with the distribution of morphological and ecological variation is needed to a) test the genetic validity of these three morphs, and b) provide tools for their identification. Phylogenetic analysis will also be used to determine the relationship of New Zealand falcon to extant species in other parts of the world.

POSTER

A significant bird conservation achievement – the story of the Te Rere yellow eyed penguin reserve.

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In one of the earliest examples of a private effort to protect yellow-eyed penguins, the Southland branch of the Forest and Bird Society started the Te Rere penguin reserve in 1981. At that time land clearing for farmland was threatening penguin habitat and with the co-operation of the landowner, the Society fenced off a small area. In 1989 the Society was able to extend the reserve by purchasing 60 hectares. Since that time, revegetation and predator control has been on going and monitoring of penguin has been improved. The results for the penguins and other wildlife have been positive. The presentation chronicles the reserve history and highlights the factors that have led to its success, as well as presenting up-to-date statistics for penguins at Te Rere.

POSTER
N.Z. Dotterel and Technology.

Northland Branch O.S.N.Z.

At a time when our birds are experiencing increased pressure on their chosen habitat, it is pleasing to come across a situation where Industrial technology has indirectly created secure territory that has been adopted with great enthusiasm by the Dotterel. Having identified this opportunity, we are now working towards a partnership arrangement with other local industries that have custody of suitable land where predator control can enhance the desirability for ground-nesting species.
Our poster illustrates the use made by the endangered N.Z. Dotterel of such land at Marsden Point, Northland.

POSTER
Breeding success of Yellow-Eyed Penguins on Stewart Island and off-shore islands.

Yellow-Eyed Penguin Trust

A 5 year study (2003-2008) into population decline and to identify the causes of death. The study concluded starvation and disease were significant causes of chick death.