for the members of the Ornithological Society Of New Zealand (Inc.) Please note that sightings recorded in this Newsletter are subject to confirmation.



OSNZ news Edited by PAUL SAGAR, 38A Yardley Street, Christchurch 4,

No.36 September, 1985

Note: Deadline for the December issue will be 12th November.

Feather Disease in Eastern Rosellas

Recently we had the oportunity to examine two male Eastern Rosellas which were captured at Warkworth because of their obvious poor feathering.

Both birds had no large tail feathers and no primary wing feathers. They had feathers developing at these sites and some of these appeared stunted and haemorrhagic. Both had trauma and haemorrhage at the tips of the wings.

Microscopic examination of affected feather follicles showed severe inflamation, haemorrhage, and degeneration and necrosis of epidermal cells. In addition, many epidermal cells showed signs suggestive of viral infection.

These preliminary investigations suggest that this disease is of viral origin and attempts are being made to grow virus from infected follicles.

We are aware of other cases occuring in the Manawatu and Wairarapa areas and would like to receive further information about other infected birds, and wish to examine more cases as they become available.

Please contact us if you have information, or wish to submit cases for examination.

PETER MCKENZIE, Nga Manu Trust, P.O. Box 126, Waikanae

A. F. JULIAN, Central Animal Health Laboratory, Wallaceville Animal Research Research Centre, Private Bag, Upper Hutt.

Banded Dotterels in Tasmania

For two weeks in April I journeyed around a large part of Tasmania in search of elusive colour-banded Banded Dotterels. Tasmania is thought to have over 1000 dotterels overwintering, mainly concentrated in areas near Hobart, along the wind-swept western beaches, on the northern coast, and around some of the larger offshore islands. In all I checked 633 Banded Dotterels but missed many areas because of lack of time. My one and only colour-banded bird was found on 23/4/85, at Long Point Bay, right beside the airport on Flinders Island. I had banded this bird on the Ashley River, North Canterbury, on 10/10/83.

Now for the tourist push for any dotterel hunters who want to visit Tasmania next year. Flinders Island is a magnificent place. Apart from the great scenery and estuaries, there is a 'mountain' based national park, Wedge-tailed and Sea Eagles, several different species of Falcon, Spur-winged and Masked Plovers, Hooded and Red-capped Dotterels, and lots of passerines. Wombats and wallabies abound, and the island is the site of the Wyballena historic aboriginal settlement. Cheap rental cars and good, inexpensive accommodation are available. Therefore for you keen dotterel hunters, why not fly to Melbourne and search the estuaries near there, fly on to Flinders Island, then catch another plane to Launceston and drive to Hobart via any of the famed dotterel haunts (please contact me for details).

I thank the National Parks and Wildlife Service (Tasmania) and members of the Bird Observers Association of Tasmania for all their help and advice.

KEN HUGHEY, Wildlife Service, Christchurch

Record numbers of Blackfronted Terns at Waikanae

In our records since 1969, the earliest Black-fronted Terns recorded at Waikanae Estuary were two on 20/3/82, followed by one to five (five dates) in the first half of April, two to 31 on seven days in the second half of April, and two to 70 in May. In **The New Guide to the Birds of New Zealand** the 'biggest flock recently recorded in the North Island was c. 320 on 18/5/68' (at Waikanae). In May 1985 this record was exceeded.

On 18 May 1985 MAF sighted a large flock of grey terns, more widely spaced than normal White-fronted Tern flocks, in the distance across Waikanae Estuary from the north side. On 19 May we walked north down the track from Manly Street through the Scientific Reserve to get north of the flocks for better lighting and approached three flocks in turn; counting 220, 375, and 36 birds (=631) without putting any of the flocks to flight (although movements were continuous and counts could not hope to be accurate). The terns were in just about every conceivable plumage state, young and adults, many of the latter approaching full breeding plumage. In addition to flights within and between the separate flocks and to bathe in the river, birds were arriving sporadically in groups down the beach from the north. These apparently had fed upwind into the light northerly. Although up to 1,500 Whitefronted Terns had been roosting at Waikanae since New Year, less than 50 were present, scattered among the Black-fronteds. On 1 June the number of Black-fronted Terns had declined to 53.

The most likely explanation for the abundance of Black-fronted Terns at Waikanae was that southerly storms (worst for a decade) on 14-16 May brought large numbers from the eastern South Island into western Cook Strait.

C. A. & M. A. FLEMING

Farewell Spit – June 1985

A group of 11 OSNZ members (Alvin Brett, David & Donna Butler, Jenny Hawkins, Colin Miskelly Peter & Alison Norman, Colin O'Donnell, Ralph & Mary Powlesland and Hugh Robertson) flocked from as far away as Christchurch and Wellington to carry out the winter census of waders at Farewell Spit, Golden Bay and Westhaven Inlet. On Saturday, 1/6/85 the estuaries around Golden Bay and Westhaven Inlet were surveyed in windy but fine weather — the highlights being a 20% increase in the numbers of SIPO to 4344. and a colour-banded Banded Dotterel from the Cass River, at Westhaven Inlet. Half the party stayed Saturday and Sunday nights at the Lighthouse while the others remained at Puponga Farm Park. The weather on Sunday and Monday of Queens Birthday weekend was ideal with fine weather and a light easterly pushing the relatively low 3.7m tides up against Bay Dunes. However, this

also prevented the party at the base of the Spit driving up to Stockyard Point on Sunday, the original count day, and so some of the Spit was not fully covered. On Monday the Base party left even earlier in the predawn and managed to meet up with the Lighthouse party at Mullet Creek at high tide, thus ensuring a full accurate count: 7,746 SIPO, 64 Variable Oystercatcher, 11 NZ Dotterel, 1,312 Banded Dotterel, 2 Wrybill, 6 Far-Eastern Curlew, 10 Whimbrel including 2 American and 5 Asiastic, 1,567 Bar-tailed Godwit, 1 Terek Sandpiper, 118 Turnstone, 350 Knot, 13 Red-necked Stint, and 42 Pied Stilt. Highlights were the record number of NZ Dotterels (previous high 7), none of which was banded and two still had traces of breeding plumage - are they breeding in the Tasman Mountains? The unusually high numbers of Arctic migrants, especially curlews, whimbrels and stints was another highlight.

As with any other trip to Farewell Spit a lot of walking in soft sand was done, none more so than by Ralph & Mary Powlesland who beach patrolled the entire length of the Spit, and Colin Miskelly who walked from the Base to the Lighthouse one day and back to Stockyard Point the next. Beach patrolling was more rewarding than usual on the Spit with 48 birds of 20 species being found on 41 km of beach patrolled on foot and from the back of a Landrover. Also on the beach were three dolphins and a delicious frostfish. Many thanks to all who took part, and especially to Ruth Bartlett, Lands & Survey botanist, who helped with transport and put up with our invasion at the Lighthouse.

JENNY HAWKINS & HUGH ROBERT-SON

Coromandel Peninsula records needed

Members visiting the Coromandel Peninsula may not know to whom they should send records of sightings. The whole area is part of the South Auckland region and, by mutual agreement with Bay of Plenty, we try to keep an eye on birds as far south as Waihi. All records sent to me are appreciated, for active members are a little thin on the ground on the Peninsula. Counts of waders are needed, especially at National Wader Count times (November and June). Not all the long coastline is covered at present, but we are gaining on it. So if you find yourself looking about there in the November or June periods of high tides, please write down what you see and send it to me. Incidentally, the upper parts of estuaries there are great places to observe Banded Rail and Fernbird. A Black Stilt seen at Opoutere, and possibly near Whangamata, needs checking to see if it is banded.

BETH BROWN

A Notornis Index

Since my last note about a *Notornis* index several amendments have been made so a revised notice is presented below.

For some time now I have been compiling a comprehensive index (from the annual indices) for *Notornis* volumes 1-30 inclusive.

The index is in two sections:-

(a) One sheet for each species (or subspecies), strictly named by common name as per New Zealand Checklist and Amendments e.g. do not request 'Godwit' if you want Eastern Bar-tailed Godwit. The scientific name is included on the sheet heading.

For most large groups there is an additional index of unspecified references e.g. if you order Wandering Albatrosses you will also get an index of 'Albatross unspecified'.

The indices in Section (a) list volume and page numbers only.

(b) A topic index, with one sheet per topic (unless numbered below in brackets).

Affinities/Taxonomy/Genetics (2)

Anting

Authors (19)

Banding — reports etc Beach Patrol reports/Seabird mortality

Bird Distribution Mapping Scheme

Census Methods

Classified Summarised Notes

Climate & other casualties

Field Study Courses Food & Feeding (4)

Fossils/Extinction

Helpers

High Altitude

Letters (3)

*Localities (6)

Measurements

Moas

Nest Records — reports etc

Obituaries Parasitism

Pellets

Predation/Aggression (2)

Reviews (9)

South-west Pacific (5)

Vocalisations

Waders, unspecified

Localities includes only those places where general lists/observations were made, not individual species i.e. 'Birds at Orewa Beach' qualifies but 'Turnstones in Mt Eden Quarry, does not.

These indices will be incomplete obviously, as much of the subject matter would have been recorded under species' accounts. The indices in Section (b) list *author* & *title*, as well as volume and page numbers.

ORDERING: To recover cost of duplicating (twice), paper, typing, etc., I shall have to charge 25c per sheet (A4).

Please forward money with order for

named sheets and a stamped, self-addressed foolscap (or larger) envelope. The total index at present is 385 pages.

PETER CHILD, 10 Royal Terrace, Alexandra

Pureora Kokako chick rediscovered

OSNZ members, especially those from Auckland and Waikato regions, will remember LK, the Kokako chick which hatched during the predator control trial at Pureora in 1983. It was banded by Wildlife Service staff on the day it fledged, 12 March 1983, and was rediscovered on 20 May 1985.

LK is now happily married (no children) and living at the non-village end of Perham's Avenue forest. The distance from nest to settled territory is about 4.4 km, and the movement is the first record of dispersal for a Kokako chick. However, this dispersal may not be 'normal' due to the remnant nature of the Pikiariki Ecological Area.

JOHN INNES

A second Manx Shearwater in New Zealand

In May I examined a dead bird that my mother, B. A. Tennyson, had found on Waikanae Beach in late January 1985. It closely resembled a Fluttering/Hutton's Shearwater but the measurements and the colour of the underwing coverts, undertail coverts and axillaries strongly suggested that the bird was a Manx Shearwater.

The identification was confirmed when I took the bird into the National Museum. Plumage characteristics were consistent with those of the study skins available for comparison. Lice collected by Ricardo Palma also supported the identification.

The main breeding areas for the nominate race of the Manx Shearwater are in the Northern Atlantic and although this is only the second reported record of a Manx Shearwater from New Zealand, and the third from Australasia, it is likely that others do reach New Zealand. The most important features to check in beach wrecked specimens, to separate Manx from Fluttering and Hutton's Shearwater, are; the longer wing and tail measurements, the extensively black tipped white axillaries, and the almost completely white underwing coverts coupled with the laterally black-barred exposed undertail coverts. Because of the state of most beach wrecked birds, features such as the overall larger size and the blackness of the upper parts are often of little use for identification purposes.

It seems probably that this bird was a nonbreeder well out of, what is known to be, its regular range.

ALAN TENNYSON

Identification of juvenile skuas

British Birds of September 1984 (vol. 77, part 9 p443-450) includes three short articles on separating juvenile Arctic and Pomarine Skuas, with some references to Long-tailed Skuas as well. The most prominent field mark of juvenile Pomarines seems to be the white crescentic marking on the underwing coverts. I will not attempt to summarise the other features but they should give 'Arctic' Skua recorders (like myself) much to think about. The journal is available from the OSNZ library.

DEREK ONLEY

Kerguelen Petrels off Haast

The Open Bay Islands are a wildlife refuge about 5 km off the Okuru Rivermouth, South Westland. We visited the islands from 6-15 August 1985 to study Fur Seals and Fiordland Crested Penguins. Strong NW winds on 8 & 9 August brought an interesting assemblage of seabirds in close to the islands, including several hundred Kerguelen Petrels.

The first all-dark gadfly petrel was seen late on 7 August and over 100 were seen throughout the following day, mainly flying from north to south. The birds showed no sign of exhaustion and often were seen chasing each other and a variety of other species. Confirmation of their identity came when 2 of these small petrels chased a Westland Black Petrel, which allowed a good size comparison.

The weather deteriorated on 9 August but no petrels were seen until late afternoon. Many Kurguelen Petrels were then seen, mainly off the northern reefs, until nightfall. The highest number seen in one binocular sweep was 30 but it was common to see 5-6 together. Blue Shags were the species chased most often by the petrels but Redbilled Gulls and White-fronted Terns were also molested.

Other seabirds of note seen offshore were a Hutton's Shearwater and 2 White-capped Mollymawks.

On the island, Fiordland Crested Penguins were in the middle of their egg-laying period, while the Blue Penguins were courting. Blue Shags were in early incubation, with eggs in most of the nests examined. Fairy Prions came in each night but were not very vocal.

Wekas, which were introduced to the islands about 1910, were too much in evidence. These unwelcome villains claimed 7 eggs from the 40 Fiordland Crested Penguins study nests during the 8 days we monitored them, and were also seen eating wetas and a variety of other invertebrates. Fairy Prions and a White-fronted Tern added variety to their menu.

COLIN MISKELLY & PETER CAREY

Summer Bird binge, Lake Taupo, 11-18 January 1986

This live-in field week is designed to give you pleasurable bird watching on and around New Zealand's largest lake. At this stage the only definite aim is to complete the firstever total shoreline count of birds on Lake Taupo.

However, the region is little explored ornithologically, and we can visit north to the Waikato hydro lakes and the Rotorua lakes; south to Tongariro National Park; east to the Kaimanawas and west to the Hauhungaroas and Pureora. On some nights there will be guest speakers, who will talk about birdlife in the area, past and present, and on the nature and management of Lake Taupo.

The Misson Bay Youth Camp is within walking distance of the lake, 15 km north of Turangi. This church camp sleeps 110 people, mostly in bunk rooms, and the meals are supplied by the management. Food plus accommodation is \$10.50 per adult per night if the group exceeds 40 people, and \$11.50 if less. For children aged 4-12 years the cost is \$7.00. Camping and caravan sites are available but the costs remain the same. Several motel-style units (linen supplied) suitable for families are availabe for an extra \$5.00 per person per night. The camp boasts trolleys, flying fox, a large playing area, BMX, trampoline, tennis courts, and a mysterious train. Smoking is not allowed in the buildings; and no alcohol is allowed (so much for drunken kiwi surveys).

Bunkroom campers must bring bedding, pillow, toilet requisites and personals; all else is provided.

Please fill in the enrolment form enclosed with this issue of *Notornis* and return to Bill and Janet Drake by 30 November 1985. Anyone able to bring a boat is asked to send us information about it, as this will help us plan surveys. A fee of \$5.00 per adult will be charged to allow us to recompense guest speakers' expenses and our planning costs.

Those who enrol will be sent a further information sheet to update planning details and to receipt their enrolment. Any enquiries should be directed to John Innes, RR, Volcanic Plateau. See you in January!

JOHN INNES

Identification of stints and peeps

Illustrations by Lars Jonsson, text by P. J. Grant in *British Birds* 177 (7): 293-315. An excellent summary of small wader indentification and ageing — especially useful for those trying to make Red-necked Stints into something else. The illustrations are exceptionally good.

DEREK ONLEY

Shearwater found inland

Early on the morning of 28/5/85 Alan Poulton found a freshly dead Fleash-footed Shearwater on the footpath in Mill Road, Whangerei; apparently it had crashed into overhead power or telephone lines. The closest open sea would be across country to Ngunguru Bay, a distance of at least 16 kms. Alternatively, the bird could have flown down the Whangarei Harbour to Bream Bay, a distance of about 22 kms. Recent weather had been rough, with strong easterly winds, which could have caused the bird to become disorientated.

ALASTAIR GORDON

Observations of a Ruff at Lake Ellesmere

Following the sighting of a Ruff at Lake Ellesmere on 10/1/85 by KCH, Sheila Petch and Peter Wilson, many other sightings were made within the next few days, both by ourselves and other observers. However, then we lost track of the Ruff for many weeks, despite repeated searching over a much greater area of the lake shore.

Therefore it was a great surprise to locate the Ruff again on 8/4/85, this time on the mudflats at Kaitorete Spit. We noticed that the plumage of the Ruff had not changed at all since our initial sighting, and we concluded that it was an immature bird that may remain at the lake over the winter.

During our observations, the Ruff fed with a party of 8 Knots as it moved along the shoreline, probing for food in the shallow water. At times it moved away from the Knots, which fed typically in a rather tight group. On 13/4/85 we visited Kairotorete Spit again and found the Ruff still accompanying the Knots. We attempted to take a series of photographs but the birds did not allow us to approach close enough, before flying off some distance to continue feeding. When the Ruff preened itself we noticed that it had bright yellow feet, which contrasted strongly with the dull yellow legs.

The Ruff was seen again in this area on 18 & 20/4/85 by Diana and John Watson. At these times the Knots were not present and the Ruff associated with a large flock of Banded Dotterels.

K. C. HARRISON

Birding penfriend wanted

Roy Wyatt would like to correspond with a New Zealand birdwatcher. He is interested in sea watching and general birding, is aged 40, and plans to visit this country with his wife in the future. His address is: 36 Lancing Road, Harold Hill, Romford, Essex, England. Futher information is available from his mother: Mrs Gadson, 15 Rodgers Road, Manurewa. Tel. 267-6607.

National Wader Count — June 1985

A total of 122,078 waders was counted during the second national winter wader count, completed in June and July 1985. Over 250 OSNZ members and friends participated in this very successful count.

As for the 1984 winter count, participants were asked to record the numbers of our own wader species and those of any overwintering migrants. This year most counts were completed in reasonable weather, however, in the north and south of the country strong winds and/or heavy rain caused problems.

The following is a preliminary report of the results of the count.

Total numbers: A summary of wader totals by region is given in Table 1. Once again, N.Z-breeding species comprised the large majority of the birds counted and the order of abundance was the same as in June 1984, with S.I. Pied Oystercatchers easily topping the list and being followed by Pied Stilts, overwintering Bar-tailed Godwits, Banded Dotterels, Wrybills and overwintering Lesser Knots.

The totals for the N.Z.-breeding species are remarkably similar to those obtained in 1984. Thus the 78,703 SIPOs counted this year compares with 79,983 in 1984, 18,525 Pied Stilts with 17,308, 6,849 Banded Dotterels with 7,527 and 3,720 Wrybills with 3,883. These totals tend to substantiate the estimates of total population size made for Pied Stilts (25,000 - 30,000) and Banded Dotterels (15,000) following the June 1984 counts. However, the second successive relatively low count of Wrybills points to a decline in the population since the high of about 5,000 birds in the late 1970's. The SIPO total cannot be far below the actual N.Z. population.

Of the remaining N.Z.-breeding species the higher numbers of Variable Oystercatcher (1,485 v. 928), N.Z. Dotterel (583 v. 401) and Black-fronted Dotterel (201 v. 68) probably reflect the greater efforts of observers to count these species, rather than actual increases in their populations. There was a remarkable increase in the number of Spur-winged Plovers recorded from North Island regions (769 v. 16), and this does reflect the expansion of range of this species. The number of Black Stilts counted declined slightly (53 v. 57), while the number of hybrid stilts increased from 10 to 22.

There were some interesting changes in the numbers of overwintering arctic migrants. The numbers of Bar-tailed Godwits and Turnstones were well down on last year (7,192 v. 9,071 and 292 v. 719 respectively), while there was a significant increase in the number of Lesser Knots (3,503 v. 2,367), Red-necked Stints (51 v. 9) and Curlew Sandpipers (6 v. 1). However, the sighting of 2 Golden Plovers in winter must be a rare event!

Distribution: An indication of the number of waders counted at each locality is shown in Fig. 1, and the localities where more than 1,000 waders were counted are listed in Table 2. These confirm that the important wintering areas for waders are in the north (Parengarenga to Kawhia), Ohope Spit and Bowentown Shellbanks, Lake Wairarapa, Nelson region, Avon-Heathcote Estuary and Lake Ellesmere, Otago Harbour (Aramoana, Papanui and Hoopers Inlet), and Invercargill Estuary.

The large decrease in the number of birds counted at Manukau and the Firth of Thames this winter (Table 2) probably results from SIPOs moving away from these areas, to feed on soaked paddocks inland. This also happened at Whangarei Harbour, where the 1985 count was only 506 birds, compared with 3,996 in 1984.

More localities were covered this winter than during June 1984; in particular, this resulted from increased effort in Auckland/ South Auckland and the West Coast. Localities covered during the June/July 1985 survey were:

| TABLE 1. V | Waders counted | in New | Zealand,] | une-July 1985 |
|------------|----------------|--------|------------|---------------|
|------------|----------------|--------|------------|---------------|

| | Far North | Auckland | Waikato | BOP | Hawkes | Manawatu Wellington | | Nelson Marlborough | | West | Cant |
|-------------------------------|-------------------|----------|-------------|-------------|--------|---------------------|-------|--------------------|---------|-------|------|
| | Northland S. Auck | Bay | | i Wairarapa | | | Coast | | | | |
| S.I. Pied Oystercatcher | 5,522 | 43,550 | 2,543 | 614 | | 62 | 16 | 17,229 | 57 | 1,652 | 3 |
| Variable Oystercatcher | 337 | 379 | 7 | 244 | 3 | 25 | 14 | 221 | 5 | 121 | |
| Golden Plover | 1 | 1 | — | | — | — | — | _ | | _ | |
| Spur-winged Plover | 49 | 55 | 28 | 3 | 169 | 59 | 406 | * | * | * | |
| N.Z. Dotterel | 143 | 275 | 10 | 101 | — | | — | 11 | <u></u> | — | |
| Banded Dotterel | 519 | 1,584 | 346 | 531 | 22 | 174 | 259 | 1,741 | 98 | 45 | 1, |
| Ringed Plover | | 1 | | | — | | — | - | | _ | |
| Black-fronted Dotterel | _ | - | | 2 | 65 | 51 | 60 | _ | | | |
| Wrybill | 236 | 3,396 | _ | 63 | — | 14 | 1 | 2 | 1 | _ | |
| Far-Eastern Curlew | 2 | 3 | | | — | | _ | 6 | _ | _ | |
| Asiatic Whimbrel | 39 | 34 | 2 | _ | | _ | — | 5 | _ | | |
| American Whimbrel | _ | | | _ | - | _ | — | 2 | _ | | |
| Whimbrel species | — | | _ | | _ | _ | | 3 | | | |
| Bar-tailed Godwit | 517 | 2,906 | 414 | 687 | 75 | 48 | 1 | 1,909 | _ | 13 | |
| Asiatic Black-tailed Godwit | | — | | _ | — | _ | _ | _ | _ | _ | |
| Greenshank | | _ | _ | 1 | _ | | _ | | - | _ | |
| Terek Sandpiper | _ | _ | | | _ | _ | _ | 1 | | _ | |
| Siberian Tattler | | _ | _ | | _ | | _ | | | _ | |
| Turnstone | 34 | 82 | 4 | 23 | | _ | | 118 | _ | _ | |
| Lesser Knot | 167 | 2,982 | 1 | 1 | _ | | _ | 352 | | | |
| Curlew Sandpiper | 1 | | — | _ | | _ | - | _ | - | | |
| Red-necked Stint | _ | 11 | _ | _ | _ | _ | - | 13 | — | | |
| Pied Stilt | 1,823 | 8,547 | 197 | 1,677 | 1,795 | 398 | 1,159 | 466 | 225 | 102 | |
| Black Stilt | - | — | 12 | | _ | | - | 1 | | _ | |
| Hybrid Stilt | | | 1 | | | | | | | | |
| TOTAL | 9,399 | 63,806 | 3,565 | 3,947 | 2,140 | 831 | 1,916 | 22,080 | 386 | 1,933 | 5 |

* Spur-winged Plovers are numerous and widespread in the South Island, therefore this species is not included in South Island totals.

Table 2 — Localities where 1,000+ waders were counted during June/July 1985

| Location | Numbers (June 1984) |
|----------------------|---------------------|
| Manukau Harbour | 28,376 (34,783) |
| Kaipara Harbour | 20,505 (11,506) |
| Firth of Thames | 15,088 (18,418) |
| Farewell Spit | 11,283 (10,471) |
| Golden Bay | 4,730 (4,115) |
| Kawhia Harbour | 2,780 (3,436) |
| Waimea Estuary | 2,601 (3,603) |
| Otago Harbour | 2,381 (2,001) |
| Avon-Heathcote Est | uary 2,333 (2,387) |
| Motueka Estuary | 2,230 (2,329) |
| Lake Wairarapa | 1,916 (1,371) |
| Invercargill Estuary | 1,268 (720) |
| Parengarenga Harbo | ur 1,213 (984) |
| Lake Ellesmere | 1,206 (2,192) |
| Ohope Spit | 1,174 (781) |
| Rangaunu | 1,028 (1,557) |

Far North: Herekino, 90 Mile, Parengarenga, Rarawa, Henderson-Kowhai, Rangaunu, Karikari, Matai, Tokerau, Aurere, Taipa.

Northland: Whananaki, Ngunguru, Pataua-Taiharuru, Whangarei Harbour, Ruakaka, Waipu.

Auckland/South Auckland: Kaipara Harbour, Manukau Harbour, Firth of Thames, Wairoa Rivermouth, Coromandel Harbour, Te Kouma, Colville, Opoutere, Whanga-

| oury | Otago | Southland | Stewart Island | TOTAL | |
|------|-------|-----------|-------------------|---------|---|
| 9 | 2,712 | 1,323 | 243 | 78,703 | |
| 8 | 88 | - | 22 | 1,485 | |
| - | | _ | | 2 | |
| | * | * | • | 769 | 1 |
| - | | 32 | 11 | 583 | |
| 2 | 254 | 148 | 6 | 6,849 | |
| - | | | — | 1 | |
| 3 | | _ | | 201 | |
| 7 | | _ | | 3,720 | |
| - | | 11 | _ | 22 | |
| - | | — | | 80 | |
| - | | | _ | 2 | |
| - | | 2 | _ | 5 | |
| 3 | 112 | 382 | | 7,192 | |
| 3 | | | <u> </u> | 8 | |
| L | | _ | _ | 2 | |
| - | | | | 1 | |
| - | 1 | _ | _ | 1 | |
| - | | 31 | | 292 | |
| - | _ | _ | | 3,503 | |
| 5 | | | _ | 6 | |
| 7 | | | _ | 51 | |
| 5 | 890 | 302 | | 18,525 | |
| Ł | | — | _ | 53 | |
| l | _ | — | - | 22 | |
| ł | 4,057 | 2,242 | 282 | 122,078 | |

mata, Waitemata Harbour, Tamaki Estuary, Whitford, Waiheke Island, Orewa, Mangawhai - Pakiri - Whangateau, Whangapoua. Waikato: Kawhia Harbour, Raglan Harbour, Aotea Harbour.

Bay of Plenty: Kaituna Cut, Maketu Estuary, Little Waihi, Sulphur Point, Matahui Point, Bowentown, Matata-Tarawera Rivermouth, Ohope Spit, Whakatane Rivermouth, Waiaua Rivermouth, Waiotahi Rivermouth, Waitamanui Rivermouth, Waioeka Estuary. Hawkes Bay: Ahuriri Estuary, Westshore Ponds.

Manawatu/Horowhenua/Wanganui: Wai-

totara, Wanganui Rivermouth, Whangaehu Rivermouth, Turakina Rivermouth, Rangitikei Rivermouth, Longburn, Manawatu Estuary, Hokio Stream mouth, Ohau Rivermouth, Waikawa Stream mouth, Otaki Rivermouth.

Wellington/Wairarapa: Lake Wairarapa. Nelson: Waimea Estuary, Delaware Bay, Nelson Haven, Motueke Estuary, Farewell Spit, Westhaven Inlet, Golden Bay. Marlborough: Lake Grassmere, Grovetown, Wairau Bar (part), Kaikoura Peninsula.

West Coast: Oparara Lagoon, Karamea, Kongahu Swamp, Little Wanganui,

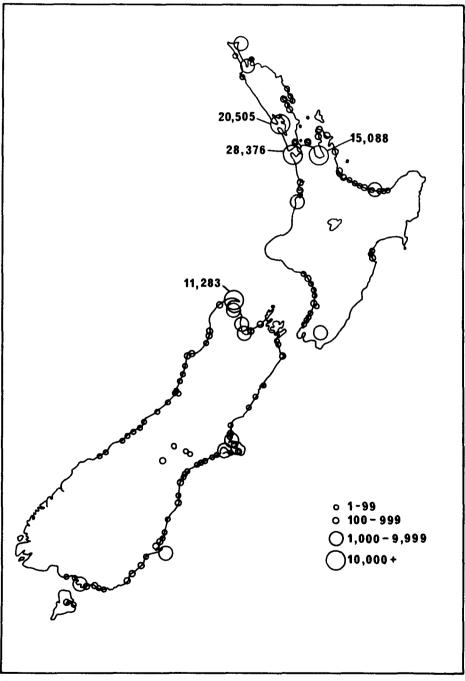


FIGURE 1 — Distribution and numbers of waders counted in New Zealand, June-July 1985

Orowaiti Lagoon, Okari Lagoon, Rahui, Little Beach, Fox Rivermouth, Hatters Bay, Bullock Creekmouth, Punakaiki Rivermouth, Blaketown Lagoon, Greymouth Airfield, Cobden Lagoon, Arahura Rivermouth, Totara Rivermouth, Mikonui Rivermouth, Okarito Lagoon, Okuru, Ship Creek, Waita, Mahitahi, Manakaiaua, Bruce Bay, Whakapohai, Murphie's Creek, Waitaha Rivermouth, Lake Ryan, Rapahoe, 10 Mile Creek, Barrytown Ponds, Canoe Creek, Pororari Rivermouth, Waimangaroa. Canterbury: Conway Rivermouth, Hurunui Rivermouth, Waipara Rivermouth, Ashley Estuary, Brooklands Lagoon, Avon Heathcote Estuary, Lyttleton Harbour, Akaroa Harbour, Lake Forsyth, Lake Ellesmere, Coopers Lagoon, Rakaia Rivermouth, Ashburton Rivermouth, Rangitata Rivermouth, Orari Rivermouth, Spider Lagoon, Opihi Rivermouth, Washdyke Lagoon, Wairuna Lagoon, Pareora Lagoon, Lake Wainono, Hinds Rivermouth, McKenzie Basin (several localities), Mayfield, Valetta, Mesopotamia.

Otago: Oamaru-Palmerston, Hawkesbury Lagoon-Karitane, Blueskin Bay, Otago Harbour and Peninsula, Kaikorai stream-Taeri River, Tokomariro River, Clutha River, Catlins.

Southland: Riverton Estuary, Waimatuku Mouth, Invercargill Estuary, Awarua Bay, Waituna Pastures, Fortrose Estuary, Colyers & Buddle Roads Pastures.

Stewart Island: Freshwater Flats, Bravo Island, Old Neck.

Species distribution: The pattern of species distribution was the same as last year. Major wintering grounds for SIPOs were in the major northern harbours and the Nelson region. This year some 66.5% of SIPOs were counted in the North Island. Pied Stilts favour the northern harbours too, with 3,424 in the Firth of Thames and 2,962 in Manukau Harbour. Other major wintering areas for Pied Stilts were Kaipara Harbour, Bay of Plenty, Lake Wairarapa and Lake Ellesmere. Banded Dotterel numbers were split evenly between the North and South Islands with Parengarenga Harbour (430), Auckland/ South Auckland (1,584), Kawhia (342), Ohope Spit (500) and Lake Wairarapa (174) being important in the North Island and Farewell Spit (1,322), Lake Ellesmere (746), McKenzie Basin (207), Otago Harbour (162) and Waituna Pastures (142+) important in the South Island. As expected, most Wrybills were at the Firth of Thames (2,000) and Manukau Harbour (1,278).

N.Z. Dotterels deserve a special mention. The numbers found in the north were as expected but the situation further south was interesting. The 11 birds at Farewell Spit easily beats the previous highest total recorded there (7 in June 1984). In addition, the number of birds crossing Foveaux Strait to winter in Southland showed a healthy increase too (from 15 to 32). The success of such a large project as this depends solely upon the enthusiasm of every participant. My sincere thanks to everyone who assisted, and I am sure that you will agree that your efforts were well worthwhile. Don't forget the summer count, which is planned for November 1985. Your RR has details.

PAUL SAGAR

Asiatic Dowitcher in Canterbury

As this issue goes to press there is news of an Asiatic Dowitcher at the Avon-Heathcote Estuary. The bird was noticed first by junior members Andrew Crossland and Peter Langlands who alerted other OSNZ members. Identification of the dowitcher were confirmed on 6/9/85 and by 7/9 the banks of the estuary were lined with a battery of telescopes and binoculars. We look forward to reading Andrew and Peter's account of this species, which is new to the N.Z. list.

Band and Tag

The hunting season, which closed at the end of July for most of the country, continues to create a lot of work in the Banding Office. There is a steady stream of game birds still coming in, and these are enough to keep staff occupied for some time yet.

This means that the processing of the backlog in operator recoveries is not attended to yet. However, the future looks to become a bit brighter. Kevin Moynihan, a Wildlife Service science technician, has been assigned to the Banding Office, where he is supposed to devote half of his time to banding matters. Kevin will be trained in all aspects of work related to the banding scheme and hopefully he will become the long awaited and much needed backup for both the scheme and me.

Once again our banding computer database has been updated. Public recoveries are now up to date to July and we have recoveries of 132,797 individual birds on our files.

New permits have been issued for: N.I. Brown Kiwi in several Northland areas: N.I. Weka on Kapiti Island and in the Gisborne area; Western Weka in the Marlborough Sounds; Grey-faced Petrel, Pycroft's Petrel, Diving Petrel, Fluttering Shearwater and N.I. Little Shearwater on Stephenson's Island; Grey-faced Petrel on South Head, Hokianga Harbour; Black-backed Gull, Fairy Prion, Sooty Shearwater and Whitefaced Storm Petrel on Motunau Island; House Sparrow in the Hutt Valley; Buller's Mollymawk on Solander Island; and N.I. Fernbird in Moanatuatua Swamp, near Hamilton.

RODERICK O. COSSEE

Banding Mail Bag

Quite understandably, most recoveries reported to the Banding Office over the past few months were of game birds. Some of these were very interesting.

Paradise Shelduck, which normally do not stray too far from their banding locality, yielded several unusual long distance recoveries this year. 13-47476, banded as an adult male at Lake Rotoehu on 1/2/84, was shot on 15/6/85 at Waihue, some 340 km from the place of banding.

13-42816, banded as a adult male near Lake Whangape on 22/1/83 was shot on 14/5/ 85 in the Waitotara Valley (south Taranaki), well over 250 km from the banding locality.

Another bird which travelled a respectable distance was Australasian Harrier L-23438. This bird was banded as a juvenile female at Lake Ferry on 29/5/82 and found dead near Moonlight (Otago) on 22/7/85, some 600 km from the place of banding.

M-44343, Little Black Shag, banded as a pullus at Sulphur Bay, Lake Rotorua, on 14/2/85, was found dead near Leigh on 30/ 5/85, some 230 km from the place of banding.

We have also received 4 recoveries of overseas bands, one each from Poland, France, the USA, and Australia. The first 3 appear to be Giant Petrels but we expect it will be quite some time before we can inform you of the exact details. The Australian band was found on a male Mallard, shot on 26/6/85 on the Piako River. This bird was banded in 1982 on Norfolk Island and flew roughly 1,150 km to meet its fate.

RODERICK O. COSSEE

Regional Roundup

Auckland: Recent meetings, addressed by Piers Hayman, Mark Bellingham, Don Binney and Geof. Moon, have all been well attended.

Early in June a Red-necked Phalarope was found at Mangere Ponds, where it favoured a series of small, shallow pools. A number of members were fortunate to see this bird during the 5 days before it apparently moved on. The winter wader counts provided no such surprises, but we did note the continuing spread of spur-winged Plovers into the region.

Informal members' weekends at The Roost, Kaiua, and at the Forest and Bird Lodge, Piha, have proved popular. During the later, from 2-4 August, patrols of West Auckland beaches revealed large numbers of seabirds. These included 2 Fulmar Prions, and another 2 were found on 11/8 while conducting the regular monthly 40 km Muriwai patorl. Most numerous among a tally of 149 birds of 18 species were Fairy Prion -37, Thin-billed Prion -27, and Fluttering Shearwater -35.

On 18/8, a lovely calm day, 140 members and friends planted some 2,000 pohutukawa trees on Tiritiri Matangi Island as part of the re-afforestation project, and still had time to glimpse a Saddleback or two. These birds are part of the population of 40 birds, which has risen to this level from the batch of 24 liberated on the island last year. (Michael Taylor.)

South Auckland: Field trips included a visit to Rangitoto Island in May, where the bird species were less notable than the astonishment of being accosted by 2 opossums which plainly expected us to feed them. One of them was prepared to climb humans in its insistance and had to be firmly dissuaded several times. Next to the Vining Reserve, where 5-minute counts were made, 1 and perhaps 2 Bellbirds were recorded. Other species included Pied Tits and Eastern Rosellas. Several orchid species were seen, and the reserve is noted for its variety of fungi.

The two wader counts in June and July kept us busy, and our August trip took us behind the scenes at the Auckland Museum, where Brian Gill gave up his Sunday morning to answer questions as members examined skins, skeletons and egg collectins in the Bird Department. This was followed by an afternoon outing to see Fernbirds at Pollen Island.

Kakas have been seen in Manurewa — 1, and Pukeowhare — 3. 60 Sulphur-crested Cockatoos were at Waimarama in June. The total population in that district is thought to be about 200. Cattle Egret numbers have increased at Piako this year with 80 being seen on winter census day. In addition, 3 have been reported from Ohui, Coromandel Peninsula. The Ringed Plover remains at Access Bay-Taramaire, Firth of Thames, and has assumed breeding plumage.

This winter, counts of SIPO were dramatically lower than usual at both the Firth of Thames and Manukau. It appears that the very wet conditions that prevailed in July had sent the birds inland to feed on soggy paddocks. The Whimbrel count was well up, with 19 in the Firth and 15 in Manukau. A wet day made the entire count very difficult and this was accentuated by the birds being very flighty. (Beth Brown.) Waikato: The annual Cattle Egret count was held at the end of August and resulted in 275 birds being counted. These were distributed as follows: Lake Ngaroto - 38; Ohinewai - 221; Rototuna - 16. No doubt there were single birds scattered here and there but no special effort was made to count them this year. The large flock, which in previous years has always been at Rangiriri, shifted about 2 weeks before the count and moved to a farm at Ohinewai.

New Zealand's second-only live Intermediate (Plumed) Egret was found on this farm too. Bruce Keeley had reported an Intermediate Egret at Taupiri (some 20 km away) about 4 weeks previously but this bird was not located again. However, during the Cattle Egret count an Intermediate Egret (presumably the same bird) was seen on the same farm, although it kept well away from the flock of Cattle Egrets and seemed more at ease with the White-faced Herons which fed in the same paddock. (Folkert Nieuwland.)

Bay of Plenty: Recent sightings include 51 N.Z. Dotterels at Ohope Spit on 8/4/85 the highest count yet; 2 Royal Spoonbills, 3 Bitterns, 6 Dabchicks and a Barbary Dove were at Thornton Lagoon on 3/5/85; Spurwinged Plovers continue to increase their range, with 14 at Lake Aniwhenua on 11/ 8/85; and 1 Black-fronted Dotterel, 1 White Heron and 40+ N.Z. Shoveler were at Matata Wildlife Refuge on 11/8/85. (Roy Weston.)

Manawatu/Horowhenua/Wanganui: In April, flocks of 28 and 25 Cattle Egrets were noted at Lake Horowhenua and Foxton/ Whirokino respectively; eventually these built up to be 63 at Lake Horowhenua on 5/7 and 78 at Foxton/Whirokino on 23/6. These flocks were monitored by Walter Jackson and Malcolm Olsen, who reported the presence of 2 banded birds with the flock at Horowhenua. Both birds were banded in Australia.

Other Cattle Egret reports from the region are: a single bird at Shirriffs Line, near Longburn, on 16/6 (M. Tarburton); 7 at Whangachu on 30/6 (O. Torr); 1 at Raetihi in early July (D. Johnson); and an unconfirmed sighting of a flock near Taumaranui (G. Randle).

Other recent sightings include: 75 Blackbilled Gulls seen near Whirokino on 5/7 (W. Jackson, M. Olsen); 40 Sulphur-crested Cockatoos in a walnut tree at Leedstown Road, Rata on 21/6 (R. Springer); and 60+ N.Z. Dabchicks on Lake Horowhenua in June (W. Jackson). (Lindsay Davies.)

Mariborough: A Cattle Egret survey was completed in August and resulted in 93 birds being counted -27 at Kairkoura and 66 at Grovetown.

Recent reports include: 2 Carolina Ducks shot; 2 Nankeen Night Herons at Torea; 50+ Royal Spoonbills at the Vernon Lagoons; the mobbing and killing of a N.Z. Pigeon and a Pied Stilt by magpies.

On the evening of 12/8, 10 members gathered to hear Dr Peter Wilson speak about his work on the bird populations of Mt. Misery, Nelson Lakes National Park, and on Kaka. (Pauline Jenkins.)

West Coast: Winter nesting species included the Spotted Shags at 10 Mile and Perpendicular Point, a Black Swan on a nest at Maori Point, Karamea on 17/6, and a Pukeko on a grassy mound in the Arahura Riverbed on 17/6. 4 Pied Shags were at the Kowhaihai River on 22/6 and Welcome Swallows were seen locally in May (2) and near the Little Wanganui Rivermouth (1) and Kongahu Swamp (3) on 22/6. (Stewart Lauder.) Canterbury: Sulphur-crested Cockatoos are well-spread north of the Rakaia River, with perhaps 20 birds present. Stu Moore is collating sightings, which have come from Lake Coleridge, Hororata, Darfield and Banks Peninsula.

A 21 km beach patrol along Kaitorete Spit in early August yielded an interesting bag of 70 birds, which included; 27 Fairy Prions, 7 Thin-billed Prions, 1 Broad-billed Prion, 2 Fulmar Prions, 11 Fluttering Shearwaters, 1 Blue Petrel, 1 White-headed Petrel, 1 Kerguelen Petrel, 1 Diving Petrel and 2 White-fronted Terns.

Donald Geddes reports an interesting number and variety of waterbirds at Lake Emma. On 9/2/85 a pair of Crested Grebes had 2 chicks, while grebes occupied 4 nests around the lake -3 of these had 4 eggs and the other only 1. Other species seen included 2 Marsh Crakes, 1 Bittern and 3 Australian Coots. On 9/2 the Mallards on the lake were observed to shelter behind Black Swans, in about 10-15 knot winds. Three Mallards were seen following swans which were feeding; they kept just out of reach of the swans and sorted through the weed brought to the surface by the swans. In this area the water is too deep for the ducks to reach the bottom of the lake but another group of 9 Mallards were observed diving for periods of 5-6 seconds. (Paul Sagar.)

Otago: 2 Cattle Egrets are among the casualties reported recently. One was found dead near Lake Tuakitoto in July, while the other was found at Drakes Flat in May. Peter Child, who found the latter bird, reports that it is possibly the first Cattle Egret to be preyed on by a N.Z. Falcon — the whole neck and body had been plucked.

Peter Child also reports a White Heron at Earnsleugh, the first in the area for 8 years. Alicia Warren and Graeme Loh reported Fernbirds at Trotters Gorge; Marie Darby reports a N.Z. Falcon at Logan Park; Bill Ahlers and David York saw the Siberian Tattler at Papanui Inlet; and the Otago Acclimatisatin Society reported a Chestnutbreasted Shelduck at Patearoa, feeding with a group of Paradise shelducks. (Peter Schweigman.)

Southland: A female Nankeen Kestrel has been residing in the vicinity of the switchyard at the Tiwai Smelter since at least the end of April. Cattle Egret numbers in the region appear to be down considerably on last year's total. The 2 main flocks, both of about 20 birds, are south of Tisbury and near Riverton. I saw my first Bittern for several years on 12/8. It was strolling casually across an open field beside the main road near Kapuka.

A special thank you goes to those members who braved the cold and assisted with the winter wader count. The results were about normal for the region, except for the low number of Turnstones and absence of Knots. (Wynston Cooper.)

Compiled by PAUL SAGAR

Birds seen from the Maui Platform

Over the last two years I have had the opportunity of visiting the Maui Production Platform, which is situated abut 30 kms SSW of Opunake, off the coast of Taranaki. During this period a total of 28 species of birds were observed, of which 6 were non-marine species. Of particular note is one 7-day period (3-9 May 1983) when 7 species of albatross were observed - including a Yellow-nosed Mollymawk and a Lightmantled Sooty Albatross, with a flock of 75 Black-browed Mollymawks and 15 Buller's Mollymawks resting on the water close to the legs of the platform. Vast flocks of prions flew past, whilst Southern Skuas, Gannets, gulls and a variety of petrels and shearwaters, along with several passerines were also noted.

The species recorded to date are: Wandering Albatross, Northern Royal Albatross, Black-browed Mollymawk, Greyheaded Mollymawk, Yellow-nosed Mollymawk, Buller's Mollymawk, Shy Mollymawk, Light-mantled Sooty Albatross, Northern Giant petrel, Cape Pigeon, Greyfaced Petrel, prion species, Black Petrel, Buller's Shearwater, Sooty Shearwater, Short-tailed Shearwater, Fluttering Shearwater, Diving Petrel, Australasian Gannet, Southern Skua, Southern Black-backed Gull, White-fronted Tern, Rock Pigeon, Welcome Swallow, Greenfinch, Goldfinch, Chaffinch and Starling.

In addition, I have received verbal reports of the following species: penguin (Blue?), Frigatebird (Lesser?), White-faced Heron, White Heron (Cattle Egret?), Morepork, Silvereye, and House Sparrow.

Seasonal differences in the species seen were apparent — examples of which are the appearance of Cape Pigeons in early/mid-May, and the departure of Buller's Shearwaters in mid-May. The effect of weather patterns was not so obvious. However, as expected, rougher weather generally resulted in an increase in the number and variety of birds seen. Also, north-easterly winds (from land) were associated more with the recording of nonmarine birds, especially finches.

The bird species recorded from the platform were similar to those found during patrols of adjacent beaches but the relative abundance of species is superficially quite different.

TIM BLAKE

Crested Tern at Kaikoura

On 24/5/85 I watched a large, yellowbilled tern fly over Atia Point, Kaikoura Peninsula. Unfortunately, my attention had been focused on the fur seal observations I was making, and I did not notice this unusual bird until it was close to me. However, it flew only about 25 m distant and as viewing conditions were good I was able to note the diagnostic features.

The most conspicuous feature was the large, yellow bill which had no sign of orange or red on it. The bird was about the size of a Red-billed Gull and markedly larger than a White-fronted Tern, both of which were present at the time. The underparts were white but the upperparts were not seen clearly, except for the crown, which was dark and streaked black or grey.

The bird was flying parallel to the coast, about 10 m above the sea and only a few metres offshore. In flight it was almost gulllike, more direct and with less wing movement than White-fronted Terns.

According to all sources that I have referred to, the only large, yellow-billed terns likely to be seen in New Zealand are the Crested Tern and Lesser Crested Tern. However, the latter has a more northerly distribution and is characterised by an orange-yellow bill. Therefore I concluded that the bird I saw was probably a Crested Tern.

GRAHAM WILSON

White-winged Black Tern seen in winter

On 9/7/85 I was birdwatching in the swamps near the L2 River, Lake Ellesmere, when my attention was drawn to an unusual bird, which I tentatively identified as Whitewinged Black Tern. The bird's distinctive fluttering flight as it hawked back and forth over the water was diagnostic. However, I was puzzled by the bird's plumage, which had large, dark-grey patches on the underparts and underwing. Unfortunately I was some distance from the bird and could not determine the colour of the bill and legs, and soon the bird moved away, across the lake.

When I returned home I searched my literature and found an apt description of this particular plumage in Pizzey's *Field Guide to the Birds of Australia*, where a White-winged Black Tern in moult is described as being 'like a Dalmatian Dog'.

All my previous sightings of Whitewinged Black Terns have been of birds in eclipse plumage, so this latest observation was of particular interest.

K. C. HARRISON

Falcon taking Blackbird

On the morning of 10/11/84 while camped at Piano Flat in the Waikaia River Valley, northern Southland, we observed a N.Z. Falcon capture a Blackbird.

We were camped near the banks of the river, in amongst a line of silver beech and totara trees along the river bank. The rest of the area around the camp was open, grazed river flat but on the other side of the river was a solid cover of beech forest. About 08.30 our attention was attracted by a disturbance in a nearby totara.

A Blackbird emerged from the tree, hotly pursued by a N.Z. Falcon. The Blackbird flew down the line of trees and circled around the end beech tree. Then it returned up the line of trees and re-entered the totara. All of its movements were followed closely by the pursuring falcon. All this time the Blackbird called a lot but the falcon was silent.

The birds spiralled down the totara and re-emerged at the bottom. The Blackbird again headed down the line of trees. However, just as it was entering the canopy of the end beech tree the falcon overtook it from above and behind and grasped it in its talons.

The falcon followed through and circled over our tent and car before crossing the river and disappearing into the forest. The whole incident took less than a minute from start to finish.

BRUCE MCKINLAY & DINAH WAKELIN

Recovery of Australianbanded Knot

On 19/5/85 Simon Towle and I were birdwatching at Karaka, Manukau Harbour, when we chanced to look into the sunkendrum hide on the shellbank. Apart from being full of water, it also contained 7 dead Lesser Knots. They had been dead about a day when we found them and we assumed they had been shot.

One of the birds carried an Australian band and subsequently we found that the banding details were as follows: banded as a first year bird on 3/6/84 at Queenscliffe, Victoria, by the Victorian Wader Study Group. The time elapsed and distance moved were 11 months 2 weeks and 2,652 km respectively.

ADRIAN RIEGAN

Diving Petrel census on Moturoa Island

Recently local birdwatchers have made three visits to Moturoa Island in order to record the number and distribution of Diving Petrel burrows.

Burrows were almost exclusively (95%) in the warmer northern aspects; where burrow density was almost 2 per square metre in the cliff-top soil but fell to 0.4 per square metre at higher altitudes. There were two main breeding areas — on the north-east side of the island, where there were 1,800 \pm 360 burrows, and the NNW suburb, with 900 \pm 360 burrows. This gave a total of 2,700 \pm 720 burrows for the whole island.

JOHN CLARK

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