NOTES ON THE BIRDS OF GREAT ISLAND, THREE KINGS ISLANDS

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Birds of the Three Kings Islands have been discussed by Turbott and Buddle (1948) and Turbott (1951). Major changes have occurred in the vegetation of Great Island, following the extermination of 393 goats in 1946, and it appears that there have been some changes in the bird fauna during this period, probably largely as a result of vegetation and soil changes. The following observations were made during the D.S.I.R. Entomology Division Expedition on Great Island (6-30 November 1970).

The vegetation of Great Island as it was in 1946 when goats were destroyed has been described by Baylis (1948), and the effect of goats on the vegetation (and incidentally on other animal life) was discussed by Turbott (1948). Incipient forest regeneration observed in 1951 was described by Baylis (1951). The trends noted then have continued, i.e. tree and shrub species palatable to goats are spreading, while previously open areas have been colonised, chiefly by kanuka *(Leptospermum ericoides)* and to a lesser extent by manuka *(Leptospermum scoparium)*. Kanuka remains the only canopy tree over most of the island, but in some places other species, especially puka *(Meryta sinclairii)*, mangaeo *(Litsea calicaris)*, *Brachyglottis arborescens* and *Cordyline kaspar* are now reaching, and in a few places forming, the canopy. Most of the mature trees of pohutukawa *(Metrosideros excelsa)*, mangaeo, puriri *(Vitex lucens)* and other broad-leafed species which survived the goat era, remain. There is usually a dense understory, especially of *Coprosma rhamnoides*, but frequently including also *C. macrocarpa*, hangehange *(Geniostoma ligustrifolium)* and mahoe *(Melicytus ramiflora)*, with some other species locally. Little open grassland remains, but in some places a dense growth of grasses and sedges still occurs under the kanuka canopy.

The Three Kings Bellbird *Anthornis melanura obscura* is the only bird population on the Three Kings which is sufficiently distinct from its mainland relatives to receive formal nomenclatural recognition as a subspecies. This contrasts with plants, of which there are several endemic species, and particularly with flightless and weakly flying terrestrial invertebrates, in which endemism at the specific level seems to be the rule rather than the exception. For the less dispersible biota, the Three Kings have apparently been isolated long and effectively.

Red-billed Gulls *Larus novaehollandiae scopulinus* are abundant, and have numerous colonies around the coast amongst *Disphyma australe*, *Cyperus ustulatus* and other maritime plants. Nests with eggs (usually two), and at the end of our visit, young chicks, were noted. At least two birds were seen with a peculiar slender, ventral movable red outgrowth from the base of the lower mandible. This appeared to be part of the bill, and seemed not to incapacitate the birds. Turbott (1951) has recorded the vital part played by gulls in carrying seeds of *Meryta* from the smaller islands to Great Island (where for many years it was extinct because of goats).

Petrel and shearwater burrows are very numerous on a number of seaward-facing slopes. The Fluttering Shearwater *Puffinus gavia* was by far the most abundant burrower seen (and heard!) ashore at night. Less frequent were Diving Petrels *Pelecanoides u. urinatrix*, and a few Grey-faced Petrels *Pterodroma macroptera* were seen. Well-grown chicks of the Diving Petrel and Grey-faced Petrel, and young chicks of the Fluttering Shearwater, were present.

At sea large flocks of Red-billed Gulls and Fluttering Shearwaters were seen working near the island, and Diving Petrels were present in smaller numbers, together with a few Grey-faced Petrels and Sooty Shearwaters *Puffinus griseus*. Terns, almost certainly the White-fronted Tern *Sterna striata* and Gannets *Sula serrator* were seen out to sea several times.

A shag, probably the Pied Shag *Phalacrocorax varius* was seen on the rocks at the landing beach and then fishing offshore in Northwest Bay, until it was mobbed and driven off by aggressive Red-billed Gulls which pursued it as far as the eye could see. Gulls were also observed mobbing a Gannet. This aggressive behaviour by Red-billed Gulls probably explains why they are the only seabirds nesting on the shores of Great Island.

Among land birds, Bellbirds and Red-crowned Parakeets *Cyanoramphus novaezelandiae* are abundant and generally distributed over Great Island. The glorious evening chorus of Bellbirds, gradually fading to isolated bell notes, added to the pleasure of our visit. Three fledgling Bellbirds were noted being fed by their parents near the Castaway Depot. Adults were seen feeding on insects, but not on nectar.

Parakeets were seen on several occasions feeding on berries of *Meryta*, and have no doubt been instrumental in spreading this plant on Great Island. The dense growth of puka beneath some old pohutukawas may be due to parakeets perching and voiding in such places. A nest of a parakeet was found, hollowed out in an almost horizontal rotten kanuka trunk in Tasman Valley, and contained six eggs.

Brown Quail *Synoicus ypsilophorus* were encountered frequently, especially in the clearing near the beacon, on the saddle, and in areas with a high kanuka canopy and undergrowth predominantly of grass. Fantails *Rhipidura fuliginosa placabilis* were moderately common, and were frequently observed feeding on small flying insects (probably Diptera).

A pair of Banded Rail *Rallus philippensis* were often seen near our camp in Castaway Valley, especially as they became tamer towards the end of our visit. Spotless Crake *Porzana tabuensis plumbea* were heard calling in this area, and one (Fig. 1) was caught at dusk in a mist net. This delightful small bird stood calmly on the arm of one of us for several minutes while it was photographed, and had to be encouraged to leave this perch for release, yet the species is very rarely seen due to its timidty in normal circumstances.

Moreporks *Ninox novaeseelandiae* were often heard and occasionally seen. Two nests were observed in Tasman Valley. One was situated in a vertical bank of the Tasman Stream, and comprised a large internal chamber with an upper and lower entrance

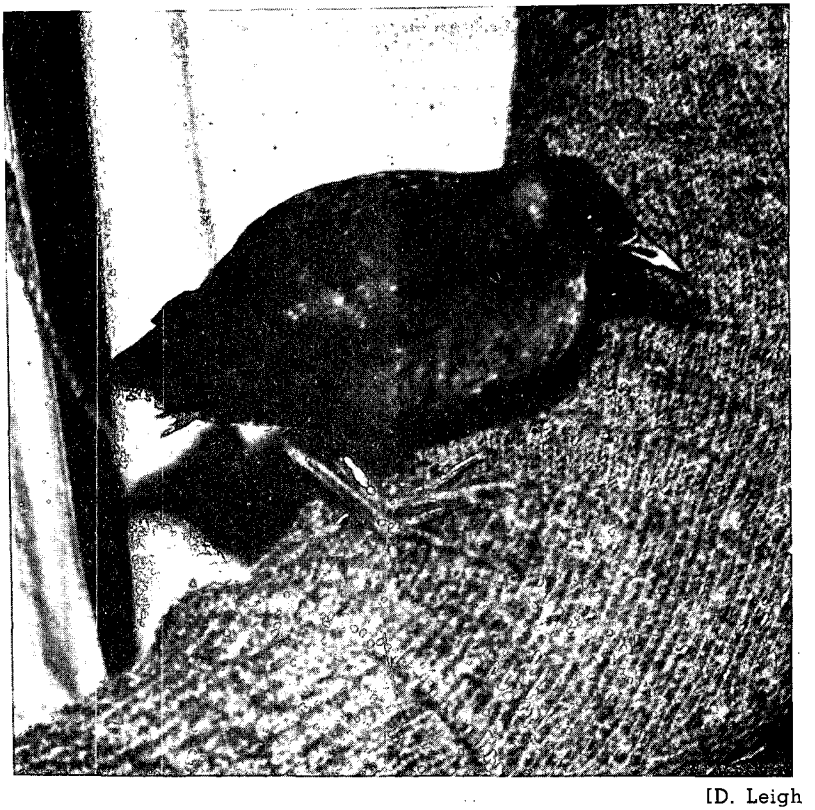

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FIGURE 1 — *Spotless Crake, Great Island, Three Kings Islands, Nov., 1970.*

opening indirectly to the exterior. This nest contained a single young chick, and the remains of three geckos *(Hoplodactylus pacificus)* and a large centipede (*Cormocephalus* sp.). The other nest was a straight burrow in soil beneath a large boulder, and contained two eggs. The first nest could well have been formed from the enlargement of two adjacent Kingfisher burrows (of which there were several unoccupied nearby).

At least two pairs of Harriers *Circus approximans* were present, and three were seen on the wing simultaneously near Bald Hill. Kingfishers *Halcyon sancta* were frequently heard and occasionally seen, especially in Tasman Valley. A Shining Cuckoo *Chalcites lucidus* was heard several times, and a larger bird which was probably a Long-tailed Cuckoo *Eudynamus taitensis* was seen once fleetingly on the saddle. Pipits *Anthus novaeseelandiae* were frequent in the open areas, which are, however, much less extensive now than they were in 1946.

The Blackbird *Turdus merula* appeared to be the most common adventitious bird, and was seen often on most parts of the island.

Starlings *Sturnus vulgaris* were often seen flying, especially about the cliffs, but no flocks were observed. A flock of at least 10 Indian Mynas *Acridotheres tristis* was seen once in the clearing around the beacon, and smaller numbers of this species were noted elsewhere on other occasions. The Myna has apparently arrived fairly recently on the Three Kings, as it has not been recorded in earlier reports. In view of the known migratory behaviour of this species, it is possible (although unlikely) that the birds observed were not breeding residents on the Three Kings.

The following birds were examined for ectoparasites: Diving Petrel (3), Fluttering Shearwater (4), Grey-faced Petrel (3), Parakeet (1), Spotless Crake (1), Morepork (1), Bellbird (7). Ectoparasites collected included lice, fleas, feather mites and mosquitoes.

Several sea-birds previously recorded from the vicinity of the Three Kings were not seen. The Allied Shearwater *Puffinus assimilis* and the Black-winged Petrel *Pterodroma nigripennis,* which have previously been recorded breeding on Great Island were not observed, probably because we did not visit their reported nesting sites at night.

The following land birds which were recorded by Turbott and Buddle (1948) were not seen or heard by the Entomology Division Expedition: Silvereye *Zosterops lateralis,* Chaffinch *Fringilla coelebs,* Redpoll *Carduelis cabaret,* Goldfinch *Carduelis carduelis,* House Sparrow *Passer domesticus,* Yellowhammer *Emberiza citrinella,* Song Thrush *Turdus philomelos,* and Hedge Sparrow *Prunella modularis.* None of these were observed in more than small numbers by earlier expeditions, and our observations of birds were incidental to other work, so it is possible that some are still present on Great Island but were not seen. However, it would be surprising if the substantial changes in vegetation, and especially reduction in open areas, since the goats were exterminated, had had no effect on the bird fauna. Thus it seems very likely that some of these adventitious land birds no longer occur on the Three Kings.

Great Island now has no mammals at all, and hence it is very important as a rat-free nature sanctuary. The vegetation changes seem to have had little adverse effect on the native birds (except perhaps the Pipit). There is almost certainly a more abundant food supply for forest birds now, i.e. a greater diversity of vegetation (and associated invertebrates) occurs over much of the island which was formerly clothed only in goat-resistant plants.

We wish to record our grateful thanks to the Ministry of Defence, and especially to Lt.-Commander Arnott and the officers and crew of H.M.N.Z.S. Kiama, who provided transport to and from the islands, and assisted with carrying heavy equipment up 300 ft. of steep, crumbling slopes.

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