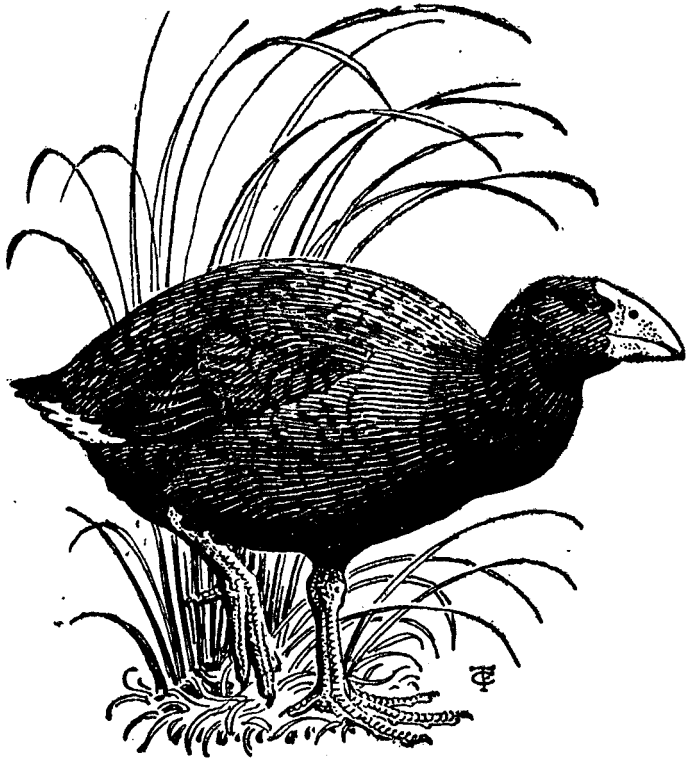
NOTORNIS



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Volume Nine, Number Eight, April, 1962

NOTORNIS

In continuation of New Zealand Bird Notes

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Contents of Vol. 9, No. 8: April, 1962

NOTORNIS

VOLUME NINE, NUMBER EIGHT - APRIL, NINETEEN SIXTY-TWO

A NEW BREEDING BIRD FOR NEW ZEALAND: BLACK-FRONTED DOTTERELS IN HAWKES BAY

By NORMAN B. MACKENZIE

This first reported breeding of the Black-fronted Dotterel *(Charadrius melanops)* in New Zealand is presented in brief outline to record its occurrence on at least two Hawkes Bay rivers during the present breeding season.

It is hoped to provide later a further report on the success or otherwise of this season's breeding activities in a newly established colony of these handsome little waders and to furnish further observations on breeding activities and habitat.

The first report of this species in New Zealand was by Brathwaite at the Ahuriri Lagoon, Napier, in 1954 (*Notornis 6,* 146). This was followed by a sighting at Longburn by Andrew (*Notornis 6,* 185), and in Canterbury (Scarlett, *Notornis 7,* 112). In the same year as the sighting and only two days later, a bird was again seen on the Ahuriri Lagoon. This of course points to the strong probability of at least two birds' being in the country at the same time.

There have been no further published reports of this species but in 1958 Mr. D. H. Brathwaite saw three birds at Lake Hurimoana, near Fernhill, about eight miles west of Hastings. Mr. Brathwaite and myself watched this flock throughout the winter months of 1958 by which time it increased to five. The colony then disappeared.

In August, 1961, Mr. Gunn, a farmer at Fernhill, about three miles from Hurimoana, reported some unusual birds on a small marshy area on his farm. I found them very elusive however, as it took several visits before I actually saw two adults on 23/9/61 and identified them as Black-fronted Dotterels. This marsh dried up within a week and the flock again disappeared.

Now that I realised the flock had survived I began a systematic search of the likely areas. While Fernhill evidently is a suitable habitat it is also a difficult area to search, as it abounds in small lakes and marshy areas not to mention the two nearby large river systems of the Ngaruroro and Tutaekuri.

It was not until 11/12/61, while searching the Tutaekuri riverbed that I found two birds, one of which was a juvenile. Further search in this area has disclosed at least six adults and nine juveniles, while on the 2/1/62 a nest containing one egg was discovered. This was found by Mr. K. W. Varney and myself on top of a slight ridge on an extensive open shinglebed, about twenty yards from water. It was lined with small stones about the size of a matchhead together with a few dried grass stems. The nest was discovered as a result of noticing this particular bird displaying in an unusual manner, namely, walking slowly away from us, then squatting down, drooping the wings and spreading the tail so that the white outer feathers were conspicuously showing. The bird was kept occupied by K.W.V. while I retired about

200 yards to set up the telescope and from this position we both watched the bird make its way through the stones, stop, apparently turn an egg with the beak and settle down. This egg was later found to be infertile and has been sent to the Dominion Museum. I am indebted to Dr. R. A. Falla for a description of the egg as follows:— "Ground colour buffy white, closely and fairly uniformly mottled with purplish grey speckles and fine irregular pencilling. Dimensions: 28.83 mm x 21.21."

Juveniles are readily recognizable, being duller in plumage than the adults, and either partially or totally lacking the broad black "Y" marking on the chest which is such a distinguishing feature of the adults.

Further searching in the Ngaruroro river has led to the discovery of seven birds, all adults, only two of which appear to be mated. No young have yet been seen in this area.

The nesting colony has been under constant observation since found, a factor which has only been made possible through the help and assistance of B. D. Hankins and K. W. Varney. We expect by the end of the season to have a much fuller knowledge of the activities of this interesting new resident, although we have learnt the necessity for caution as shown by the following incident.

At what we call the 'Willow' nesting area, short, twice daily observations for ten days, disclosed only the two adults with two fledglings. However, on the 9/1/62 both B. D. Hankins and myself were present for over three hours; and it was not until the last few minutes that we discovered that there were four young. This fact in itself is apparently unusual in that Hindwood and Hoskin (Emu 54, 232), Sharland (Tasmanian Birds, p. 39) and Serventy and Whittell (Birds of Western Australia, p. 149) state that three eggs form a normal clutch.

We have so far located 13 adults and 9 juveniles, the latter belonging to three family groups and consider that at least two pairs are nesting again. It seems most likely that more will eventually be found.

HISTORY OF THE NEW ZEALAND LAND BIRD FAUNA

By C. A. FLEMING

The unique avifauna of New Zealand has left few clues to its history in the form of fossils, except for the very young deposits with moa bones, most of which date from the human period, i.e. the last thousand or so years. Speculation on the history of the fauna is thus perforce guided by indirect evidence. Dr. R. A. Falla (1953, *Emu*, 53: 36-46) has given a comprehensive account of the geographic relationships of the New Zealand avifauna, in which the Australian element is dominant. This paper, on much less secure evidence, seeks to explore the time factors in the history of the avifauna.

During the past century some seven species have successfully colonized New Zealand from Australia (Spurwinged Plover, White-faced Heron, Coot, Royal Spoonbill, Grey Teal, Welcome Swallow, Silver-eye),

This number may be too high, as some of these species may fail to persist (like the Avocet and White-eyed Duck last century); or it may be too low, if additional species (such as the Pied Stilt) are really young colonists. If, however, only two species colonized successfully each century, this would be a high rate when viewed in the perspective of geological time. During the Ice Ages of the Pleistocene (15,000 to 1,000,000 years ago) conditions were intermittently unfavourable for land-bird colonisation, but climatic conditions were as favourable as now during most of the 140 million years since birds evolved and, but for extinctions, a large fauna might have developed here.

The systematic differences which distinguish New Zealand birds from their relatives overseas give us a rough-and-ready yardstick to the time that has lapsed since their colonisation, unreliable in particular cases, but useful in default of other evidence. The critical time is not, of course, necessarily the first colonisation, but the last contact between colonist and parent stock. The non-marine birds of the main islands, including, for instance, the fresh-water gull and tern but not marine species, and including extinct species of moa-deposits, comprise some 116 species (data from the "*Checklist*" and from Oliver's *New Zealand Birds,* 1955).

In addition to the seven that colonized during the past century, eleven species cannot be distinguished from Australian subspecies, and are probably young colonists (e.g. Little Black Shag, Spotless Crake, Pukeko, White Heron, Grey Duck). Seventeen species are Australian (or other) species represented here by distinct subspecies (e.g. Crested Grebe, White-throated Shag, Black-fronted Tern, Banded Rail, Brown Duck and Shoveller, Pipit, Fantail, Kingfisher). How long have they been here? "Strong" subspecies have developed since Cook Strait last became a barrier, some 15,000 years ago, and since forest came to the formerly glaciated Auckland Islands, perhaps less than 10,000 years ago, so there seems no reason to assume that any of the seventeen New Zealand subspecies of Australian species is much older than late Pleistocene (say 20,000 years). Somewhat older, we may infer, are thirteen full spcies classed in overseas genera (including the two dotterels, Black-billed Gull, Paradise Duck and Scaup, Warbler, Tits, Long-tailed Cuckoo, and the New Zealand Swan and Merganser, now extinct). Using the yardstick of "strong subspeciation in about 15,000 years," I see no need to push their origin further back than Early Pleistocene, a million years or so. Some of the full species *(Larus bulleri,* Scaup, *Mergus)* are a long way, geographically, from their closest known relatives, but the Pleistocene saw many dramatic changes of range and extinctions which could account for such relicts.

The next systematic category is the endemic genus in an overseas family. There are 29 species in this group (eight extinct since the Maori period) ranging from forms with clear relationship to parent genus *(Gallirallus* to *Rallus, Notornis* to *Porphyrio, Anthornis* to *Meliphaga, Notiomystis* to *Meliornis, Cnemiornis* to *Cereopsis)* to well differentiated genera of obscure affinity (Wrybill, Blue Duck, Bush Canaries, Tui). They represent 24 colonisations. The date of probable colonisation ranges over a long period, here equated with the 25 million years of the Neogene (Late Tertiary) but perhaps reaching back into the Eogene for some genera.

Eight species, in six genera, are grouped in three endemic families, representing at least three original colonisations: the N.Z. Wrens, Wattle Birds and N.Z. Thrushes. Their distinctness implies an ancient origin, certainly Tertiary and probably in part Eogene (early Tertiary). I personally think it most unlikely that any of the colonisations so far mentioned was as old as Upper Cretaceous. Finally, two endemic orders of Ratites, the Kiwis and the Moas, represent one or more probably two original colonisations, the three Kiwis in a single family and genus, the 20 to 30 species of Moas in two families and seven genera. Irrespective of the question whether the "Ratites" are polyphylletic, we are probably on safe ground in attributing these two colonisations to the Upper Cretaceous.

Taking courage in both hands, I have used the data discussed above in two diagrams, the first showing the number of *species* in the Holocene fauna dating from the different periods of colonisation, the second showing the number of inferred *colonisations* plotted against time. From these, a number of generalisations arise.

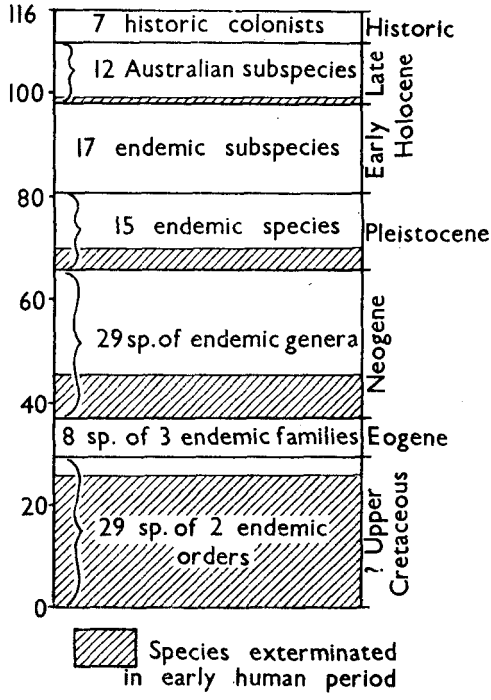


Figure 1 — Diagram showing numbers of species of New Zealand land birds classed under the geological age attributed to their ancestors, judged by their degree of endemism.

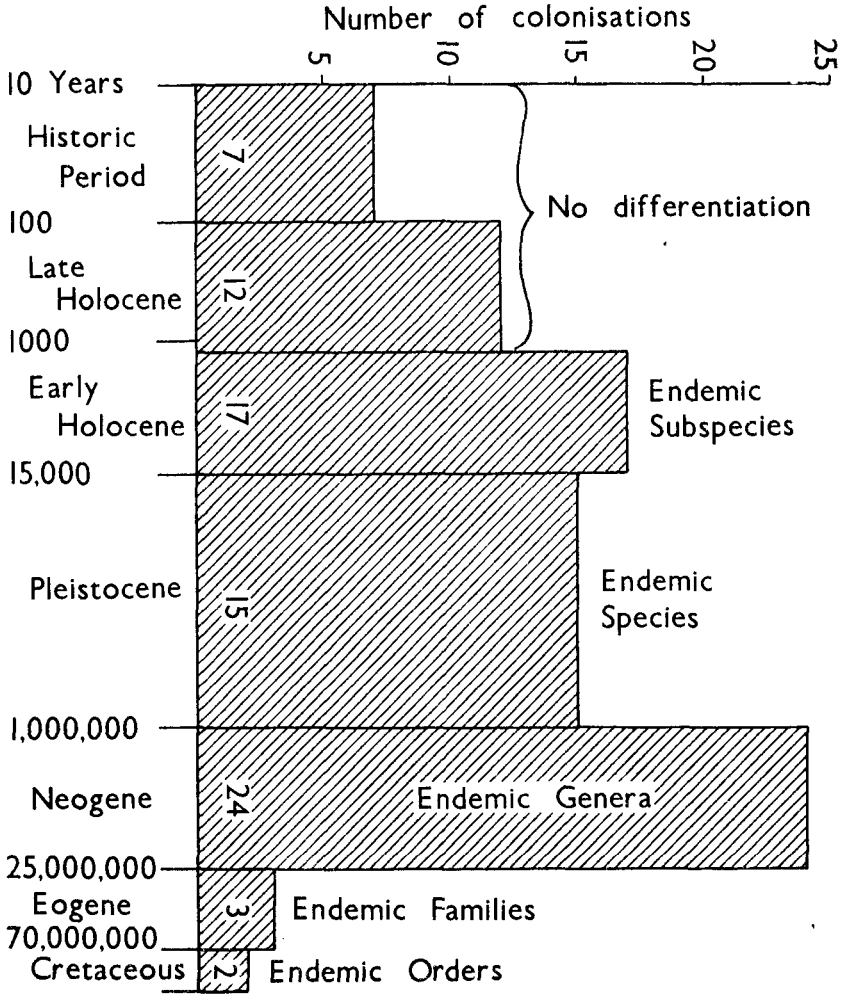


Figure 2 — Histogram showing numbers of bird colonisations plotted against inferred date of colonisation. Absolute age is shown on a logarithmic scale of years before the present.

1. The present rate of apparently successful colonisations (about seven per century) is abnormally high, suggesting that only a fraction of such colonists becomes firmly established in the long run, or that the present (European) period is exceptionally favourable for their establishment.

2. Post-Pleistocene colonisation has been steady, perhaps at an increasing rate. Most colonists were from Australia, and the one subspecies that has no relatives breeding in Australia *(Haematopus ostralegus finschi)* may have been there in the Pleistocene, or may be a slow-evolving form of Holarctic origin and older date of colonisation.

3. Pleistocene colonisation may have been at a low rate, judged by the small number of endemic species (of overseas genera) attributed to colonisation during this period. They include five species of perhaps Holarctic (north temperate) affinity not represented in Australia (dotterels, *Larus bulleri,* Scaup, *Mergus;* compare also *Haematopus ostralegus,* above).

4. The late Tertiary (Neogene) seems to have been an important period of immigration, judged by the relatively large number (25) of endemic genera (of overseas families) that survived into the Holocene.

5. As the Tertiary colonisation rate was probably as high as in the Pleistocene a very large number of Tertiary colonists must have failed to survive till post-Pleistocene time. If we are ever fortunate enough to find a Tertiary deposit of fossil land birds, we must expect many extinct forms not represented in the Holocene fauna.

6. Only very few colonists of Early Tertiary date have persisted through to the Holocene as the three endemic families (N.Z. wrens, thrushes and wattle-birds). The wattle-birds (Huia, Saddlebacks, Kokako), perhaps survivors of a larger group, developed by adaptive radiation in New Zealand during the Tertiary.

7. Of the two endemic orders, attributed to Late Cretaceous colonisation, the Kiwis became specialised for nocturnal life in the forest, an evolutionary blind-alley, whereas the Moas radiated adaptively to exploit a large number of ecological niches in primitive New Zealand.

8. The early human (Polynesian) period robbed the fauna of many of its older elements, probably more than we know, but judged by the fossil record of other groups of animals and plants, the Pleistocene was even more destructive, a conclusion emphasised on the one hand by the high rate of post-Pleistocene colonisation, and on the other, by the relatively small number of pre-Pleistocene colonists that survived.

There are, of course, many pit-falls in this kind of "educated guessing." The data can change with changes in the systematic ranking given to an endemic group, and difference in the speed of evolution will confuse the issue. But the attempt seems worth while in order to provide a hypothesis to test, and is made in the belief (recently expressed by Robert Ardrey) that a scientist has the right, approximating an obligation, to be wrong, in expressing his conclusions, which are always subject to revision.

New Zealand Records of PTERODROMA LONGIROSTRIS (Stejneger) and a New Record of PTERODROMA LEUCOPTERA (Gould)

By R. A. FALLA

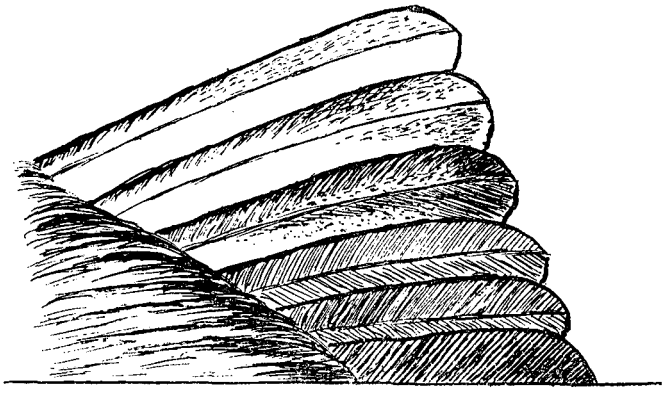
In the course of the year 1961 three specimens of Stejneger's Petrel *(Pterodroma longirostris)* have been found on New Zealand coasts in two widely separated North Island localities. The first record to come to notice was a corpse, fragmentary after mauling by gulls, but quite fresh, found by the writer on the shores of Cook Strait at Baring Head on 3/12/61. The remains were complete enough to give dimensions and fresh colours of soft parts, which were — bill, black; feet with a bluish tinge, stained brownish on outer toe and about half-way up the outer side of tarsus. Webs pale fleshy, not terminally dark as in *P. leucoptera leucoptera*. The bird was in full fresh plumage; forehead and lores mainly white as in fresh plumage the black-based centres of the feathers hardly show; crown and nape fairly dark grey contrasting with paler grey back; secondaries frosted still paler grey, upper secondary coverts more so and edged with white. All primaries have white edges on inner webs, less sharply defined than in *P. cooki*, the outermost least definite; axillaries white, primary shafts dark. The tail of twelve feathers spreads to a wedge-shaped fan. The outermost rectrices have the outer web solid grey except at base and some grey fairly solid on the inner web against the shaft distally, otherwise white or peppered. In the next rectrix the inner web has more grey, but the outer web has some white coming up along the shaft nearly to the tip. In this pattern of outer rectrices, although variable, *P. longirostris* has consistently stronger dark pigmentation than *P. leucoptera* and much more than *P. pycrofti* and *P. cooki*. In the contrasting dark crown the race resembles *P. leucoptera* with which Murphy (1929) has grouped it subspecifically, but its tail is both darker and relatively longer. The tail-wing index of the specimen is 48%.

The other two records are from Ohope Beach, near Whakatane, in the Bay of Plenty. Both were fresh and were found on the same day, 5/1/62, by Mr. V. T. Davis. They show, however, slight differences in plumage and were in different phase of moult. One of them (9767) is still renewing primaries and rectrices and has a good deal of old body plumage especially on the crown. The other (9768) has completed a moult and has a contrasting blackish crown. It has better defined white areas on primaries and outer rectrices than the other, a slightly longer tail and shorter bill. All three birds however are well within the range of described variability of the northern hemisphere specimens attributed to *Pterodroma longirostris* and of the breeding birds from Masafuera which Lonnberg (1921) described under another name *(P. masafuerae)*.

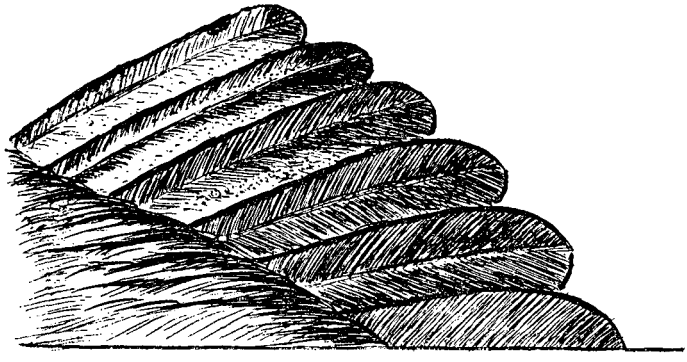
Number	*Sex*	*Wing*	*Tail*	*Tarsus*	*Toe*	*Culmen*	*Width*	*Depth*	*Tail-wing Index*
D.M. 9766	♂	228	109	30	34	25	10	10	48%
D.M. 9767	♂	220+	105	29	35	23.5	8	9	46.6%
D.M. 9768	♂	217	100	29.5	35.5	25	9	9	46.1%

There can, I think, be no longer any doubt that Stejneger's (1888) description of first one and later another moulting specimen from Japanese seas is the first valid definition of the petrel which later Lonnberg (1921) described from a series of Juan Fernandez breeding specimens as *Pterodroma cooki masafuerae*. Because of the extreme condition of moult in the Japanese specimens and the difficulty of guessing the original colour of the feet in dried skins, there has been an understandable tendency to treat Stejneger's species as a marginal uncertainty when genera of small gadfly petrels have been reviewed (Loomis 1918, Mathews 1934, Murphy 1929, Fleming 1941, Falla 1942, Austin 1952). In an earlier paper (Falla 1942) I proposed the relegation of *P. cooki masafuerae* Lonnberg to the synoymy of *P. longirostris* (Stejneger), considering that this was justified by a narrow margin of evidence in favour. Doubt has been removed since Dr. N. Kuroda has kindly supplied dimensions, tail sketches and other particulars of type and co-type, as well as comparing some details of the recent New Zealand specimens sent to him. Whatever other moulting migrants of small gadfly petrels of similar size, such as *P. brevipes* and the anomalous *P. pycrofti*, may have been later referred in literature to *P. longirostris*, it is clear that in general pattern and dimensions, length and shape of tail, pattern of outer rectrices, and foot coloration, both type and co-type of *P. longirostris* present all the essential features of the birds later described from Masafuera, and also of the three vagrants recently found in New Zealand.

In the varying pattern of relationships suggested by the several reviewers listed above one of the few points of general agreement has been to group *longirostris* (and/or *masafuerae*) subspecifically with *Pterodroma leucoptera* (Gould). The material under consideration does not warrant expansion of this discussion into another review, except that it provides an opportunity to emphasise one or two points of difference that are apparent in fresh material. Mr. P. C. Bull has kindly permitted me to examine a specimen and record a further occurrence of *P. leucoptera* in New Zealand.* This bird, an adult female, was found by him on Otaki Beach on 25/6/61, and the skin has been preserved. It is appreciably larger than any of the specimens of *longirostris* and the dark area from the crown extends further on to the shoulders as most reviewers have noted. The dimensions here given may be compared with those of the series above. Wing 232, tail 92, tarsus 30.5, toe 35, culmen 25, width culmen 11, depth 10. The tail wing index of this specimen is 39.6%. Apart from size difference, and the relatively longer tail of *longirostris*, the two are separable by uniform difference in foot pattern, *longirostris* lacking the dark distal area on the webs of *leucoptera*, and in the shape of the tail shown in the accompanying figure.



(a) **P. leucoptera**



(b) **P. longirostris**

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* For earlier occurrences see —

1943, Bull, P. C. — "The occurrence of Pterodroma leucoptera in New Zealand," Emu, XLII, 145-152.

1946, Bull, P. C. — "Further record of Pterodroma leucoptera," Notornis 2, 29-30.

A WEDGE-TAILED SHEARWATER IN NEW ZEALAND

By R. A. FALLA

In the course of a short beach patrol at Makara on the morning of 26/1/62, Mrs. D. McGrath, of Wellington, picked up remains of many petrels. The annual wreckage of newly fledged *Pachyptila turtur* was represented by 25 of these. There were in addition three *Puffinus griseus,* one *Puffinus bulleri* and a similar but smaller shearwater which was just fresh enough to preserve as a skin specimen (D.M. 9661). It is identifiable as a sub-adult male of the white-breasted phase of the wedge-tailed shearwaters which have a breeding range in the tropical north Pacific from the Pescadores to Mexico, and in the tropical belt of the south Indian Ocean.

Systematic. In a series of reviews by several authors of Indo-Pacific shearwaters nomenclature has been proposed which reflects broad relationships, and in the latest of these Murphy (1951) refers to *Puffinus pacificus chlororhynchus* (Lesson) all the wedge-tailed shearwaters except the larger all-brown birds of the Kermadecs, Norfolk Island and Kandavu. The widely distributed subspecies thus defined is dimorphic at some points in its range.

An initial postulation that the Makara specimen is a representative of north Pacific stock and an unusual stray has been rightly challenged *(in litt.)* by Dr. W. R. P. Bourne, who points out that the occurrence of white-breasted birds breeding at Shark Bay, Western Australia, has been documented by Serventy and Whittell (1951). He also suggests that other South Pacific populations nearer New Zealand may yet prove to have a few white-breasted individuals. This suggestion has already been advanced by Murphy (1951, p. 11) who also considers that the only white-breasted specimen known from Canton Island is indistinguishable from examples from the wholly white-breasted Bonin Island population. It is therefore clearly necessary to define all the diagnostic characters of any doubtful specimen and to make as many comparisons as possible.

There appear to be in the literature no suggestion that the first juvenal plumage is in any way different from the normal adult, few references to tail-wing indices or degree of graduation of the tail, and often comparative tables in which the length of the tail is omitted altogether. These characters may be so variable that they become meaningless in a comparison involving hundreds of specimens, but this has not been demonstrated in respect of these particular characters, and it seems legitimate to use them in an attempt to allocate a straggler to its probable natal stock. For the initial comparison I have had only three white-breasted specimens from the Hawaiian area, but into this small series the New Zealand specimen fits very neatly in plumage pattern and dimensions.

No.	Sex & Age	Locality	Date	Wing	Tail	Tarsus	Toe	Culmen	Tail-wing Index
D.M. 8876	ad.	Midway	6/5/49	283	130	48	53	38.5	45.9
D.M. 9577	ad.	Honolulu	14/7/58	288	142	47	56	37.5	49.3
D.M. 9578	immat.	Hawaii	30/12/58	283	126	45	50	34.5	44.5
D.M. 9661	sub-adult	Makara	26/1/62	290	131	50	55	40	44.9

The specimens from Midway (May) and Honolulu (July) are in the normal adult plumage as defined in standard descriptions of this form. The young bird from Honolulu (December) differs in having softer plumage, peppery vermiculation at the sides of the throat, white feather-edging conspicuous on the mantle and strong on the scapulars, and having the median secondary wing coverts frosted grey and broadly edged with white. All this dorsal white seems to disappear in adult plumage except for faded edges to the scapulars. It is, however, still residually apparent in the Makara bird, which if not a bird of the year is probably not more than a year old. The testes were minute, and dark grey. Bill purplish brown, feet fleshy white, only faintly stained brown on the outer sides.

Since making the above comparisons I have received through the courtesy of Dr. W. A. Ride, Director of the Western Australian Museum, Perth, the white-breasted specimen which was the basis of the first record of this phase in the south Indian Ocean by Serventy and Whittell (1951).

Dr. Serventy has kindly sent additional notes indicating the regular occurrence of this phase. Particulars of the specimen are:—

> A1493 adult male, breeding; Shark Bay, W.A., 15 November 1916, collected by T. Carter. Wing 280, tail 120, tarsus 47, toe 54, culmen 37, width of bill 14.5, depth of bill 12mm. " Irides hazel, bill bluish horn, tip darker; legs and feet bright coral pink; mouth and tongue pale fleshy " (from label).

Compared with the series tabulated above, and including the Makara specimen, the Shark Bay bird has a bill stouter at the base in relation to its length, under wing coverts grey and not white in the central series as the others are, with axillaries more uniformly grey, though this is likely to be variable. Although an adult bird in full plumage it has a shorter tail (120mm) than any of the adults or immature birds listed above, and this is reflected in the tail-wing index which is 42.8, lower than the figure for even the immature north Pacific birds listed above, and the New Zealand straggler. On the evidence of specimen comparison as distinct from theoretical possibilities the Makara specimen appears to be from a north Pacific stock.

Adjustments to nomenclature are hardly warranted by a review of so little material, but it is pertinent to remark that the study of wedge-tailed shearwaters would be simplified if there could be agreement to restrict the specific name *pacificus* Gmelin to the large dark birds of the Kermadecs (and perhaps Norfolk and Kandavu) in which the intensity and fixity of plumage pigmentation seems to be of a different order from that of the dark phase smaller birds found elsewhere. Lesson's *chlororhynchus* would then be restored to specific status and North Pacific birds with white underwing coverts in the pale phase and relatively longer tails in both phases should if these characters prove constant and trinomials are not to be discarded have tentative status as *P. chlororhynchus cuneatus* (Salvin). In terms of strict binominal treatment *chlororhynchus* provides a manageable concept, but *pacificus* as at present conceived is unwieldy.

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WINTERING SILVEREYES AT BIRD TABLES IN THE DUNEDIN AREA

By JIRO KIKKAWA

For at least 15 years residents of Dunedin have been feeding birds, particularly House Sparrows *(Passer domesticus)*, Bellbirds *(Anthornis melanura)* and Silvereyes *(Zosterops lateralis)*. Silvereyes are especially numerous around the city during the winter months and extensive feeding by the public is thought to have considerable effect on the population of this species.

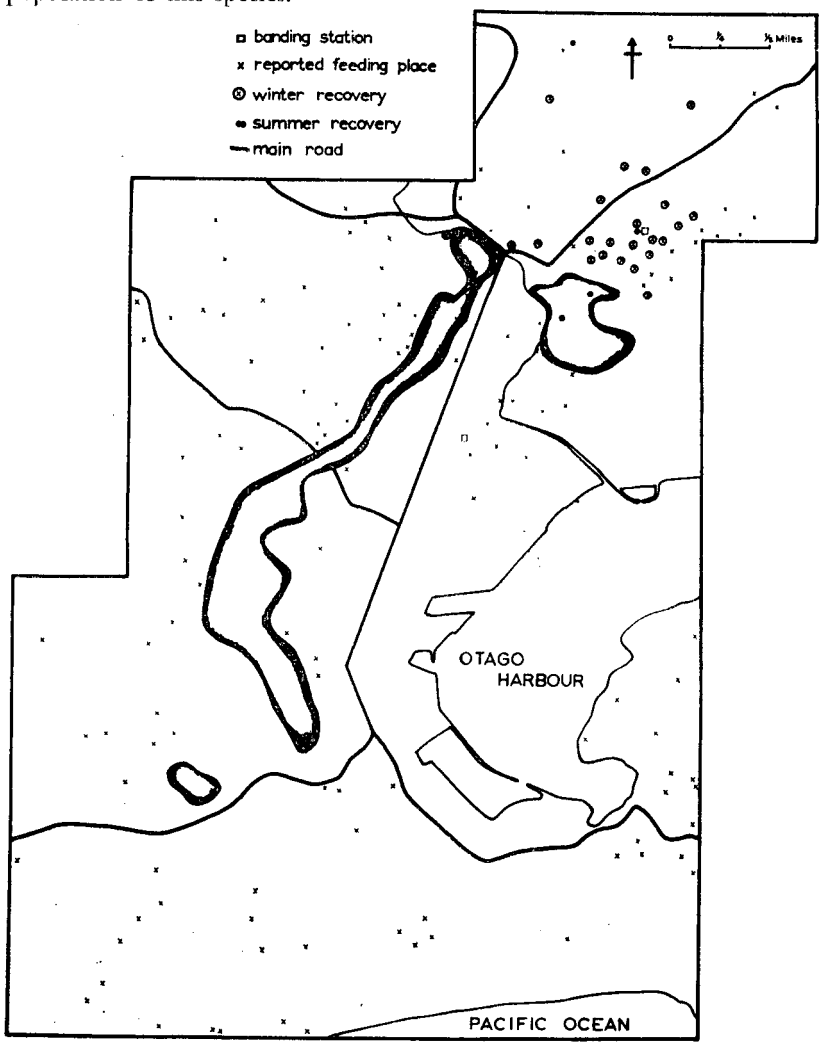
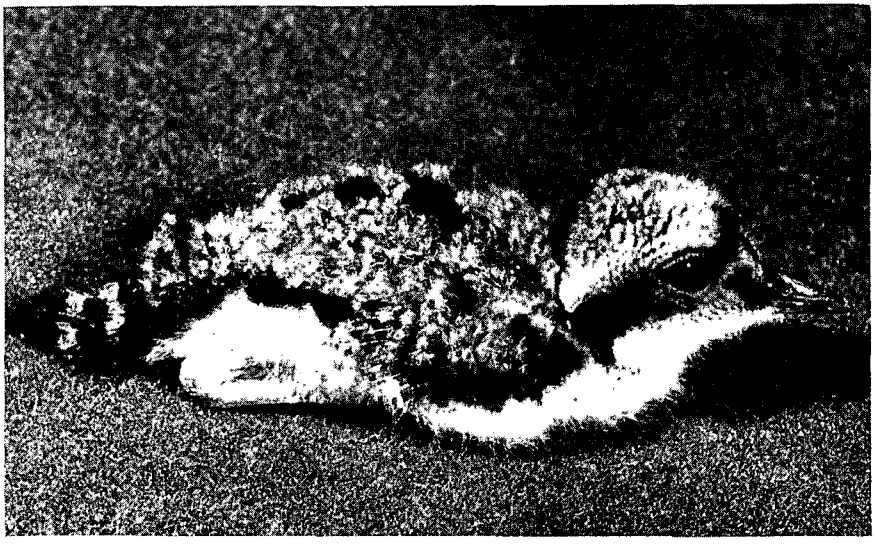
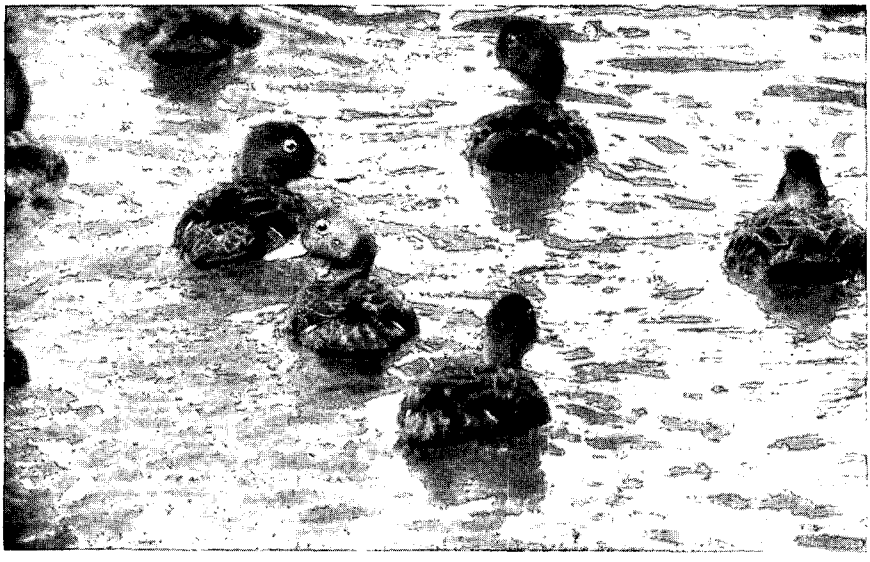


Figure 1 — A map of Dunedin showing the distribution of the reported feeding places in winter. Recoveries are shown for Silvereyes banded at one station only and include sight recoveries made by the author. The enclosed areas indicate the breeding ground of Silvereyes.



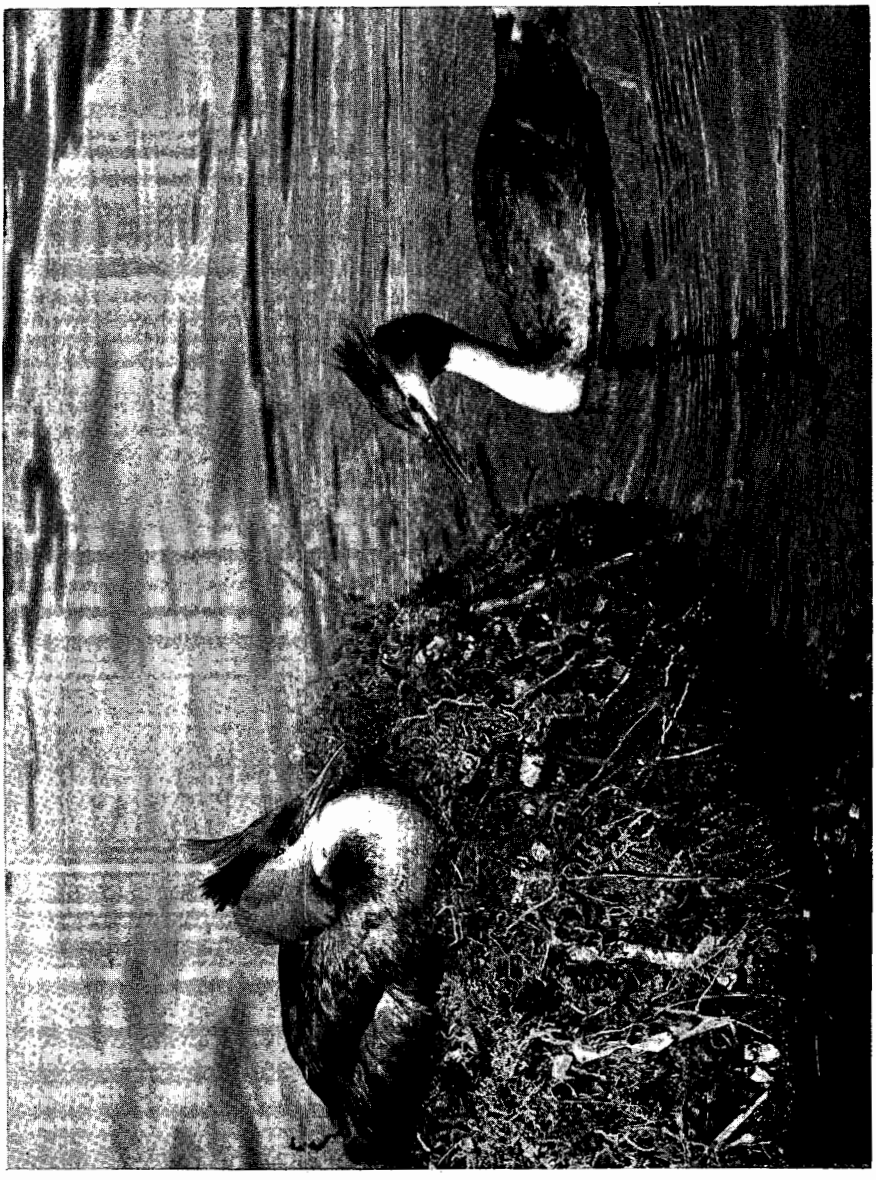
[Norman MacKenzie

IL (a) — Downy young about a week old and the "length of a cigarette" of Black-fronted Dotterel **(C. melanops)** photographed in Hawkes Bay, January, 1962 (v. page 269).



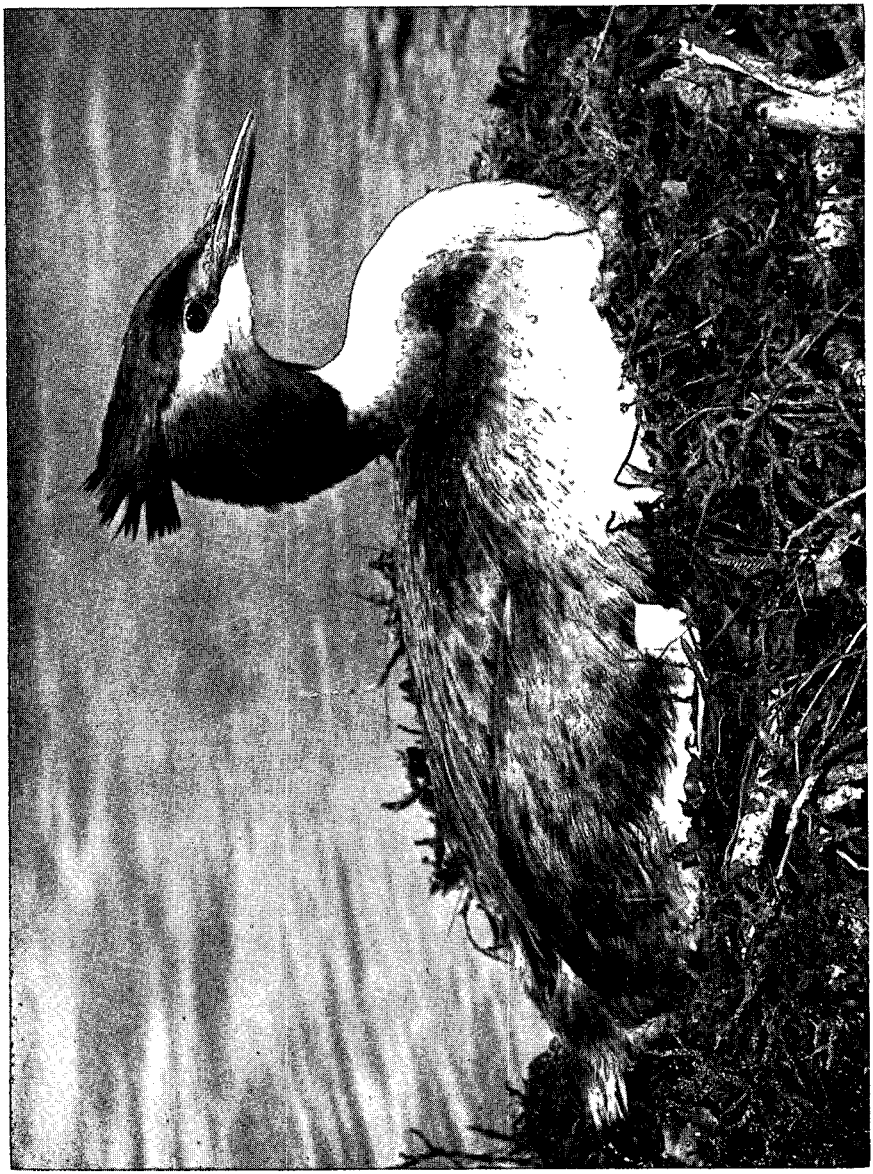
[James Prickett

(b) — Part of a flock of the now rare Brown Teal **(A. chlorotis)** on a secluded Northland river.



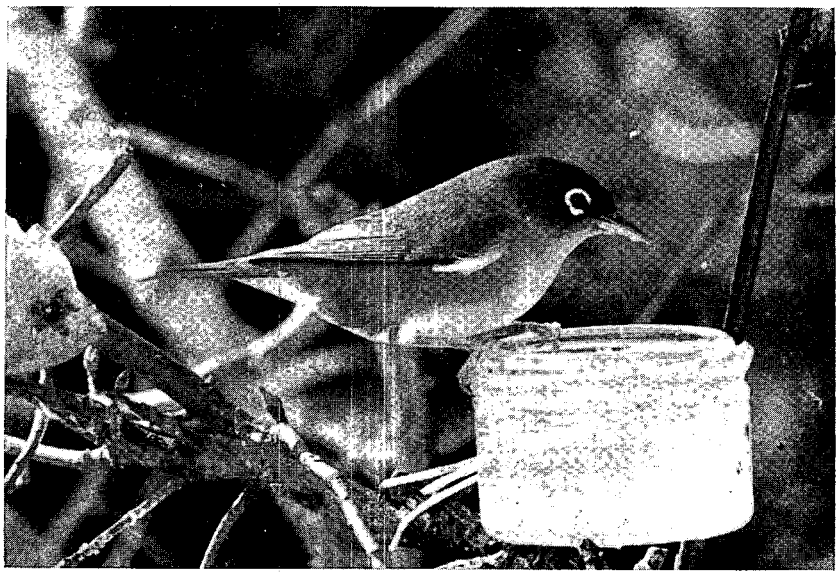
[M. F. Soper

L — A pair of Southern Crested Grebe **(Podiceps cristatus australis)** at their nest on Lake Fergus.

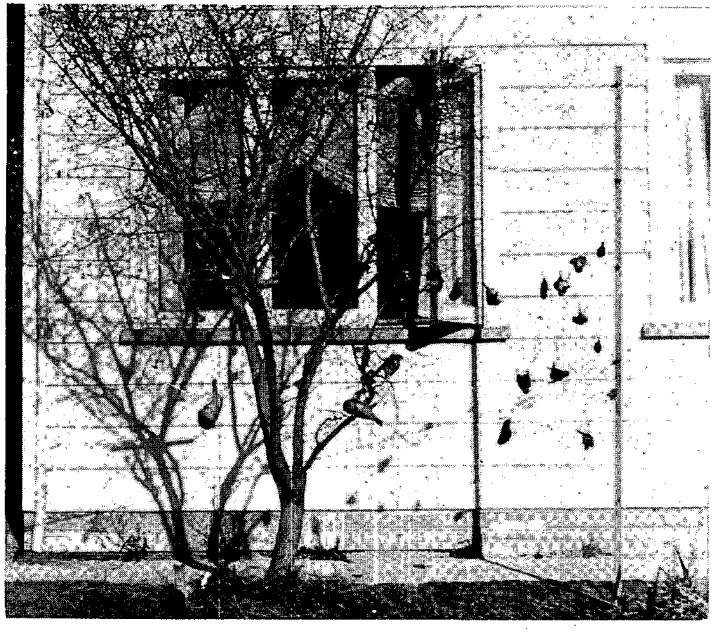


[M. F. Soper

LI — The showy Crested Grebe, one of the rarer water-fowl of New Zealand, differs but slightly from the Great Crested Grebes of the Old World.



LII (a) — Silvereye **(Zosterops lateralis)** taking sugar-water at feeding-station in Dunedin.



(b) — Silvereyes caught for banding in the mist-net at their feeding-station.

[Jiro Kikkawa

In order to obtain an estimate of the number of Silvereyes supported by the food put out by people a questionnaire was circulated in Dunedin (see Appendices). At the same time a study was made of movements and population change in winter by banding at two feeding stations. Between 1958 and 1960, a total of 881 Silvereyes were banded, mist-nets being used for trapping (Plate LII b) and combinations of colour bands (up to three per bird) for the identification of individuals by sight. Records of sight recoveries were kept at one feeding station and dead banded birds were collected with the co-operation of local people. The amount of food required by the bird was determined in an aviary study.

The present report incorporates the replies to the questionnaire and the banding study and provides a basis for the estimation of the size of the population utilising the artificial food supply. I am grateful to the Evening Star for printing the questionnaire and to Dunedin members of the Ornithological Society of New Zealand and of the general public who co-operated in this enquiry.

Size of the population at a feeding station. In the winter of 1960 mist-netting and detail observations made possible a fairly accurate estimation of the total number of Silvereyes visiting a feeding station at 54 Mechanic Street, N.E.V., Dunedin.

If the recapture of banded birds is random, the ratio of the number of new captures (C) to the number of recaptures (R) in one period should equal the ratio of the number of unbanded birds (U) to the number of sight recoveries (Σ G) in the same period. Thus,

$$U = \frac{C\Sigma G}{R} ,$$

and the estimate of the total number in this period can be expressed as

$$\hat{N} = \frac{\Sigma G(C+R)}{R} ,$$

since all recaptures are included in Σ G and all new captures are inculded in U. Applying the method of Bailey (1951) to this equation, a less biased estimate of the total number may be obtained:

$$\overset{v}{N} = \frac{\Sigma G(C+R+1)}{(R+1)} ,$$

with the standard error

$$\pm \overset{v}{N} \sqrt{\frac{C}{(C+R+1)(R+2)}} .$$

Table I shows, in half-monthly periods, the sight recoveries according to the time of first capture and provides a basis for estimating the number of Silvereyes during each half-month period. The effect of migration upon the estimate for any period could be eliminated by calculating the recapture rate from the number of sight recoveries made during that period, instead of using the recapture rate of the previously banded birds which would include the birds that had left the area.

Table 1 — The number of sight recoveries of banded Silvereyes according to the time of the first capture and half-monthly estimates of the number visiting a feeding station in Dunedin in 1960. Birds banded in 1959 were treated as unbanded until they were recaptured in 1960.

Time of first capture	Time of Recoveries									
	May I (0)	May II I	June (1) (2)	June II (3)	July I (4)	July II (5)	Aug. I (6)	Aug. II (7)	Sept. I (8)	Sept. II (9)
May I (0)		9	10	9	5	4	4	4	4	3
II (1)			8	8	8	3	4	3	1	0
June I (2)				14	9	7	6	4	5	5
II (3)					18	10	10	6	6	2
July I (4)						26	15	8	7	2
II (5)							31	15	9	6
Aug. I (6)								9	3	3
II (7)									9	4
Sept. I (8)										10
II (9)										
Total sight recoveries (ΣG)		9	18	31	40	50	70	49	44	35
Number of recaptures (R)		3	6	12	7	12	12	15	27	5
Number of first captures (C)	15	22	28	72	92	110	53	28	51	9
Number estimated ($\overset{V}{N}$)		58.5	90.0	202.8	500.0	473.1	355.4	134.8	124.1	87.5
Standard error		± 24.1	± 28.4	± 49.9	± 160.0	± 118.3	± 85.3	± 25.6	± 18.6	± 25.4

In fact, if we divide the banded birds present in any period into two groups, those previously banded ($\sum_{x=0}^{t-1} G_{x,t}$) and those banded in that period (C_t), as shown in Table 2 the recovery rate of the former was always greater than the recovery rate of the latter in the following period:

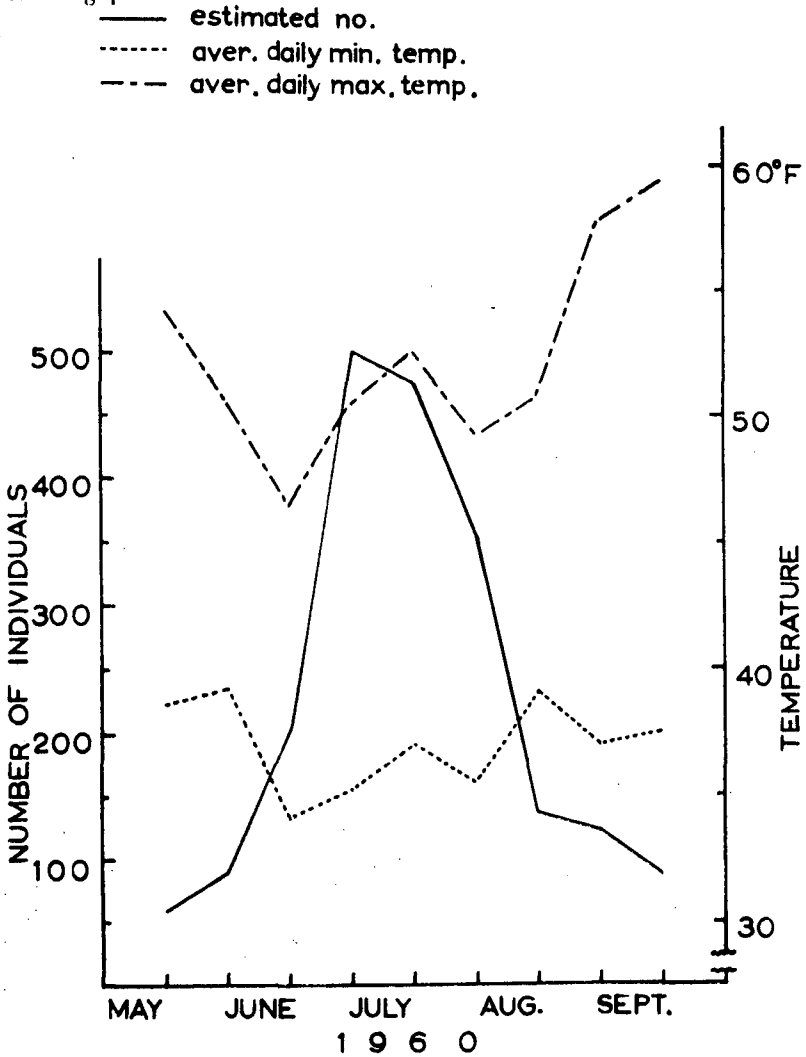


Figure 2 — Half-monthly changes of the Silvereye population and of maximum and minimum temperatures at a feeding-station in Dunedin in the winter of 1960. See Table 1 for the estimation of the numbers.

$$\frac{\sum_{x=0}^{t-1} G_{x,\,t-1}}{\sum_{x=0}^{t-1} G_{x,t}} > \frac{G_{t,\,t-1}}{C_t}$$

where $G_{x,t}$ indicating the number of birds sight-recovered in the period t which were banded in the period x (x=O,1,2..., t-1). In other words, in any period there were more transient elements among newly banded birds than among birds recovered during that period, and this would affect the population estimate if the recapture data only were used for the calculation. Also, in this way it was possible to estimate the number present during the last interval.

The recovery rate was greater in the early winter when the population size was small, indicating the early arrival of resident flocks. The population increase in mid-winter was brought about by the late arrivals and the increase in the number of transient birds which either had nomadic habits or expanded their range of activities. As shown in Figure 2 this increase in number was associated with low temperatures. On the other hand, in semi-natural habitat in Dunedin, higher population counts of Silvereyes were obtained in warm days in winter and flocking itself was not associated with the movement between natural habitat and feeding places (Kikkawa, 1961).

Table 2 — Percentages (A) of newly banded birds which were sight-recovered in the following period and percentages (B) of sight-recovered birds which were again recovered in the following period.

Period	0	1	2	3	4	5	6	7	8
A	60.0	36.3	50.0	25.0	29.2	28.2	17.0	32.1	19.6
B	–	100.0	94.4	76.0	60.0	76.0	57.1	69.2	49.0

Range of movements and total population size. Many of the birds banded at the feeding station in mid-winter disappeared soon after banding, but as indicated in the Map (Fig. 1) some of these birds regularly visited other feeding places and 18 were recovered dead, in winter, within 1,600 yards of the feeding station. These records, together with sight recoveries, indicated that the range of the 500 or so birds which visited the feeding station in mid-winter was approximately 450 acres. However, the range of individual birds was much less than this. Nomadic birds probably moved over 50-100 acres while resident birds were restricted to only a few acres. From the calculated range for 500 birds a minimum estimate of 7,500 Silvereyes was obtained for the area of 6,000 acres which was covered by 147 reported feeding places.

In summer, apart from a few resident birds which bred near the feeding station, very few banded birds were recovered. The only long distance movement was shown by a male which was taken in breeding

conditions at the Shag River (about 30 miles north of Dunedin). Other instances of long distance movement have been noted by Marples (1944), but as yet the pattern of seasonal movements is not clear. The breeding density of Silvereyes in the wooded part of Dunedin averaged 1.2 pairs per acre over the seasons 1958-61 (sample size, 20 acres). In the Dunedin City area the breeding habitat is limited to about 400 acres of the town belt, which suggests a total population of 960 birds or 480 pairs. If each pair rears 4 young on the average (2 successful nests with 2 fledglings per nest) there will be 2,880 birds at the end of the breeding season. Many birds probably die before mid-winter and yet this figure is smaller than the estimated minimum number (7,500) for the mid-winter population. This difference may be accounted for by partial migration. In autumn Silvereyes move in separate flocks and feed on berries and only late in May do they begin to show interest in food at the bird table. From the end of August, when Kowhai *(Sophora microphylla)* flowers, they gradually leave feeding tables while still flocking and at this time larger flocks are often seen in natural habitat.

Artificial food supply and food requirements. Of 147 replies received in the enquiry 137 were suitable for analysis of the amount of food provided for the birds. Estimates of the amount per week, for major food items, are given in Table 3 together with calorific values obtained from Hawk et al (1954). As bread is eaten also by House

Table 3 — Minimum amount of food put out by people each week in winter in Dunedin and the estimated amount consumed by Silvereyes.

Food item	*Total*	*Estimated amount consumed by Silvereyes*	*Food energy*
	lb.	g.	Cal.
Bread	169	25,400	68,580
Fruits	28.7	9,752	5.656
Sugar	78.9	26,853	103,384
Honey	29.8	9,978	29,336
Jam	16.2	5,443	15,132
Fat	2.2	907	8,019
Total	—	—	241,783

Sparrows, Blackbirds, etc., and as other food may be shared with Bellbirds and Tuis, the calculation of the quantity consumed by Silvereyes was made with the assumption that they obtained one-third of the available bread and three-quarters of fruit, sugar, honey, syrup and jam. Minimum estimates have been used throughout so that the value of 240,000 Calories contained in the artifical food eaten per week provides a minimum estimate for the energy content of the food available to Silvereyes. Moreover, other kinds of food such as porridge and meat

scraps were not included in the calculation and there were probably other feeding places which were not reported. The actual amount consumed per week at the feeding station in mid-winter, when the estimated number of Silvereyes reached 500, had the food energy of 1,632 Calories (sugar 272g, fruit 850g, bread 150g) and this value was near average when compared with the values for reported feeding places.

Ten birds kept in an aviary consumed the following quantities of food containing 995 Calories in a week in mid-winter: honey 65g, apples 450g, bananas 110g, bread 180g. If they require a similar amount of energy under natural conditions, the estimated minimum amount of available food put out by people can fully support 2,440 Silvereyes, which is about one-third of the estimated total winter population.

Although only approximate the above estimates show that, in the Dunedin area where in winter people provide food for birds, as much as one-third of the total food intake of Silvereyes derives from this artificial food supply, or two and a half thousand birds could fully depend on it. The winter mortality of Silvereyes seems to be high in Dunedin and it would be interesting to find out more about the effect of such artificial feeding on the population.

SUMMARY

Fairly accurate estimates were obtained for the number of Silvereyes visiting a feeding station in Dunedin and the amount of food energy required by these birds. From these estimates and the results of the enquiry sent to the public, it was found that in the part of Dunedin City (6,000 acres) where at least 147 people fed birds, more than 7,500 Silvereyes spent winter in 1960 and consumed at least 240,000 Calories of artificial food per week. This is as much as one-third of the total energy required by the estimated population. It is likely, therefore, that the natural population of Silvereyes is greatly influenced by artificial feeding.

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Hawk, P. B., Oser, B. L., and Summerson, W. H., 1954: Practical Physiological Chemistry. 13th ed., New York. Appendix III.

Kikkawa, J., 1961: Flocking of the White-eye (**Zosterops lateralis**) in New Zealand. Tori 16: 315-327.

Marples, B. J., 1944: Report on trapping and ringing work on the White-eye (**Zosterops lateralis**) throughout the Dominion. N.Z. Bird Notes 1: 41-48.

APPENDIX I

The questionnaire circulated among the public in Dunedin in September, 1960.

(1) The address at which you have been feeding birds. (2) How long have you been feeding birds? Did you start more than five years ago? Or less? This year? If not this year, when? (3) What time of the year did you start feeding them this year — give month and early or late in the month. Or did you feed them all the year round? If not, when did you stop feeding them, month and time in the month? (4) Do you feed them on the ground, on a bird table, or both, or on a tree? (5) What kind of birds do you have at the feeding place?

Sparrow, Starling, White-eye (Wax-eye, Silvereye), Bellbird, Tui, Blackbird, Thrush, Finches. (6) Which species is the most common visitor? (7) How often do you feed them? Twice or more daily, once a day, three times a week, once a week or less? (8) What kind of food do you put out? Bread, fruit, honey water, sugar water, milk, fat, porridge, or anything else? (9) On an average, how much food do you feed a week? Bread, how many loaves approximately? fruit, number of pounds, or less? honey? sugar? and so on, even if it is only spoonfuls. (10) Have you seen any banded birds? If so, how many and what kind of bands were they? Did they have coloured bands, metal bands, or both? Which months did you see them this year? Were they seen last year, this year, or in both years.

APPENDIX II

Summary of the replies to the above questionnaire (other than those shown in Table 3). The number of replies was 147 (the number of feeding places from which the following statistics were obtained was 130).

Item	*Number of feeding places*	*Percentage*
Feeding all year	59	45.4
Feeding in winter only	71	54.6
Feeding on table or tree	86	66.2
Feeding on ground	72	55.4
Feeding on ground only	33	25.4
Feeding twice or more a day in winter	56	43.1
Feeding once a day in winter	47	36.2
Feeding less than once a day in winter	27	20.7
House Sparrow as regular visitor	125	96.2
Silvereye as regular visitor	127	97.7
Bellbird as regular visitor	53	40.8
Tui as regular visitor	11	8.5

For the bird feeders who feed Silvereyes in winter it is recommended that feeding on the ground should be avoided and food has to be fastened to a tree or a table at least 2 feet above the ground so that it does not scatter on the ground. Many Silvereyes are caught by cats in winter when they come to feed on the ground. It is also advisable to have more than one feeding place at each site in order to reduce the amount of fighting among the birds. Silvereyes provide a unique opportunity for the study of behaviour at the feeding place. They fight over food or perches while moving in flocks, and, when they rest, pairs perch close together and one bird often preens the other. The male always has a darker flank and in a pair the sexes can be distinguished by careful observation.

SHORT NOTES

WINTER SIGHTING OF GANNETS

Since 1949 we have learned a great deal about the life of the Gannet *(S. serrator)* near its breeding ground, but we still have a lot to find out about what it does during the rest of its life. We must call on readers to help to fill in the gaps in our knowledge. A year ago (*Notornis IX,* 156-158), we recorded three dates between June and December on which Gannets in juvenile plumage had been seen in New Zealand waters, when ordinarily they would have crossed the Tasman to Australia. Two observers replied to our request for further information.

On 30/8/60 A. T. Edgar had seen a young Gannet at Whatipu; it was flying along parallel to the breakers. This adds a third bird to the two found by Peter Skegg, Michael Hogg, and Nick Ledgard in this area, a few days earlier. Another was seen on several occasions in June by Ray Wiblin. It was feeding in the area between Pukerua Bay and Paremata. He found it dead on June 30th; the corpse was fresh enough for the skin to be preserved. The 1961-1962 season has been a very late one in several of the colonies. We shall be pleased if readers send in further reports of juveniles sighted from June onwards this winter.

We would also like to know more about what the adults do in the winter time. From late July until January most of them are fully employed quite close to their breeding grounds. At some colonies a check has been made, and although it has not been a very exhaustive one there is evidence enough to show that while food is in good supply near the colony, breeding adults are content to remain within ten or twenty miles of home. Then, as their chicks depart, parents lose interest in the colony and scatter up and down the coast until only a few remain in its vicinity. A late June count at Horuhoru has shown only three on the rock itself, and no other gannets within four miles of it. How far they go we do not know. An adult with a nest on Horuhoru has come ashore sick at Warkworth, forty miles away. Another that lost its chick in January turned up one hundred miles to the north near Whangarei Heads in March. An injured bird, which when it recovered was liberated in the Ponsonby Boat Harbour, was next seen on a nest at Horuhoru, 30 miles to the east. In the space of a month or two, these birds made a change in locality varying from thirty to one hundred miles. In some cases, as at Farewell Spit, the movement is much greater; from a distant summer breeding ground to an area which affords good fishing conditions in the winter. We would like to hear details of seasonal concentrations of adults in any district, and of any unusual movements along the coasts. At present John Jenkins, who is a frequent traveller up and down the coast, is sending in a list of the Gannets he sees en route. One set of observations off the Australian coast seems to line up with what we should expect from sub-adults setting out to return to New Zealand.

Observations of anything unusual may lead to something important. Gannets seldom venture inland. Only when they can see the water on the far side will they fly over even a narrow isthmus. Among the four hundred odd banded Gannets so far recovered, only two have

been found inland; in each case the bird was in a weak state after having been blown ashore in a gale. On 15/1/62, H. O. Ingram and J. D. Jepson, standing near the top of Ruapehu saw an adult gannet quite close to them. Although it was flying before a strong east wind, it did not seem in any way distressed. It circled briefly as if trying to find a way round the mountain. Then, flying up above them it soon climbed to about 9000 feet, and disappeared to the south. The nearest rookery, off Kawhia, is over 100 miles away.

Early reports about Gannets trying to start new colonies may be of great importance. Some of the older colonies are getting very crowded and it is likely that some of the sub-adults returning there may have to find new homes. North of the Bay of Islands two new colonies were reported in 1959. One on the Ninepin off Cape Wiwiki was said to have hundreds of nests. I visited it twice in December, 1960. Towards noon on the first visit we found no Gannets within two miles of the stack. A few days later, towards evening, we found a dozen adults roosting; no sign of nests. Again in March, 1961, there were a few roosting birds but no nests.

D. I. McKay of Mangonui reported that there were usually some Gannets on the islet at the end of Berghan Point and up to two hundred at night. In December, 1960, I found about twenty ashore near mid-day and at daybreak the following morning there were 24. There was no sign that they were nesting.

Late one afternoon in January, 1960, we passed "Never Fail," an islet off the Great Mercury. There were no Gannets on or near it. In December, 1960, and again in 1961, Peter Densem found a single nest with adult and chick. There have been previous attempts at establishing colonies in the Mercuries and in the Aldermen. The nearest rookeries to the north are in the Hauraki Gulf, and to the south, at White Island. Early reports of any developments will be much appreciated.

— P. A. S. STEIN

[If you have any contribution to make on any of these four topics will you please write direct to Peter Stein at 9 Cameron Street, AUCKLAND, W.1. — Ed.]

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WELCOME SWALLOWS IN NORTHLAND

My wife and I toured in Northland during the first half of February, 1961, and in the course of our tour observed a total of twenty-eight Welcome Swallows *(Hirundo neoxena)* in nine separate localities, as follows: Waiomio, seven; Ngawha, four; Kaitaia, four: Awanui, three; ¾ mile east of Kaingaroa, one; Lake Ngatu, two; Waiharara, two; Kaimaumau, three; Houhora harbour South Head, two. We also visited Herekino, Tokerau and Aurere, where swallows have previously been reported, but drew a blank at these three localities, probably merely because we did not happen to be at the right spot at the right time. After the nesting season is over it must be largely a matter of luck how many birds one sees on a brief visit to any one locality. At Waiomio, Ngawha and Awanui swallows were seen to make extended flights over the surrounding country, periodically returning to base but sometimes only after long intervals of time. On our first visit to Waiomio (1/2/61) we saw seven swallows, but when on

each of three subsequent visits (Feb. 6, March 27 and 29), we stopped by the bridge for about 15 minutes, the tallies were 3, 3 and 5 birds.

I was interested to read (*Notoris IX*, 31) that the Welcome Swallow is now listed as a subspecies of *tahitica*. The resident Malayan swallow is *H. t. abbotti*. Commonest in the lowlands and coastal areas, including mangrove swamps, it is also found on small offshore islands and during the last thirty years has spread to and breeds at hill stations (4000-5500ft. a.s.l.). Usually seen in pairs or small parties, in the lowlands they may congregate into post-breeding flocks of twenty or more, perching on snags or branches of dead trees, from which frequent sallies are made over open country of coastal flats. Favoured nesting sites are the underside of bridges and jetties (wood or concrete) and many nests are made in houses, on top of beams, on rafters and walls and under eaves. Nests have also been found on the faces of steep banks, attached to boulders, and in small rock tunnels. From my observations there seem to be many points of similarity in the behaviour of Malayan and Northland swallows and perhaps in time the local birds may display equal catholicity in choice of nesting sites. The Kaitaia birds, between hunting flights over open country and short sessions of perching on telegraph wires were very much interested in a recently built dwelling house just outside the town, and were watched for some time perching on the lintel over the front door, and on the floor of the outside verandah.

Lake Ngatu swallows perched on a post on the edge of the water, till chased off by a gull which took their place. Some of the Waiomio birds perched on fence posts and on the top wire of a fence. Awanui birds periodically rested on a stout wire under the bridge. One of the Ngawha birds settled for a time on bare ground on the edge of Lake Tuwhakino.

The "swimming" flight of swallows is characteristic. Much of the time they fly at no great height over farmland and open country, but on extended flights may rise to a considerable elevation. Houhora birds flew low over the rushes and up and down the course of the Motutangi stream near where it flows into the harbour mouth, varying this with wide sweeps over dunes and rough heathland. Kaimaumau birds flew along in front of the low bank behind the beach, fluttering, twittering and momentarily perching on the face of the bank at a small bluff, and then swinging off to fly through the smoke of a small scrub-fire about half a mile away. This habit of flying through smoke to catch insects disturbed by the fire is one which is shared with the Malayan bird. Ngawha birds skimmed low over the lake, occasionally dipping to the surface of the water. At Waiomio and Awanui periodical swift swoops under the bridges alternated with social circling, hunting flights low over the water or wide ranging flights over the paddocks.

Only two of the birds seen had fully elongated tail streamers. The white subterminal spots on all but the central and outer pairs of tail feathers are visible when the bird spreads its tail in the process of banking or settling on a perch. One bird, apparently young, had very pale chestnut on forehead and throat, and in the ruffled plumage of its back whitish feather bases showed through the blue, giving a somewhat mottled appearance.

—A. T. EDGAR

SOOTY TERN OFF CAPE REINGA

At 1700 hrs. on 30/7/61, a Sotty Tern *(S. fuscata)* was observed flying around the M.V. Kaitangata when she was about eight miles off C. Reinga in a position 34° 32′ S, 172° 31′ E. The wind was west and blowing at 24 knots. Strong northwest gales had been blowing in this area for the past 48 hours and the sea was rough with a swell from W.N.W. The tern made several attempts to come aboard and finally managed it, landing right forward. Some few minutes afterwards the vessel shipped a sea over the fo'c's'le head, washing the tern to the end of No. 1 hatch, a distance of 50 feet with a drop of ten feet.

It was picked up from this position and appeared to be very much alive. Shut up in a cabin overnight it took some sardines that were placed near it, and regurgitated some shells of what appeared to be shrimps. On the morning of July 31 at 1120 hrs. in a position 36° 20′ S., 174° 54′ E., just east of Kawau, weather fine and clear with a light breeze, the bird was released. It flew strongly away from the ship and disappeared. One hour later it was again on board and stayed aboard until after the vessel arrived in Auckland.

It was seen sitting on the deck of the bridge at 1700 hrs. July 31. Not seen at all on August 1, it was found newly dead on board on the morning of 2/8/61 and handed in at the Auckland War Memorial Museum. The following measurements were taken: Wing 305, Tarsus 22, Bill 41, Tail 235, Depth of fork 144 m.m. The outer-tail streamers are very well grown and considerably longer, with a correspondingly deeper fork, than those of the two Sooty Terns which were found wrecked on the Auckland west coast in August, 1960 (Notornis IX, 137).

— J. A. F. JENKINS

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GREENFINCHES AND COTONEASTER BERRIES

Mention has recently been made in *Notornis* of Greenfinches *(Chloris chloris)* consuming cotoneaster berries. Over the last six winters I have noted that both male and female Greenfinches have frequented a shrub of *Cotoneaster serotina* during the months April to July in Khandallah.

Through observations made, I have found that they are partial to the seeds rather than the flesh. When one is walking past this species of shrub, the clicking of bills can be heard. Under the tree many fragments of the fruit can be found minus the seed.

I may mention also that two other fruits are attacked, in our garden, by Greenfinches in quest of the seeds. Berries of *Cotoneaster microphylla* have flesh ripped off and seed removed. Frequently what remains of the berry is still attached to the branch. After Blackbirds *(T. merula)* have pecked sections out of crab-apples *(Malus 'Gorgeous')*, Greenfinches have been observed from close range, pecking out and crunching the seeds.

— S. S. McDONNELL

LATE BREEDING OF BLACK-BACKED GULLS

During a routine visit to Somes Island (Wellington harbour) for the night of 18-19 February, 1961, a Black-backed Gull *(L. dominicanus)* was found incubating an egg on a fresh nest near the north end of the island; and in addition, two small downy chicks, about two weeks old, were found on the eastern slopes.

Under normal conditions, egg-laying of this species on Somes Island starts during the last week of October, with a peak during the first two weeks in November, and all the chicks have flown by the end of January.

F. C. KINSKY

REVIEWS

A Treasury of New Zealand Bird Song. Supplement No. 1, by Kenneth and Jean Bigwood. Published by A. H. and A. W. Reed.

The splendidly original work of the Bigwoods in recording the voices of birds in New Zealand is well known through three records published in 1959. Now a fourth record fills some of the inevitable gaps, so that the claim that these records have a scientific as well as an entertainment value is very much strengthened. Sitting quietly at home the listener may now compare the calls of North Island and South Island Brown Kiwis and the songs of Yellowhead and Whitehead, though the Whitehead has a considerably wider repertoire than is here recorded. Students of bird-song, especially if they live outside the South Island, will be grateful for the opportunity to hear the rather elusive warbling of the unique Brown Creeper. It is regrettable that only the monotonous call-note of the Pipit is given and nothing of its lively song.

Text and commentary are by Gordon Williams, who has again ranged widely in search of quotations.

May the good work continue!

— R.B.S.

Focus on New Zealand Birds, by G. J. H. Moon. Published by A. H. and A. W. Reed.

As the popular interest in natural history increases, such is the demand for books like "Focus on New Zealand Birds" that they are apt to go rapidly out of print and become obtainable only second-hand as a collector's piece at a greatly enhanced price. It was therefore good news to hear that a second edition, revised and enlarged, was being prepared and the reviewer was happy to note that immediately on publication it was conspicuously displayed in the bookshops of Westland.

The author is well known to readers of *Notornis* not only for his fine photographs but also for the acuteness of his observations on the behaviour of birds at the nest. In the light of wider experience much of the text has been rewritten, so that the principle has been to describe each species under six headings, namely habitat, distribution, field characters, voice, food, breeding.

To the reader, as he turns the pages, this book offers a feast of delight in the photographs alone. Special mention may perhaps be made of pictures of the Banded Rail, masterly examples of what your genuine modern naturalist can achieve when challenged by a beautiful but secretive bird. The text is well stocked with sound information for all who wish to learn or further the art of bird-watching.

— R.B.S.

NOTICES

BACK NUMBERS OF "NOTORNIS"

Members are reminded that back numbers of *Notornis* and the earlier *N.Z. Bird Notes* are obtainable from the Society. Enquiries about costs and the parts still held in stock should be made to:— Mrs. Hetty McKenzie, Box 45, Clevedon, Auckland.

Other publications available are: *The Takahe* (5/-); *Identification of Albatrosses* (1/-); *Reports and Bulletins, 1939-1942,* with Index, (12/-), Index Alone 1/6. These precede Vol. I of *N.Z. Bird Notes* and record the first three years of the Society's work.

As there is a steady demand for back numbers of *Notornis* and especially for the earlier N.Z. Bird Notes (1943 - 1950), members are asked to offer to the Society, for gift or sale, past numbers which they no longer need.

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BANDING REPORTS FOR SALE

The full and detailed Ninth, Tenth and Eleventh Annual Reports of the Banding Committee for the years ending 31/3/59 (38 pages), 31/3/60 (42 pages) and 31/3/61 (37 pages) are available at 5/6d. each and may be obtained from Mrs Hetty McKenzie, Box 45, Clevedon, Auckland.

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COLOUR BANDED BLACK-BACKED GULLS

Red, white, and blue colour bands are being placed on Black-backed Gulls from three Wellington colonies. Sight recoveries of these readily visible bands are extremely useful, having already provided records from Marlborough and Auckland, as well as from closer at hand. Several age groups have been banded with different combinations of the aluminium and colour band, so that the position of the bands on the legs is also important. Any sigh recoveries of these bands should be sent to Mr. F. C. Kinsky, Dominion Museum.

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AN INVITATION TO VISITORS

Ornithologists from other continents intending to work on African birds are invited to make use of the Percy FitzPatrick Institute of African Ornithology, University of Cape Town, as their base. Office or limited laboratory accommodation would be made available; use could be made of the Institute's reference library; access to the collection of the South African Museum could be arranged; and the advice of the staff on matters requiring local knowledge would be at the visitor's disposal. Anybody interested should write to the Director, Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Rondebosch, Cape Province, South Africa.