The lake census was considered incomplete, owing to the windy conditions and the presence of a few waters that were not visited, while some species, such as White-faced Heron, Bittern and Welcome Swallow, were necessarily underestimated. Good counts were obtained of some species, however: Dabchick (22), Black Shag (27), Little Black Shag (12), White-throated Shag (57), White-faced Heron (5), Bittern (2), Black Swan (227), Paradise Duck (3), Grey Duck (16), Mallard (250), Shoveler (190), Harrier (30), Pukeko (150), Pied Stilt (60), Welcome Swallow (25). In addition, four suspected Pomarine Skuas and a Little Tern were seen at Lake Koputara on the Monday.

Two pleasant social evenings capped off the strenuous work of the day. On Saturday, Mr. Les Shailer showed us some of his superb colour slides of Royal Spoonbills, Swallows, Coots, Bellbirds and other birds, mostly photographed in the Manawatu. An interesting shot was of Cattle Egrets at Lake Horowhenua. On Sunday evening we were treated to a wine and cheese evening.

Farewells were said on Monday, with some groups again visiting local birding areas — either finishing off the work of the previous days, or looking for bush birds — Bellbird, Tui, Pigeon, Rifleman and Tomtit — in local reserves. Thanks are due to the organisers of the course, headed by the Regional Representative, Mr. Les Shailer, and to those other helpers, who assisted with transport, both car and boat, and in other ways in the kitchen and in the hall.

— I.G.A.

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THE BEACH PATROL SCHEME

*By M. J. IMBER**

New Zealand lies across thousands of miles of sea from the nearest continents, except Australia, which is just over 1,000 miles away. The Pacific Ocean washes its east coast, Antarctic waters are to the south, and the Tasman Sea to the west with the Indian and South Atlantic Oceans beyond. So it is not surprising that, with their widespread habit of migrating or wandering, seabirds from all southern oceans of the world have been recorded in the New Zealand region. Those who have been fortunate enough to study birds at sea know that certain identification of the species seen is often impossible, particularly with the petrel family. Then how have the rarities been detected ? Very frequently by critical beach patrollers. To them we can attribute the only records for this region of the North Atlantic Shearwater *(Puffinus diomedea)* and Leach's Fork-tailed Petrel *(Oceanodroma leucorhoa)*, both breeding in the North Atlantic Ocean, the latter also in the North Pacific; and the few records of the Antarctic Skua *(Stercorarius maccormicki)*, one of the southernmost breeding birds in the world. Also the Arctic Tern *(Sterna paradisaea)*, one of the northernmost, has been found by beach patrollers on our coast.

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Not only has the finding of dead seabirds on beaches revealed stragglers to New Zealand, but also new species or subspecies have been discovered. Buller's Shearwater *(Puffinus bulleri)* was first described from a beach specimen. A race of Gould's Petrel *(Pterodroma leucoptera)* has been identified in this way, though its breeding place is still not known. Hutton's shearwater *(Puffinus huttoni)* became known to many beach patrollers in New Zealand years before its breeding place was discovered in 1965.

New Zealand's geographic situation has an important influence on the kinds and numbers of seabirds found on its beaches. It lies nearly at right angles to the westerly winds which prevail in these latitudes. Not only this, but also the side obstructing the westerlies is roughly boomerang-shaped. Thus it acts as a huge trap for many seabirds which apparently allow themselves to be carried eastward around Antarctica during the non-breeding season. The wind which seems to cause most casualties on west coast beaches of the North Island comes from between west and south-west, and is at least strong and squally. One can imagine that birds being swept before such a wind would be carried north-eastwards parallel to the South Island west coast and into the waters off the Wellington or Auckland west coasts. This explains why under such typical conditions the greatest numbers of dead seabirds are found on these two North Island coasts. Blown towards the coasts and land, which they try to avoid, the weaker birds succumb to exhaustion and starvation. Most presumably die by drowning but others are sometimes blown inland. The stronger survive or perhaps escape through Cook Strait or around North Cape. The numbers cast ashore are undoubtedly related to the numbers present offshore, and their condition and health when stormy weather strikes. Dead seabirds are washed ashore on other than the westward-facing coasts, of course, the number of wrecks apparently depending on the numbers breeding on nearby islands or migrating along the coast, their condition and the prevalence of onshore winds. For instance, one of the biggest "wrecks" of seabirds in the last decade was of young Sooty Shearwaters *(Puffinus griseus)* along the east coast of the South Island in May 1961. Apparently thousands perished. Emaciated, they were washed ashore or blown inland during a period of rough easterly weather.

Many species of seabirds breed in the New Zealand region and these provide most of the specimens on beaches in most years. We have 4 penguins, 1 albatross, 14 petrels and shearwaters, 1 storm petrel, 1 diving petrel, 1 gannet, 6 shags, 1 skua, 3 gulls and 4 terns breeding on the main islands or those close offshore. Species from subtropical and subantarctic islands in this region almost double the number of breeding species, though several have rarely or never been recorded from the main islands.

As a result of the abundance of seabirds round our coasts, every year thousands die close enough to the shore to be cast onto the beaches. As early as last century some ornithologists were aware of this but records in the literature are mainly limited to the finding of rarer specimens or the occurrence of large 'wrecks.' Since the establishment of the Ornithological Society of New Zealand in 1939, records of seabirds found dead on beaches have steadily increased. The Beach Patrol Scheme was introduced in October 1951, lapsed a

few years later but was revived in 1960. Participants in the scheme entered details of their patrols on cards which were collected by the organiser, indexed and filed at the Dominion Museum. Annual summaries have been published for cards sent in between 1960 and 1963. These record the finding of 1,121 dead birds in 1960, 3,138 in 1961, 1,367 in 1962 and 1,535 in 1963. In addition Bull and Boeson (1961a) report 6,960 specimens recorded as found between 1939 and 1959. There has been a temporary interruption in publication of reports since that for 1963 but many members have been active in the last five years and the backlog of data is being analysed and will be published.

OBJECTIVES

The main objectives of the scheme are (modified from Bull and Boeson 1961a):—

(1) To provide accurate information on the species of seabirds occurring in New Zealand seas, where these are found and at what season of the year.
(2) To increase collections of specimens at Museums.
(3) To record variations in mortality of seabirds; particularly large 'wrecks,' their extent and the species involved, and associated factors (meteorological conditions, condition of birds, etc.).
(4) To increase the chances of recovery of banded birds.

Thus the scheme provides data and material which are, or can be, of use to students of seabird distribution, migration or dispersal, moult, taxonomy, anatomy, population dynamics, food and the relationships between distribution and food supplies.

TECHNIQUES

Basically beach patrolling simply involves traversing a section of beach and recording the date, locality, length of beach covered, the species found dead and the number of each species. Records of finding nothing are as important as positive results.

Patrollers should always remove from the beach all specimens found. This prevents duplication of records. Though many coasts are inspected irregularly one cannot be certain that someone else may not patrol that same beach soon after. Repeated patrols of a defined stretch of coast are often more valuable than random visits and removal of specimens must be done in that case. The best method is to collect the birds in a sack or plastic bag. At the finish of the patrol (or along the way if the bag gets too heavy) the collection can be sorted out, recorded and buried or disposed of well above the highest tideline. Better still, take everything home, record the data at leisure and dispose of unwanted material at a rubbish dump.

The correct identification of all birds found is of utmost importance. "New Zealand Birds" (second edition) by W. R. B. Oliver or "Field-guide to New Zealand Birds" by Falla, Sibson and Turbott are recommended reference books. If in any doubt about the identity of a bird obtain the opinion of an authority or consult the organiser.

Remains found on beaches range from complete birds to wings, tails, feet or just feathers. Patrollers should record remains such as wings, tails and feet. Though it may not be possible to identify the species from such remains, the genus should be recognisable without

difficulty. Prions' wings are frequently found — these may be recorded on the cards thus: Pachyptila spp. (wings) 5.

The Scheme is mainly concerned with seabirds (penguins, albatrosses, petrels, shearwaters, storm-petrels, diving-petrels, gannets, shags, tropic-birds, skuas, gulls and terns), all *dead* specimens of which should be recorded on the beach patrol cards. However, other species will be found, some of which may be quite rare, e.g. Spine-tailed Swift, and it is best if all dead birds found are recorded.

I have recommended above that all specimens be removed from beaches. All seabirds except the Black Shag are protected at present and it is unlawful to retain protected species, dead or alive, without authority. Rare specimens should be donated without delay to the nearest museum or the Dominion Museum, Wellington. However, some museums need specimens of less-rare species, too, and patrollers can be of considerable assistance by asking the nearest museum whether it wants them. If a museum doesn't take your birds, you may want to keep them, in which case you must apply to a museum for a permit. This authorises you to keep specimens, though they are legally the property of the museum.

CARDS

Two types of cards are issued by the organiser to patrollers. The Beach Patrol Card is for recording the results of each patrol. One patrol only is recorded on each card. The Specimen Record Card is used to record birds' measurements, details of sex, age, moult, weight, size of gonads, and details about specimens preserved in a museum or private collection. One card can be used for several specimens provided they are of the same species and collected on the same date. This card is used only where any of these relevant details are recorded. Unfortunately, most patrollers use the Specimen Record Cards very little, but this is understandable as beach patrolling itself is time-consuming and the specimens are usually not in a state that encourages or even permits extensive examination. Even if the specimens are not complete enough to sex, or take measurements, recording the presence or absence of wing and tail moult is very valuable.

Where measurements are taken use calipers or dividers (except for wing) and record them in millimetres:—

Bill length from tip to beginning of feathers on the forehead. Do not measure if the upper bill plates are missing or if any forehead feathering is lost.

Bill width at the widest part, and *Bill depth* at the same point or at beginning of forehead feathers.

Wing to be flattened along a ruler and measured from tip to carpal flexure (first joint) with wing in closed position. Watch that outermost feathers are not missing or in moult, or that wing is not bent through drying out.

Tarsus from the notch at rear of the upper joint to where the mid-toe joins the tarsus at the front; and *Mid-toe and Claw from* that joint to tip of claw with the foot flattened.

Tail, if not in moult, from between bases of central feathers to tip of the longest feather which must not be loose.

Measurements, except of uncommon birds, are best restricted to fairly fresh specimens. If weights are taken, birds must be fresh, intact, dry and well-shaken to free sand.

When completed, cards are sent to the organiser — M. J. Imber (63 Glen Road, Raumati South, Wellington) — who supplies cards and further information. The scheme is open to all members of O.S.N.Z.

The following references are to reports on the scheme:—

BULL, P. C., and B. W. BOESON, 1961a: Preliminary analysis of records of "storm-killed" seabirds from New Zealand, 1939-59. Notornis 9, 6: 185-199.

BULL, P. C., and B. W. BOESON, 1961b: Seabirds found dead in New Zealand in 1960. Notornis 9, 7: 225-230.

BULL, P. C., and B. W. BOESON, 1963: Seabirds found dead in New Zealand in 1961. Notornis 10, 6: 265-277.

BOESON, B. W., 1964: Seabirds found dead in New Zealand in 1962. Notornis 10, 8: 404-411.

BOESON, B. W., 1965: Seabirds found dead in New Zealand in 1963. Notornis 12, 3: 169-175.

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SHORT NOTES

HOOK GRASS KILLS SILVEREYES

While hiking in Westland, near Fox Glacier on 7/2/65, I came across a small stream where a number of Silvereyes *(Zosterops lateralis)* were drinking and bathing. As I approached they dispersed into the canopy, but to my disbelief, two remained, held fast by the seed heads of the sedge *Uncinia uncinata* (Family Cyperaceae). This sedge, better known as Hook Grass or Bastard Grass on account of its tenacious habit of latching on to anything which brushes against it, was growing on the bank of the stream and was apparently being used by the Silvereyes to reach the water.

While attempting to free the two trapped birds, I noticed another three dead in the shallow water still securely held by a number of the hooked seeds. Mortality of this type does not appear to be a common occurrence even though birds are well known pollinators and distributors of seeds and other living material. (Ridley, N.H. (1930); The Dispersal of Plants Throughout the World, Ashford Kent.) One other occurrence has come to my attention where Silvereyes and House Sparrows *(Passer domesticus)* were reported captured by secretions of *Pisonia brunonniana,* also in New Zealand. (Melville, R. (1964). Pollinators and Distributors: Seed Dispersal, A New Dictionary of Birds, p. 654. Edited by A. Landsborough Thompson).

The tenacity of Hook Grass is well known and cursed by many, but its ability to hold small birds, occasionally to their death, seems worthy of documentation. People studying small birds should be on the lookout for similar instances of mortality as well as feathers being contaminated with seeds of this and other species.

Uncinia uncinata is one species of a genus thought to have originated in the Antarctic (Ridley, p. 557) and to have been carried northwards from Tierra Del Fuego into North America and eventually Europe by migrant birds. A related species, *U. microglochin,* owes its dispersion over the north temperate regions to wild cattle and other herbivores (Ridley, p. 558). Owing to the unique hooked rachis of some species of this genus, particularly *U. uncinata,* its ability to "hitch a ride" has been greatly enhanced, even to the point where it has been able to hold small birds until they perish.