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Guest speaker

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The kiwi: the ultimate endemic

Some 41 species of endemic birds (38% of the land and freshwater species) have become extinct following human colonisation of New Zealand. This rate of loss is amongst the highest recorded anywhere in historic times, and gives New Zealand the unenviable reputation of being a world leader in extinction. In general, the ancient elements of the avifauna with few close relatives elsewhere have fared badly, while the modern elements have persisted. Overall, the bird community of New Zealand has undergone massive change in the last 2000 years. Flighted species have taken the place of flightless ones; real mammals have taken the place of mammal-like birds; and introduced birds have taken the place of extinct natives. The large predators have disappeared, largely without substitution. It is now hard to find traces of the original inhabitants in mainland forests, but some do remain. These remnants are the species of special interest, the gems that must be protected for future generations to enjoy.

Among the extant birds of New Zealand, kiwis have the highest levels of endemism, and thus are arguably our greatest avian treasures. Despite being ancient and flightless, kiwis have proved to be extraordinarily resilient, with 3 of the 4 species still extant in mainland forests. Nevertheless, kiwis are declining at about 6% per year, mainly because of predation by stoats (*Mustela erminea*). The nature of the relationship between stoats and kiwi is described in detail in the talk.

The task of conserving some of the remaining populations of kiwi in mainland forests is a daunting one. Ongoing, large-scale, predator control is expensive. Public attitudes to conservation will ultimately determine the extent to which further declines are tolerated. Indifference, rather than predation, is now the biggest threat to kiwi in mainland forests.

Seabird translocations - learning from past mistakes

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This talk mainly discusses the diving petrel (*Pelecanoides urinatrix*) project on Mana Island (3 transfers of chicks between 1997 and 1999), what went wrong, what was successful and the lessons we learnt about transferring small seabirds. Recent updates from the monitoring project to see if birds are returning to Mana Island will be presented. The grey-faced petrel (*Pterodroma macroptera*) and Pycroft's petrel (*Pterodroma pycrofti*) translocation projects will be discussed briefly, including what happened and the lessons learnt for future transfers of these species.

Tri-trophic interactions in conservation biology: will poisoning stoats (*Mustela erminea*) aid forest plant reproduction?

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Recent work at Craigieburn has shown that the endemic bird-pollinated mistletoe (*Peraxilla tetrapetala*) is pollen-limited. *P. tetrapetala* has flowers which open when a bird, or occasionally one of three species of native bees, twists the top of the bud. At Craigieburn, where bellbirds (*Anthornis melanura*) are the major pollinators, we have found previously that there are insufficient visits from birds to ensure full fruit set. Low densities of bellbirds at Craigieburn is one likely reason why there are few visits to the mistletoes. Bellbirds appear not to be food limited at this site so we have begun to investigate whether their numbers are limited by predation. We ask: Can we expect to increase reproductive success of mistletoes by controlling predators – an effect that runs across 3 trophic levels? To begin to answer this question, we have started monitoring bellbird nests at Craigieburn with time-lapse infrared video cameras. This is designed to work in with a forthcoming trial stoat (*Mustela erminea*) poisoning operation by the Department of Conservation which will cover part of the bellbird study area. Of the 12 bellbird nests monitored during the 1999/2000 breeding season, 6 (50%) successfully fledged chicks. The 6 failed nests included the first clearly videotaped stoat predation event at a forest bird nest in New Zealand. However, stoats were only one of a number of nest predators we observed.

Interactions between *Aspergillus* and hihi (*Notiomystis cincta*) on Mokoia and Little Barrier Islands

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During September 1994, 20 adult male and 20 adult female hihi (or stitchbird, *Notiomystis cincta*) were translocated from Little Barrier Island to Mokoia Island. Six years on, the hihi population on Mokoia has been reduced to 7 breeding females, about 14 males, and 5-9 fledglings. From 1995 to 1997, 44% of hihi on Mokoia were reported to be showing clinical signs of illness suggestive of aspergillosis before death or disappearance. Additionally, post-mortem examination of 6 dead hihi on Mokoia from 1995-1997 identified the fungal disease aspergillosis as the most common cause of death.

During November 1999, after identifying aspergillosis in cicadas on Mokoia, my PhD project studying fungal diseases in cicadas was redirected towards a study on the ecology of *Aspergillus* in relation to forest succession and the hihi nesting environment on Mokoia and Little Barrier Islands.

Molecular ecology of kakapo (*Strigops habroptilus*)

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There are now about 60 kakapo (*Strigops habroptilus*), with little genetic variation amongst them. The single exception is the individual "Richard Henry" from Fiordland. The other individuals are either from Stewart Island or bred from Stewart Island stock. Samples of DNA are being used to sex offspring at hatching, determine paternity of chicks and even sex an individual from its faeces. Paternity patterns of recently hatched chicks are consistent with the lek mating system reported for kakapo.

Welcome swallow (*Hirundo tahitica*) nesting in Hawkes Bay and adaptation to a variable food supply

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The welcome swallow (*Hirundo tahitica*) has rapidly expanded its range this century in both Australia and New Zealand, matching the expansion of farmland. Driveway bridges over irrigation ditches on the Heretaunga plains make ideal nesting habitat. These sites are protected from ground predators and over 90% of chicks hatched survive to fledging. Each bridge tends to have 1 pair nesting at a time, raising up to 3 broods in a season, with 2-5 chicks in each brood. Swallows are superficially similar to swifts. Swifts and oceanic seabirds are both adapted to grow in a highly variable food supply. Similarities include very slow growth and high amounts of fat in chicks. The food supply of the swallow is more moderately variable. However, swallows still grow more slowly than other birds of their size. Experiments on some seabirds show that when they are deprived of food, they slow the growth of their wings to help maintain weight. By contrast, when I did similar experiments on the welcome swallow, chicks deprived of food maintained the growth of their wings at a normal rate (whilst losing body fat). This may be an adaptation to a moderately variable food supply that helps swallows to avoid "fault bars" in their feathers and to maintain "symmetry" thus making them more attractive to mates.

The effects of a La Niña summer on the breeding success of Australasian gannets (*Sula serrator*) at Cape Kidnappers

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A significant La Niña pattern developed during the summer of 1999/2000, and we studied the effects of this condition on the breeding biology of Australasian gannets (*Sula serrator*) at Cape Kidnappers. The Australasian gannet population has been increasing in New Zealand since the start of the century, with the first accurate census estimating around 21000 breeding pairs in 1946/47. The population had increased to an estimated 46000 breeding pairs in 1980/81, an increase of around 2.3% yr^{-1}. This trend appears to have continued. However, what effect will the recent increase in the frequency and severity of El Niño and La Niña events have on this species? During the summer of 1999/2000 we collected a range of breeding data from the Cape Kidnappers colony to try and document the effects of this event on this species. Preliminary data collected on breeding success will be presented.

OSNZ Auckland Tiritiri Matangi bird population study : 14-year review

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The bird population on Tiritiri Matangi Island has been surveyed every spring and autumn since 1986 by members of the Ornithological Society of New Zealand. The prime purpose of the survey work was to monitor the development of the bird populations in an environment subject to a major restoration exercise involving the extensive planting of native trees.

The survey continued as other significant environmental changes occurred on the island. These included the successful eradication of kiore (*Rattus exulans*) - the Pacific rat - in September 1993, and the introduction of several native bird species between 1989 and 1998. The Tiritiri Matangi project has produced one of the most successful bird recovery programmes anywhere. Continuing as it has for 14 years, the OSNZ survey provides valuable data on the bird population density in these unusual and unique environmental circumstances.

The Chatham albatross (*Thalassarche eremita*): at home and abroad

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The Chatham albatross (*Thalassarche eremita*) is one of the least known of the world's albatross taxa. Breeding solely at The Pyramid, a small and precipitous rock in the Chatham Islands, there are few published records of its biology and distribution. From 1974-1999 there have been sporadic short visits with overnight stays totalling 86 observation days. Three cohorts of chicks were banded from 1993-1995. First returns were at 4 years and no breeding had occurred by 6 years. Three breeding productivity estimates and 1 complete nest count have been made between 1995-1999. The potential breeding population is now estimated to be 5300 pairs. Satellite tracking of 13 birds, band returns, fisheries by-catch and observations at sea have provided the first definitive picture of distribution at sea in the South Pacific. Breeding records suggest laying in August-September, incubation of 66-72 days, hatching October-December and probable chick fledging February-April. Mean annual productivity of chicks ranges from 50-65% with parts of the island as low as 34% due to seasonally adverse weather or degraded nesting habitat. Localised foraging is indicated within 300 km over the shelf edge, and slope from 1000-4500 m during the breeding season. Following breeding, birds migrate to Chile and Peru, returning via a more northerly route in July-August. As an endangered species they remain vulnerable to habitat change at The Pyramid, sporadic harvesting of chicks by Chatham Islanders and various types of fisheries by-catch in New Zealand, Chile and Peru.

The Rare Birds Committee: its functions and importance

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I was appointed Convenor of the Rare Birds Committee from 1 January 1999, with the following six additional members appointed for a term of three years from 1 July 1999: Brian Bell, Brian Gill, Mike Imber, Paul Sagar, Peter Schweigman, and Graeme Taylor.

The last published account of sightings accepted by the committee was that for 1991 which appeared in *Notornis 39 (1992)*: 319-321. In the December 1999 issue of *OSNZ News*, I mentioned that pertinent details relating to reports dealt with by the Committee for the period 1992-1998 inclusive have never been published, this has since been rectified with their publication in *Notornis 47 (2000)*: 64-70. This talk will highlight the importance of the Rare Birds Committee as a means of verifying and recording rare or unusual birds in New Zealand.

The Ornithological Society of New Zealand's Website: the launch into cyberspace

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During discussion at last years combined Regional Representative and Council meetings, the Society's presence (or lack of it) on the World Wide Web was discussed. It was decided that the Society should establish a Website over the next year, and I was given this task. This last year has seen the establishment and registration of 2 internet addresses, and the creation of a Society Website, which was launched on 1 June 2000. A presentation and overview of the site will be given.

The address for this Website is
http://osnz.org.nz

Another site will be set up at
http://bird.org.nz

This first site is the 'Home' of the Society, the second will contain more informal information regarding birds and bird watching in New Zealand. Both sights will eventually contain an exhaustive 'Links' page, which will link with other bird-oriented sights around the world. Input from members is welcomed and encouraged and should be directed to the above email address.

The rainbow lorikeet (*Trichoglossus haematodus*) problem in New Zealand

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Rainbow lorikeets (*Trichoglossus haematodus*) are widely distributed in Australasia. They are brightly colored and strongly gregarious parrots that feed primarily on nectar and pollen. They also consume a number of cultivated crops. Like most parrots they nest in hollow trees. They are prolific with pairs known to rear up to three successive broods in a single season.

A feral population of rainbow lorikeets has been established after a North Shore resident illegally (not authorized under the New Zealand Wildlife Act 1953) and deliberately released significant numbers of captive birds. The birds have been supported with feeding and additional infusions from captive stock. Birds have now been recorded in flocks around the wider Auckland area and appear to have bred in the wild. The feral population is currently estimated to be 150-200 birds.

Australian evidence supported by our observations and reports from members of the public is that these birds are aggressive to and often dominate all other birds trying to use the same food source. Rainbow lorikeets have the potential to impact negatively on endemic species through competition for food (with tui (*Prosthemadera novaeseelandiae*), bellbird (*Anthornis melanura*) and hihi (*Notiomystis cincta*)) and nesting sites (kakariki (*Cyanoramphus* sp.), kaka (*Nestor meridionalis*), hihi and New Zealand endemic mammals short- and long-tailed

bats (*Mystacina tuberculata* and *Chalinolobus tuberculatus*)). Rainbow lorikeets are strong flyers (Higgins 1999) and dispersal over water to sensitive offshore island habitats (3.5-24 km from the mainland) does not appear to be a barrier. Many of the species at threat from competition with Rainbow lorikeets have limited dispersal abilities and find water a significant barrier to movement.

Recent reports from South Australia suggest that rainbow lorikeets are quickly developing as the principal pest of commercial orchards (Lamont 2000). Local residents on the North Shore already report damage to their fruit trees from the birds. Should they be left to establish a population in the wild they would have an economic impact on NZ horticulture industry.

Rainbow lorikeets in the wild have been declared an "Unwanted Organism" under the Biosecurity Act 1993. The Department of Conservation has now initiated a live capture eradication program aimed at removing all of the lorikeets from the wild.

Round the world with the northern royal albatross (*Diomedea sanfordi*)

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Northern royal albatross (*Diomedea sanfordi*) have been tracked from Taiaroa Head and the Chatham Islands in New Zealand during parts of their biennial breeding cycle using satellite PTTs and a prototype data logger. Records analysed total 2620 days (6000 records) and 500 days (75000 records of time, temperature and light) respectively. A PTT attached by harness was successfully deployed and transmitted for 564 days using intermittent transmissions to conserve battery life. Distinctive patterns of behaviour away from the nesting colonies will be demonstrated; short distance foraging over shelf and shelf break while nesting; express dispersal to non-breeding 'holiday' locations in South American waters; 'rest and recreation' over shelf and shelf break; express migratory return to the breeding location. When not at the nest site, birds are only in flight from 25-50% of the time depending on the behaviour pattern selected. In spite of this, while on migration, point to point progression at the rate of 10 degrees longitude day^{-1} are common, indicating regular mean flight speeds of over 90 kmh^{-1}. When on migration most flying is in the daytime, but is more often at night while on 'rest and recreation'. The full migratory route demonstrated by transmitters and logger is circumpolar and downwind. The northern royal albatross spends the majority of its feeding life in the EEZs of New Zealand, Chile, Argentina, Uruguay, and migratory transition through South African and Australian waters.

Corrigendum

Rare Birds Committee – Combined Report for 1992-1999 *Notornis 47(1)*: 64-70.
In record 94/10, the name for the Oriental dotterel should be *Charadrius veredus* and not *Charadrius orientalis.*

Poster papers – Northern royal albatross (*Diomedea sanfordi*) behaviour deduced from prototype loggers

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Prototype geolocation data loggers were designed by Embedded Pty Ltd and fabricated by Sirtrack Ltd. They recorded time, light, and temperature at 23-s intervals into flash memory which is potentially retained for 10 years. Different loggers from the British Antarctic Survey recorded time and light only. Loggers were deployed at fixed points ashore and on the leg of northern royal albatrosses (*Diomedea sanfordi*) at the Taiaroa Head colony in New Zealand. Data were recovered from 4 loggers giving continuous monitoring and over 10000 records. Examples illustrate recordings from a fixed point in the albatross breeding colony and from albatrosses while incubating ashore and flying or resting at sea. Two loggers recorded activity from 4.7 to 9.5 months at sea including a round-the-world migration. Daily patterns at a fixed point ashore are contrasted with those from a bird. Easily discerned was the shift of local midday due to longitudinal movement by the bird. Likewise the combinations of light and temperature for different behaviours (e.g., incubating with local flights; trans-oceanic flights; 'rest and recreation' activity). Differences suggested alternate positions of the legs during flight for two individuals. The periods around full moon are illustrated. The proportion of time spent flying and not-flying for different behaviours illustrate the consequences of not-flying on the point-to-point daily speeds obtained from both satellite tracking and geolocation loggers.

What's happening to our black-fronted terns (*Sterna albostriata*)?

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Black-fronted terns (*Sterna albostriata*) are a threatened species endemic to New Zealand. Population size may be as low as 5000 birds and data from surveys through time suggest the population is in decline. Studying their breeding ecology can help us understand limiting factors and assess the potential for management. In this study I examine black-fronted tern productivity based on results from population monitoring in the Ohau River, Mackenzie Basin in 1998 and 1999.

I monitored egg survival at eleven colonies and colony hatching success varied from 0-71%. On average, predators were directly responsible for 20% of egg loss but more than 20% of eggs were deserted in response to predation events within the colony. Chick survival from hatching to fledging varied from 0-50% at each colony. A further 27% of birds died in the two weeks following fledging. Predation was the main cause of mortality for chicks and juveniles.

Based on the above rates of survival, the average productivity of black-fronted terns in the Ohau River is 0.25 young/pair/year. This may be enough to sustain the population at current levels but productivity could be increased by decreasing predation. For example, the largest colony in 1999 experienced only 1% egg predation and as a result the productivity for that colony was 0.55 young·pair^{-1} year^{-1}. Protecting key colonies from predators may increase the productivity enough to mitigate potentially declining populations.