

## **Re-examination of the epic transoceanic migration of the long-tailed cuckoo *Eudynamys taitensis* (Aves: Cuculidae)**

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Long-tailed cuckoos (*Eudynamys taitensis*; 125 g) breed only in New Zealand, parasitising three species of *Mohoua* (Pachycephalidae). After performing perhaps the most remarkable overwater migration of any land bird, they winter in a vast arc of Pacific islands extending 10,000 km from Palau (134.5°E) to Henderson Island (Pitcairn group; 128.3°W). Such an epic migration by so small a bird was originally doubted. After systematic collecting of birds on south Pacific islands by the Whitney South Sea Expedition (1920-32), a 1937 paper by Bogert established the bare details of the migration. This study aims to reassemble data on the long-tailed cuckoo's migration, using specimens and literature records. The sexes are alike, but immatures (spotted back, rufous underparts) are readily distinguishable from adults (barred back, white underparts), allowing new analysis of migration patterns in relation to age. Preliminary results show that many birds in the wintering grounds have intermediate plumage (are presumably moulting from immatures to adults). A juvenile plumage, not previously noted, has also been identified. At the start of the breeding season (October-December) practically all birds in New Zealand are adults, and immatures in museum collections are overwhelmingly restricted to late summer and autumn. This establishes that all immatures in New Zealand are young-of-the-year. One of the three hosts (yellowhead *M. ochrocephala*) is now critically endangered. This must mean that the populations of cuckoos adapted to parasitising yellowheads are endangered or extinct now, in proportion to the decline of their host. Certain Pacific islands to which the yellowhead-cuckoos migrated may now lack cuckoos.

## **Breeding latitude drives individual migration schedules in New Zealand bar-tailed godwits**

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Some migratory birds 'winter' vast distances from where they nest, yet are under strong selection pressure to arrive on the breeding grounds at the time that best assures reproductive success. The timing of migration is often assumed to be condition-dependent, varying with an individual's non-breeding habitat or innate quality. However, a third potential source of variation is the breeding site itself: if breeding destinations differ in the optimal time of arrival, birds may have individually-optimised migration schedules to exploit this variation. Using light-sensitive geolocators, we show that timing of migration for individual bar-tailed godwits from the Manawatu River estuary was strongly correlated with their specific breeding latitudes in Alaska, USA, a 16000–18000 km journey away. Furthermore, this variation carried over even to the southbound return migration, six months later, with birds returning to New Zealand in approximately the same order in which they departed. These tightly scheduled movements on a global scale suggest genetically-controlled routines

containing little variation based on individual quality, with breeding site as the primary driver of temporal variation throughout the annual cycle.

## **Speciation in pelagic seabirds: the power of place**

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Species limits are notoriously difficult to discern in pelagic seabirds such as albatrosses, shearwaters, and gadfly petrels. Morphology (including plumage patterns), morphometrics, and genetic analyses can produce conflicting patterns of similarity. The confusion results in persistent difficulties in nomenclature and in understanding evolutionary patterns and processes. In turn, nomenclatural problems can lead to inconsistent assessment of conservation risks and management efforts. Present information does, however, provide the basis for a model of speciation in pelagic taxa that may resolve some current difficulties.

## **Seabirds in the 2010 New Zealand bird checklist**

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The 2010 fourth edition of the OSNZ Checklist includes detailed information on the taxonomy and distribution of all NZ's recent and extinct birds. Of the 491 recent taxa, 162 (or 33%) are seabirds. Nearly half the world's seabird species breed in the NZ region or are vagrants to our waters. NZ is the centre of diversity for the world's penguins, albatrosses, petrels and shags and the taxonomy presented in NZ checklists on these groups has often been adopted worldwide. Dramatic changes continue to occur in seabird taxonomy, with only 62% (90 taxa) having the genus and species unchanged since the 1990 (third edition) of the OSNZ Checklist. Hundreds of new studies have clarified taxonomic relationships and the changes adopted in the new checklist are needed to keep in step with the rest of the world. Also the phylogenetic species concept has been increasingly adopted, resulting in the elevation of 11 NZ seabird subspecies to full species. Major generic changes have been adopted for albatrosses and terns. A 10% increase in the number of seabird taxa since the 1990 edition is mainly due to the 11 new taxa recorded in the region for the first time: – Laysan albatross (*Phoebastria immutabilis*), Tasmanian albatross (*Thalassarche c. cauta*), sooty albatross (*Phoebetria fusca*), bulwer's petrel (*Bulweria bulwerii*), streaked shearwater (*Calonectris leucomelas*), great shearwater (*Puffinus gravis*), Newell's shearwater (*Puffinus newelli*), Wilson's storm petrel (*Oceanites o. oceanicus*), •-cape gannet (*Morus capensis*), Franklin's gull (*Larus pipixcan*) and grey-back tern (*Onychoprion lunatus*). Other important additions to the fauna are taxa unrecognised in the 1990 checklist that have a long history in the region: Antipodean albatross (*Diomedea a. antipodensis*), Gibson's albatross (*Diomedea a. gibsoni*), lesser fulmar prion (*Pachyptila crassirostris flemingi*), New Zealand storm petrel (*Pealeornis maoriana*), southern diving petrel (*Pelecanoides urinatrix chathamensis*) and little pied cormorant (*Phalacrocorax m. melanoleucos*). In line with international directions, several new common names are recommended: "little" rather than "blue" penguin (*Eudyptula minor*), "albatrosses" rather than "mollymawks" (*Thalassarche*

species), cape "petrels" rather than "pigeons" (*Daption c. capense* and *D. c. australe*), "great" rather than "greater" frigatebird (*Fregata minor palmerstoni*), "subantarctic" rather than "brown" skua (*Catharacta antarctica lonnbergi*), "black" rather than "white-capped" noddy (*Anous m. minutus*) and grey "noddy" rather than "ternlet" (*Procelsterna cerulea albivitta*).

## **First recorded breeding by white-winged black terns in New Zealand**

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The white-winged black tern *Chlidonias leucopterus* is a Palearctic breeding species that migrates to New Zealand in low numbers. The only documented breeding record for the southern hemisphere was at the Opihi River mouth, South Canterbury in 1973-74. When describing this event, Ray Pierce made reference to an earlier Canterbury breeding record reported by Edgar Stead. This record can be traced back to Stead's chapter in the original (1927) *Natural history of Canterbury*, where he wrote "[this species] is now an almost regular visitor to Canterbury in the summer, and I know of at least one case when they nested here". Edgar Stead's diaries were missing for 57 years after his death before being located in 2006. The entire available text of his 1916-47 diaries has been transcribed as part of a project to publish these along with a biography of Stead. Records of white-winged black terns therein are summarised, and the evidence for Stead's claim that they bred in Canterbury is presented.

## **Gannets at Farewell Spit**

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Australasian gannets (*Morus serrator*) are breeding at Farewell Spit since 1983/84 (Hawkins, 1988). The origin of the colonising population is unclear. Since 1983/84 the number of gannets at Farewell Spit has increased from 75 to more than 3000 breeding pairs in 2008. The gannet colony is atypical because:

1. The gannets are breeding at sealevel unlike most other gannet colonies which are on high, stable rock formations, well above sea level.
2. Farewell Spit is a highly dynamic region where wind and sea action are constantly modifying the shape of the shell banks on which the gannets breed.

In 1994/95 OSNZ and Landcare Research started a study to investigate how breeding in such an unstable environment affects the population dynamics of the Farewell Spit gannet colony. The number of breeding pairs and their productivity has been measured each year. Between 1994 and 2003, 711 adults and 993 chicks were banded to measure survival, recruitment and natal philopatry. Between 1995 and 2010, 129 observing days recorded a total of 2760 resightings of 307 chicks (31% of all banded) and 511 adults (72% of all banded). Productivity (measured as recruitment in the colony) is 0.31 chicks per breeding pair. Juveniles fly to Australia and 60 days after banding, dead juveniles have an initial arrival area of 1,000 km centred on Fingal Bay South East Australia. After this initial arrival period they

disperse further north as far as Frazer Island (Queensland) and as far south and west as Perth (Western Australia). No birds older than 3 years have been reported from Australia. Subadults are arriving as early as 701 days after banding and first territories are established as early as 1036 days after banding. First eggs have been recorded 1376 days after banding and chicks were recorded 1407 days after banding. Almost every year since 1994, some or all of the six subcolonies have been washed over or had their sides eroded away during very high tide or a major storm. Survival rate of adults is 0.93 and 0.91 for the new recruitment in the colony. This is slightly lower compared to the Atlantic Gannet survival rate of 0.95.

## **Tata Islands Spotted Shags - one year's observations 2009-2010**

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There is a breeding colony of Spotted Shags (*Stictocarbo punctatus*) on Tata Islands, Golden Bay. Volunteers observed numbers and behaviour at dawn on Tata Beach 4-weekly for one year from Feb 2009. Stone swallowing, vigorous wing beating and regurgitation occur. Average bird numbers ranged between 44 and 3004, highest in winter. Regurgitated stone piles averaged 44% of bird numbers. Behaviour of 221 individual birds was recorded. The study continues.

## **When Fishermen and Seabirds Meet**

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The talk illustrates the main issues relating to commercial fishing interaction with seabirds in the New Zealand Economic Zone. It covers the extent of the problem as it relates to different fishing methods (both Trawl and Longline) and continuing efforts taken to mitigate seabird mortalities. How incidental catches are recorded and the statutory requirements to do so. The work of "Southern Seabird Solutions" both in New Zealand and overseas is explained.

## **Reintroducing New Zealand falcons into vineyards reduces bird-damage to wine grapes**

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Although it is well documented that conserving natural enemies of insect pests may provide direct biological control benefits, comparatively little research has examined the benefits of protecting natural enemies of vertebrate pests. In vineyards, pest birds directly reduce yield by feeding on grapes, and reduce wine quality through increased fungal infection on pecked bunches. We investigated the efficacy of a conservation project that reintroduced the

threatened New Zealand falcon, *Falco novaeseelandiae*, into vineyards with the potential benefit of reduced pest bird damage. We estimated bird abundance and quantified grape damage in vineyards containing resident falcons and vineyards without falcons. We also collected information on the growing conditions in each vineyard in order to identify other factors that contribute to grape damage. We found that falcon presence significantly reduced the incidence of overall grape damage, of removal damage, and of pecking damage. These results were supported by findings that falcons decreased the number of grape-removing introduced European pest species, but did not affect the number of native silvereyes, *Zosterops lateralis*. Our results indicate that reintroducing native birds of prey into vineyards can reduce grape damage, through directly reducing pest bird abundance and potentially through altering pest bird foraging behaviour, resulting in considerable savings for the vineyards.

## **The electrocution of falcons in Marlborough and implications for birdlife elsewhere**

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Falcon chicks have been introduced into Marlborough vineyards where all have fledged and many continue to live independently in this new habitat. The use of radio transmitters on some of these birds has allowed immediate follow-up and determination of most deaths. During a five year period, ten out of 21 deaths were caused by electrocution from uninsulated wires on power poles where they perch. These power poles provide a very attractive perch in vineyards where there are few natural alternatives remaining. Electrocution is a well understood threat for birdlife overseas and power reticulation is often managed to mitigate this threat. This is the first description of the problem in New Zealand and the significance of it beyond this project is not known.

## **Re-establishing tui back onto main Chatham**

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Over the past two years the Chatham Islands Taiko Trust has been working to re-establish tui back onto Main Chatham. Chatham Island tui became extinct on the Main Island in the 1970's due to the combined effects of habitat loss and introduced mammalian predators. However their final disappearance is probably the results of the expansion of possums across the island which out-competed tui for winter food sources. In the first ever transfer for this species 14 juvenile tui were moved from South East Island/ Rangatira to the Awatotara Conservation Covenant in March 2009. All birds survived capture and transport, and after a week in a holding aviary they were released. The birds remained around the release site

visiting sugar water feeders and all survived the winter. In Spring some birds dispersed for breeding which started earlier than previously recorded for this species, each pair raised between 2-4 broods, and young tui were recorded moving about the entire island. In February 2010 a further 40 birds were shifted to increase the size of the founder population and provide the birds with the best chance of re-establishing. The response of the Chatham's Island community to this project has been overwhelming and is a major evolution in community led conservation initiatives in the Chatham's.

## **How to Catch a Rifleman**

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The rifleman *Acanthisitta chloris* is one of two extant members of the endemic family Acanthisittidae. Despite their apparent abundance, relatively few studies have been conducted on riflemen. Forest fragmentation, along with other pressures, has resulted in the disappearance of this species from many areas where they historically occurred but have been unable to repopulate without intervention. Although locally common, the rifleman has a conservation status of "At Risk / Declining". In February 2009, 31 riflemen were translocated within the Hauraki Gulf from Little Barrier Island to Tiritiri Matangi Island. 19 individuals were known have survived to the beginning of the 2009 breeding season and a minimum of 8 pairs produced fledglings. A further 14 birds were translocated in February 2010.

## **Identification of predators at black-fronted tern nests on the Wairau River: a video and predator DNA study**

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Digital video recorders were used during two black-fronted tern breeding seasons, in 2008 and 2009, to quantify the causes of mortality at black-fronted tern (*Sterna albobriata*) nests on the Wairau riverbed, a braided river in Marlborough, New Zealand. DNA analysis of tern nest remains was also carried out to determine whether such work, when compared with filmed predations, can be reliably used to identify predators. All 19 filmed nest predations were of black-fronted tern eggs. The predators were nine Australasian harriers (*Circus approximans*), three black-backed gulls (*Larus dominicanus*), two hedgehogs (*Erinaceus europaeus*), two ship rats (*Rattus rattus*), two south island pied oystercatchers (*Haematopus ostralegus finschi*) and one stoat (*Mustela erminea*). DNA sampling identified harriers at four of the filmed harrier predations. DNA analysis never indicated a predator contrary to the filmed evidence. Harrier DNA dominated the tern eggshell remains but because DNA cannot be analysed from the large portion of empty nests, caution is advised when using this method

to identify the entire suite of predators. It is evident that a wide range of predators are involved in the demise of black-fronted tern eggs on the Wairau riverbed.

## **More than just water - some ECan bird related projects: a brief survey**

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Environment Canterbury Regional Council is involved in several bird-related monitoring projects. The first project is a bird survey of approximately 100km of the Waiou River from above Hanmer to the river mouth in 2008. The survey revealed a previously unknown breeding population of wrybill (11 individuals, 3 nests located), internationally significant populations of black-fronted tern and black-billed gull (520 & 2035 individuals respectively), and a regionally significant population of banded dotterel (451 individuals). The survey was repeated in 2009 with similar results. The second is a management programme for black-billed gulls (a threatened endemic species) in the Waimakariri Regional Park. During this past breeding season nesting colonies were searched for using fixed-wing aircraft. Once located, mammalian predator control was implemented for the colony of about 1000 individuals. We estimated, using a photographic method developed by Rachel McClellan, a minimum breeding success rate of .88 chicks/pair (which is equal to the highest success rates in a study from 2004–6 of over 5000 nests in 21 colonies in Southland). Another colony of about 570 black-billed gulls, located later ca.10km upstream which had no pest control and higher numbers of southern black-backed gulls in the area, had an estimated breeding success rate of .27 chicks/pair. The third is a recently initiated monitoring programme for native bush birds on Banks Peninsula to determine if biodiversity pest control programmes for feral goats and possum are having positive effects on native bird species populations. Currently in its second year, it is too early to determine bird population trends. However, concurrent monitoring using the Waxtag method for possums showed a high bite mark index >55% (= 19% residual trap catch index) for 13 of 16 lines. Ship rat monitoring in the three areas with recent possum control (i.e. last 1-3 years) had mean tracking rates per line ranging from 23 to 28% (SE 13-17%) (n=12 lines, 4 lines/area), compared to the area with no recent possum control which had average tracking rates of 7% (SE 6%) (n=3 lines).

## **The dialects of the North Island Kokako**

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Song divergence and dialect formation are intriguing issues in the science of birdsong, evolution, ecology and more recently in conservation biology. Only some birds can learn songs and have vocal cultural traditions (e.g. oscine passerines, parrots, hummingbirds). Patterns of song variation result during the process of learning and cultural transmission. Geographic variation can result in the formation of “dialects”, cultural traditions that can provide insight into the processes of song learning, cultural differentiation and speciation. Song traits are selected and vary based on their role in species recognition, mate choice and

individuality. However, life history and ecological factors such as fragmentation and population depletion can also affect cultural transmission. The North Island kokako is confined to a few isolated areas where original populations survive and have been re-established. I study song variation across its range in order to investigate (1) sexual song differences, (2) variation of song traits in structure and complexity across populations, and (3) temporal stability of song patterns. I have analysed vocalizations from six surviving populations, one “supplemented” population, and two re-established populations. I have detected acoustic differences between males and females. Analyses across populations have shown vocal differences in song structure, complexity and configuration between populations. Song diversity and repertoire size variation between populations might be influenced by population size as it may determine exposure to social interaction and song variety. Patterns of song spatial variation in kokako (e.g. dialects) provide insight into the process of cultural differentiation. This study also provides preliminary evidence on the potential utility of song as a tool to monitor kokako populations.

## **Dual-dialect song playback and its affect on post-release dispersal following translocation of North Island Kokako (*Callaeas cinerea wilsoni*)**

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Vocal variation between geographically or behaviourally isolated populations (“dialects”) may function as an isolating mechanism upon secondary contact. Studies in wide range of territorial birds have shown stronger responses to playback of local dialects than foreign dialects, although this has not been widely tested in duetting birds or in non-territorial contexts. We examined post-release dispersal following the translocation of North Island Kokako (*Callaeas cinerea wilsoni*) from two adjoining dialect groups using radio telemetry. At the release location we broadcast duet song of both dialects from six speakers for a period of seven days after four separate releases involving 19 birds. Our results show that although dispersal distances significantly increased with time, birds remained closer to the release location than predicted by a random walk model. Although the birds remained closer to speakers broadcasting their own song dialect significantly more often than speakers broadcasting the foreign dialect, suggesting an attraction effect, no pattern was found in actual distance to each of the speaker types. These findings suggest support for the ‘recognition’ hypothesis for differential responses to local and foreign dialects in kokako. This study reveals clues as to the possible function of song dialects in kokako, as well as the efficacy of acoustic techniques in preventing excess dispersal following translocation of endangered species.

## **Garden Bird Survey 2009**

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The third nationwide garden bird survey took place between 27 June and 5 July 2009. Participants spent one hour watching birds in their home gardens, public parks, or local school grounds and recorded the highest number of each species seen or heard at once. A total of 1,924 valid survey forms were returned, slightly fewer than in previous years. The house sparrow was the most abundant species, silvereye 2<sup>nd</sup>, starling 3<sup>rd</sup>, and blackbird 4<sup>th</sup>, as in 2008. Of native species in the top 20, tui was 5<sup>th</sup> (an increase from last year), fantail 7<sup>th</sup>, bellbird 16<sup>th</sup>, kereru 18<sup>th</sup>, and grey warbler 19<sup>th</sup>. House sparrow numbers increased and silvereye numbers decreased for the second year in a row. This was unexpected. The decrease in silvereye numbers may have been caused by an outbreak of avian pox. As in previous years, house sparrows were more abundant in the north and silvereyes more abundant in the south; birds were more common in gardens where they were fed than where they were not fed; and a higher proportion of participants fed birds in the south than in the north of the country. This year's survey is between 26 June and 4 July.

## **With determination and consequence: the mallard into New Zealand**

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This piece of historical whimsy traces the origins of mallard into New Zealand and highlights the role and influence of a belligerent and determined Aucklander, Cecil Whitney. The extent of Acclimatisation Society breeding and release schemes are summarised, the gathering ascendancy of mallard over grey duck illustrated by reference to species composition of hunters' bags, and the present contribution of one mallard importation traced using DNA.