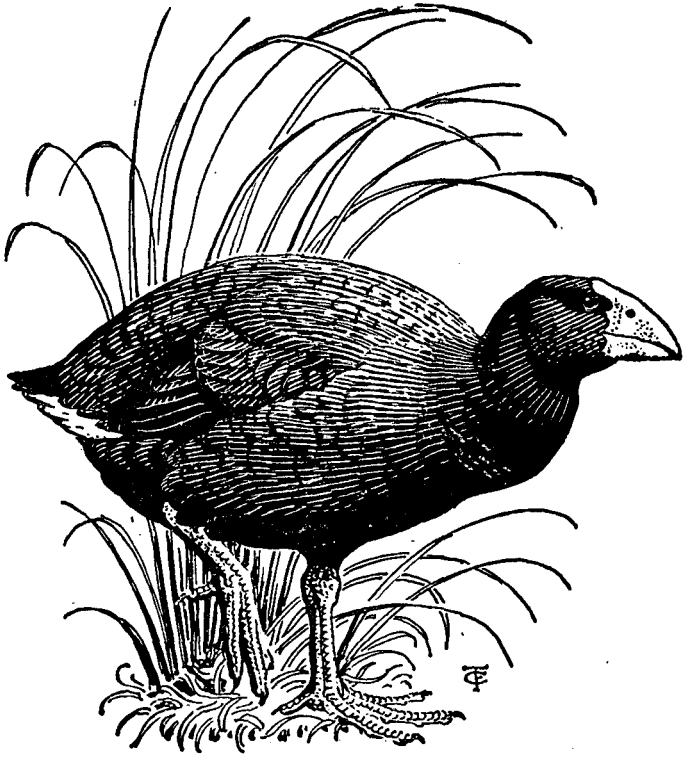
NOTORNIS



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NOTORNIS

In continuation of New Zealand Bird Notes

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Contents of Vol. 10, No. 2: September, 1962

FAREWELL SPIT IN WINTER — 21-26/5/62

By A. T. EDGAR

B. D. Bell, Senior Field Officer, Wildlife Division, Dept. of Internal Affairs, led a party which studied the birds of Farewell Spit in summer (January 22-29, 1961) and a full account appears in *Notornis* IX, 145-156. In January the population of arctic waders was probably at its maximum; the census was carried out by a team of nineteen, and it was noted at the time that the ideal number of active participants would have been twenty-two.

In order to study the seasonal change in bird population B.D.B. organised a winter party (May 21-26, 1962). Partly because school holidays had ended earlier than usual this year, the party was relatively small, and consisted of B. D. Bell (Wildlife), A. Blackburn (President, O.S.N.Z.), I. G. Andrew (Palmerston North), J. W. Bain (Gisborne), A. T. Edgar (Auckland), Mr. and Mrs. T. Hartley-Smith (Wildlife, Greymouth), and on the day of the census, Mr. and Mrs. F. G. Soper (Takaka).

The nature of the Spit has been well described in *Notornis* IX, and only the main features need be mentioned in this paper, for the purpose of explaining descriptive terms used in the text. The Spit is about 18 miles long, with a lighthouse at mile 16, and the Freeman homestead at the base, and its width above high tide level varies from half to three-quarters of a mile. The northern (outer) ocean beach is backed by moving sandhills; the southern (inner) beach is backed by consolidated dunes and fronted by a vast area of tideflats. Miles 1-6, the consolidated dunes, and an area near the lighthouse are in scrub, and near the base of the Spit there are a number of permanent pools. The rest of the Spit is broad sandflats, between which and the dunes lie the partly consolidated inner flats, subject to variable shallow flooding. Sheep, cattle and a few deer continue to find rough grazing in the scrub-covered areas, and a few hares were seen on the edges of the inner flats.

Once again we were indebted to Mr. S. W. Freeman for the use of his woolshed and for a plentiful supply of fresh water. The woolshed served as a kitchen, storeroom and sleeping quarters; Mrs. Hartley-Smith produced magnificent meals, and still found time to take part in some field work; T.H.S., tireless and skilful in handling the Land Rover and in making the billet wind-proof and comfortable, contributed also his full share of field observations.

I.G.A., B.D.B., A.T.E. and the T.H.S. family assembled on the evening of 21st May, A.B. and J.W.B. joined early on 22nd May, and miles 6-11 were reconnoitred on that day. 23rd May was census day; the small number of observers made a complete count impossible, but the Spit (excluding the inner and outer beaches) was covered as follows — miles 2-6, T.H.S.; miles 6-11, A.B., A.T.E.; miles 11-15, I.G.A., J.W.B.; miles 15-18, B.D.B., F.G.S. On 24th May miles 3-7 were checked for rarities; on 25th May a census by Land Rover of the outer beach was followed by a census of the inner beach (from the tip to mile 11) by B.D.B. and I.G.A., and a recheck of miles 6-11 by A.B., J.W.B. and A.T.E. All counts except that on the outer beach were timed to coincide with the period around high tides, and the long

beats which had to be covered involved fairly smart walking. T.H.S. acquired much merit on 25th May when he coaxed the Land Rover as far as mile 9 on the inner beach to pick up the walking parties.

Weather was good. 22nd May was fine with a moderate easterly wind; 23rd May (census day) was less pleasant with the wind freshened, blowing sand and overcast skies; 24th and 25th May were fine and mild, 25th May particularly so, copper butterflies flitting through the low scrub at mile 11. Rain fell on 25th night; the party broke camp early on 26th May. High tide was about 11.30 a.m. on 22nd May, 1.50 p.m. on 25th May.

NOTES ON SPECIES

For ease of reference I have listed below all species recently recorded from Farewell Spit. These include birds seen by the January, 1961, and May, 1962, expeditions, plus several additional species recorded in *Notornis* and others observed during a visit to the Spit in March, 1958 (unpublished notes by B.D.B.). Where necessary, comparative figures are given for January and May counts. Because of the larger number of observers, the January count of some species is probably more accurate than the May count, which however is considered to be a reasonable approximation. Methods of estimating total numbers, where employed, are explained in the text.

LITTLE BLUE PENGUIN *(Eudyptula minor)*

One found alive in January. In May, a dessicated corpse was found on the inner beach; numerous penguin tracks led from the outer beach across the sandflats to the consolidated dunes (miles 6-11), and at mile 11 A.B. found six penguin tracks converging on the carcass of a long-dead hind lying in the scrub.

PETRELS and SHEARWATERS

Off the outer beach a Nelly *(Macronectes giganteus)* was seen on 23rd May, a Mollymawk *(Diomedea sp.)* on 24th May, and large dark petrels (species unidentified) on 25th May. Fluttering Shearwaters *(Puffinus gavia)* were noted in fairly large flocks offshore near the tip of the Spit on 23rd and 25th May. Time did not permit any beach patrols.

Additional species recorded in January were Wandering Albatross *(D. exulans);* Broad-billed Prion *(P. vittata),* corpse; Fairy Prion *(P. turtur);* Buller's Shearwater *(P. bulleri);* Sooty Shearwater *(P. griseus);* and Diving Petrel *(P. urinatrix).*

GANNET *(Sula bassana)*

January, regular sightings, up to 12 in one day. 22nd May, 6 off inner beach; 23rd May, 5 off inner beach, 6 adults and one juvenile off outer beach; 24th May, 4 off outer beach; 25th May, 4 off the tip of the Spit at 10 a.m.; at 12.30 p.m. 25 (including one juvenile) fishing close inshore just inside the tip of the Spit; and by 3.45 p.m., about two hours after full tide, 150 were fishing offshore from mile 10 (inner beach) and more birds still coming in to join them from the open sea (B.D.B., I.G.A.).

BLACK SHAG *(P. carbo)*

Present in January; May, about 25-30 birds seen, scattered along the length of the inner beach. No Pied Shags were seen in January or May.

LITTLE SHAG *(P. melanoleucos)*

January, not common along the Spit; up to 90 roosting in tall kanuka around Freeman's pond, including a few of the white-bellied phase. The population had increased in May. By day most of them frequented the tide-line of the inner beach from mile 10 to the tip, on which stretch 183 were counted on 25th May (B.D.B., I.G.A.). From some time before sunset till almost dark singles and small parties flew in towards the roost, circled and drifted around over the pond and kanuka grove; almost all the birds dropped to the pond for a freshwater bath before finally going to roost. 25th May count at the roost was c. 250 birds, about 40% of which were white-bellied phase (A.B., I.G.A.). No large shags were seen at the roost.

SPOTTED SHAG *(P. punctatus)*

Not recorded in January. May, a dessicated corpse (inner beach).

WHITE HERON *(Egretta alba)*

Not seen on the Spit, but a single bird at Westhaven Inlet about 10 miles to the south, 25th May (T.H.S.).

LITTLE EGRET *(E. garzetta)*

Recorded by B.D.B. from Puponga, at the base of the Spit, March, 1958.

WHITE-FACED HERON *(Ardea novaehollandiae)*

Recorded as common in January. In May single birds and small parties were seen flying over the scrub and around permanent pools, miles 3-6, usually returning to the tideflats at low tide; the great majority remained on the tideflats throughout the day. 22nd May count gave 60 birds scattered along the tideflats from miles 1-6, a flock of 65 about mile 7, and 60 about mile 10. A count from the tip to mile 11, 25th May, gave 251 birds. The population of the Spit appeared to be of the order of 435 White-faced Herons, and a further 87 were counted at Westhaven Inlet on 25th May (T.H.S.).

BITTERN *(Botaurus poiciloptilus)*

January, three on permanent lagoon at mile 3; not observed in May, but could easily have been missed.

ROYAL SPOONBILL *(Platalea leucorodia regia)*

Not observed in January. From Westhaven Inlet three were recorded on 26/11/55 (B. D. Heather) and seven on 28/12/57 (M. Breen); from the Spit, one in mid-March, 1958 (B.D.B.). Eight birds were seen daily from 22nd - 25th May on the outer edge of a large pool at mile 7 which was also a favoured resting place of a large number of Black-backed Gulls.

BLACK SWAN *(Cygnus atratus)*

Large numbers were recorded in January and in May. Odd birds were seen on the permanent lakes, one on Freeman's Pond, and one day four birds flew over the Spit and landed on the outer beach, but with these few exceptions the swans kept to the tideflats, along the whole length of the Spit. Over 600 were counted from the Land Rover on 22nd May on the stretch miles 1-6.

GREY DUCK *(Anas superciliosa)* and MALLARD *(A. platyrhynchos)*

In January Greys, hybrids and Mallards were noted in fair numbers. Numerous ducks were seen in May but no complete count was possible. On census day a number of parties of 20-25 birds were

flying about the pools and inner flats but many remained on the tideflats; some of the parties were true Mallard. A concentration of 78 Greys was noted on 25th May, and on 22nd May 5-600 ducks, mostly Greys and hybrids, some true Mallard, rested on the edge of mile 7 pool.

SHOVELLER *(A. rhynchotis)*

Not recorded in January; on 24th May a party of 26 was observed on the edge of the tideflats close to the inner beach.

HARRIER *(Circus approximans)*

Recorded in January; in May 13 birds were counted on census day and as usual on such occasions were distinctly unpopular. Few experiences are more frustrating than to be half way through a complicated count of mixed waders, none too easy in any case under conditions of fresh winds and blowing sand, and then to have the flock flush and scatter as the shadow of a Harrier passes over it, so that the count has to start all over again.

WESTERN WEKA *(Gallirallus australis)*

Wekas were common all along the Spit in May, as in January. Around the woolshed calling sometimes started at dusk, usually not till about 8 p.m., and continued through the night. On two occasions calling was heard by day, between three birds in a manuka thicket and between two birds in a flax clump on a swamp edge; in both cases the calling was probably evoked by the approach of intruders. At a bay just south of Puponga on 25th May T.H.S. sighted a family party, parents and three one-third grown chicks, which must have been a late brood.

PUKEKO *(Porphyrio melanotus)*

January, odd pairs and a family party; May, one bird sighted.

SOUTH ISLAND PIED OYSTER-CATCHER *(Haematopus ostralegus)*

January, 2048; May, c. 4000. Census day count was only 2774 but it is certain that a number of birds remained on the outer beach and probably some on the tideflats. On 25th May the outer beach count was 2504. A further 452 remained near the tip of the Spit and did not come in to the sandflats. Miles 6-11 count on the same day was 1532, but some of these came in from the outer beach. We know that on 23rd May c. 1050 birds which fed on the inner beach came in to miles 6-11 sandflats at high tide. Our population estimate is therefore based on 2504 + 452 + 1050 = 4006.

BLACK OYSTER-CATCHER *(H. unicolor)*

January, 42; May, 22. Most of the January birds were from the rocky coast at the base of the Spit, which we did not have time to inspect; our count was from outer beach and sandflats. In January one smudgy *reischeki* was recorded; not seen in May.

GREY PLOVER *(Charadrius squatarola)*

January, one bird.

PACIFIC GOLDEN PLOVER *(C. dominicus)*

January, 30 birds.

BANDED DOTTEREL *(C. bicinctus)*

January, 1088; May figure at 1255 may well be an underestimate as many birds probably stayed on the inner beach. Only two birds were noted on the outer beach but dotterels were running all over the

inner flats, particularly in areas sheltered from the wind by the consolidated dunes. A few birds of the year, a few with pale bands, but the great majority had good bands.

MONGOLIAN DOTTEREL *(C. mongolus)*
January, one bird.

NEW ZEALAND DOTTEREL *(C. obscurus)*
January, 5; May, 5.

WRYBILL *(Anarhynchus frontalis)*
January, 29; May, 7, on the inner flats; two parties of three and a solitary bird, all unafraid and allowed close approach.

CURLEW *(Numenius madagascariensis)*
January, 18; May, 7, first seen on the outer beach on 23rd May, and again on 24th and 25th May at the big pool on mile 7 sandflats.

LITTLE WHIMBREL *(N. minutus)*
January, one bird.

ASIATIC WHIMBREL *(N. phaeopus variegatus)*
January, 21. On 25th May a whimbrel (?spp) was seen on the inner beach (mile 13) by B.D.B., who also recorded a single bird in March, 1958.

BAR-TAILED GODWIT *(Limosa lapponica)*
January, 17720; May, c. 2000, of which 1.5% were "red" birds.

BLACK-TAILED GODWIT (*L. limosa* ssp)
January, one bird.

GREY-TAILED (SIBERIAN) TATTLER *(Heteroscelus incanus brevipes)*
B.D.B. recorded a tattler (ssp. unid.) from the tideflats in March 1958; no record in January. On 24th May a single bird was seen at mile 6, and probably the same bird on 25th May at mile 7½, on the sandflats. When first sighted it was perched on a small log; when flushed it flew over us repeating a clear double not which I wrote down at the time as "tchee-weep." It landed by some Banded Dotterel. On 25th May it was with some Banded Dotterel on the bare sand, and again called when flushed, first a single "twheet" repeated three times with intervals between notes which may have been an alarm call, and thn the double notes as heard the day before. In the double call the second note was higher pitched than the first; the pitch of the single note was to my ear the same as that of the second note in the double call. I.G.A., in his comments on the first draft of this paper, writes that the double note reminded him of the call of a Golden Plover, but fuller in tone and carrying power, and I agree. He also states that it was quite distinct from the double monotonic note uttered by the Waikanae bird, and suggests that what we heard at Farewell Spit may have been the adult call, and the Waikanae call that of a bird not yet fully mature. Flight was fairly swift; the bird was not shy, and its general appearance was slim and graceful; pale grey above, with light eyebrow and dark loral line, underparts white with some light greyish barring on the flanks, legs pale yellow, bill comparatively long, slender and black.

TURNSTONE *(Arenaria interpres)*
January, 808; May, c. 20, in twos and threes from mile 6-18. On census day 15 birds were counted in miles 11-18, none observed in

miles 6-11; however on 22nd May 8 birds and on 25th May 5 birds were seen on miles 6-11 beat. One bird was in full and one in partial breeding plumage; the others in winter dress.

KNOT *(Calidris canutus)*

January, 27370; May c. 730. 450+ were recorded on census day, of which at least 21 had varying degrees of red in the plumage, but on 22nd May and again on 25th May a flock of c. 280 included over 80 red or reddening birds, and it would seem that this flock did not on 23rd May come into the census area. Red birds were estimated at about 15% of the total observed, most of them only partially reddened but a few in magnificent plumage.

SHARP-TAILED SANDPIPER *(C. acuminata)*

January, two birds.

CURLEW SANDPIPER *(C. ferruginea)*

January, two birds.

RED-NECKED STINT *(C. ruficollis)*

January, 9; May, 6, in two parties each of three birds which sometimes linked up, on the inner flats at mile 6; they were as tame as the Wrybills, and fed undisturbed within a few yards of observers. All were in winter plumage; some variation was noticed between individuals in the degree of mottling on the upper parts.

SANDERLING *(C. alba)*

On 25th May during a final check on miles 6-11, while A.B. and J.W.B. were engaged on a Knot count at mile 7½, A.T.E. noticed a small grey wader some distance away on the dry sandflat near the base of the dunes, with a number of Banded Dotterel. At first thought to be a Wrybill, the grey bird soon attracted special attention because of its extreme activity, and an attempt was made to get close enough to examine it in detail, but the bird was not only very active but also very shy; during a period of perhaps 15 minutes it ran 400 yards, and twice took to flight when approached to within 80-100 yards. A.B. and J.W.B. were called back for a check and for a short period watched the bird, still very active and running about the sandflats until it took off, when it was joined in the air by a second bird apparently of the same species but which had not previously been noticed. Field notes made at the time include mention of very pale grey upper parts, suggestion of a black shoulder patch, pure white underparts and a large amount of white on face and forehead, black bill and legs; A.B. had both birds in the field of his binoculars when they took off for the last time and took particular note of the pattern of white wing-bars, which tallied closely with that of a specimen subsequently examined in Canterbury Museum. The bird held its head forward when running, not hunched like a Wrybill. Though close range inspection was not possible the field notes as detailed above, plus its shyness and extreme activity compared with the tame and much less active Wrybills seen elsewhere on the Spit, seem to indicate that the suggested identification is correct.

PIED STILT *(Himantopus leucocephalus)*

B.D.B. reported several small parties on the tideflats in March, 1958; January, 18; May, 21 birds at mile 7 pool. Farewell Spit is obviously a locality not much favoured by this species.

BLACK STILT *(H. novaezeelandiae)*
January, one bird.

POMARINE SKUA *(Stercorarius pomarinus)*
January, one bird.

ARCTIC SKUA *(S. parasiticus)*
January, 5; 23rd and 25th May, one intermediate phase bird seen off the far end of the Spit by B.D.B., who has a March, 1958, record of a bird harassing Red-billed Gulls at Puponga (base of the Spit).

BLACK-BACKED GULL *(Larus dominicanus)*
January, c. 200; May, probably c. 500 (399 counted on census day, not including outer beach and tideflats).

RED-BILLED GULL *(L. scopulinus)*
January, 199; May, 454.

BLACK-BILLED GULL *(L. bulleri)*
January, 101; May, 61 were counted, mingling with parties of Red-billed Gulls.

BLACK-FRONTED TERN *(Chlidonias albostriatus)*
January, 5; May, 23, scattered in small parties from mile 6 sandflats to the tip of the Spit. Two young birds still with some brown in the plumage, black bills and legs; the others adults, one with some white on the forehead.

CASPIAN TERN *(Hydroprogne caspia)*
January, 86; March 1958, B.D.B. saw birds fishing offshore and a party of 26 including some immature birds; May, 39 on beach and tideflats.

CRESTED TERN *(Sterna bergii)*
Recorded from the Spit on 17/1/60 by B.D.B. (*Notornis* VIII, 261).

WHITE-FRONTED TERN *(Sterna striata)*
January, 1085; March 1958 (B.D.B.), small scattered flocks of up to 25 birds along the beach; May, 42 seen towards the far end of the Spit.

WHITE-CAPPED NODDY *(Anous tenuirostris)*
January, one bird.

LONG-TAILED CUCKOO *(Eudynamis taitensis)*
Two records; P. E. White on 2/11/46 (N.Z.B.N. II, 170) and H. R. McKenzie on 21/1/61 (*Notornis* IX, 251).

KINGFISHER *(Halcyon sancta)*
January, not recorded. May, 28 birds counted along the length of the inner beach.

PASSERINES

The May list of introduced passerines was the same as in January. Skylarks common in grassy patches and on salicornia flats, sometimes in parties of up to 6 birds, occasional song heard; Song Thrush, Blackbird, Dunnock; Greenfinch, Goldfinch and Redpoll in small flocks; Chaffinch, Yellowhammer, Sparrows near the lighthouse; Starlings less numerous than in January but present in parties along the length of the scrub-clad areas.

No Fantails noted; Grey Warbler not much in evidence, and silent. A Yellow-breasted Tit was recorded near the homestead in

January, but not noted in May. Silvereyes in small flocks; Pipits fairly numerous on dunes and sandflats, many of them noticeably dark-plumaged, compared with Bay of Plenty or Auckland birds.

Two additional species previously recorded are:—

AUSTRALIAN TREE MARTIN *(Hylochelidon nigricans)*
Two birds seen on 14/1/60 by A. Wright (*Notornis* VIII, 261).

WELCOME SWALLOW *(Hirundo neoxena)*
One bird seen by B. D. Heather on 25/11/55 (*Notornis* VI, 247).

CONCLUSION

Farewell Spit Reserve is under the control of the Commissioner of Crown Lands, Nelson, to whom the Society is grateful for permission to carry out January and May surveys. A list of 79 species and sub-species from so small an area is in itself remarkable, and it is more than probable that considerable additions may be made to this list by future expeditions. The Spit, remote, undisturbed, and in a most auspicious geographical situation could prove to be not only a feeding ground for great congregations of waders but also a favourable landfall for stragglers and occasional visitors of many other species. The suggestion made in *Notornis* IX that the area of the lighthouse could be a very valuable site for a bird observatory is one which should be kept in mind.

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TAXONOMIC STATUS OF THE NEW ZEALAND REDPOLL, CARDUELIS FLAMMEA: A REASSESSMENT

By DAVID STENHOUSE

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INTRODUCTION

Redpolls were first liberated in New Zealand in 1862, and after further introductions, became established in most parts of the country (Thomson, 1922). The species is now one of the more abundant components of the avifauna. The taxonomic status of the introduced populations was determined by Westerskov (1953), on the basis of 36 skins from the New Zealand region, at the sub-specific rank: *Carduelis flammea cabaret* P. L. S. Muller, the Lesser Redpoll. In the course of ecological work on this and other Fringillid spp. in Canterbury in 1958-9, evidence was obtained at variance with this conclusion; a preliminary report on this has already appeared (Stenhouse, 1960). A full investigation of individual variation in the N.Z. Redpoll populations had been initiated just prior to the author's departure from New Zealand. This would probably have led to a better understanding of the taxonomic problems; but it is felt that publication and discussion of results to date is desirable, if for no other reason than to focus attention on a most interesting situation.

METHODS

Data were recorded from 234 birds trapped in the Lincoln area, Canterbury, and 34 taken at Alexandra, Otago. With a few exceptions,

these were all living at the time of examination. Wing-measurements of 12 skins taken in the Fiordland area were obtained from Mr. J. Kikkawa.

Data recorded included: sex; age class; wing length (chord of wing); length and depth of culmen; length of tarsus; weight; qualitative observations of plumage colour. Only the data on wing-length and on plumage colouration have been found significant to the question of sub-specific status: only these, therefore, will be dealt with here.

Measurements of wing-length were taken to the nearest millimetre, with the wing held in its natural curve against a finely-graduated ruler. Re-measurement on four repeat captures gave a 1 mm reduction in one case over an interval of two months. Since this was probably due to feather-wear, it is felt that "observer error" was negligible within the limits of accuracy employed. Re-measurement on 13 skins up to three years old showed no change in four specimens, an average decrease of 0.6 mm in the others. This appears to be due to shrinkage of tissues and/or loosening of the feather base. Measurements with the wing held flat against the ruler were found to be 1 mm greater than those taken with the wing in its natural curve (14 cases).

Observations on plumage colour were made in daylight, usually within 30 minutes (though in some cases up to 15 hours) of capture; And with the aid, for the latter two-thirds of the sample, of comparison with three captive birds representing a mean and the extremes of the *cabaret-flammea* range of colouration (see Table 1). The significance of deviations from the *cabaret*-type colouration was not initially realised, so no details of colouration were recorded for Redpolls Nos. 1-32.

TABLE I

Distinguishing Features of the sub-species *C. f. flammea* and *C. f. cabaret*.

(After Westerskov, 1953, following Salomonsen, 1928, and Witherby *et al.*, 1938)

	Wing length (mm.)		Bill length (mm.)		General plumage colour	Wing-bar	Body-size
	M	F	M	F			
flammea	71-79	69-76	8-10	7.7–9.1	Paler	Conspicuous whitish	Slightly larger
cabaret	67-73	63-69	8-10	8 – 9.5	Darker	Inconspicuous buff	Slightly smaller

Sexing was by presence or absence of pink on the breast, cheeks, and rump. Birds with no pink on the breast were classed as females, those with a small amount of pink as first year males. Juvenile birds were recognised by their distinctive plumage (Witherby *et al.*, p. 71-2), and were not sexed.

Sexing was checked by dissection in 13 cases, by behaviour (paired with birds of obvious sex) in two. Two birds classed on plumage as first year males were found by dissection to be females; in other cases sexing was confirmed.

Individual Variation

Considerable variation in distribution and shade of the red or pink plumage of both males and females was observed, and a start had been made, shortly before the termination of the study, to record details of this individual variation. Too little has been done to enable definite conclusions to be drawn, but it may be mentioned that the "red" colouration ranged from orange (with even a few definitely yellow feathers visible) through a fairly pure red to a blue-red which in a few cases was almost purple. The relative importance of genetic and of environmental factors in this variation is unknown: environmental effects may be considerable, since captive birds eventually lose all trace of red. This colour variation has apparently escaped mention in the European literature, so perhaps may not occur there, or may occur to a lesser extent. If so, the considerable N.Z. range of variation deserves careful study. It might be due to environmental factors novel to the species (new foods are certainly taken in N.Z., e.g. seeds of *Nothofagus* spp. (Riney *et al.*, 1959, p. 66) :or to the "secondary intergradation" between the subspp. (cf. Stenhouse, 1962). There may also be a tendency towards true geographical variation, since approximately half of the Canterbury sample showed the "yellowish" type of colouration, whereas all the Fiordland skins were "bluish" — but of course the Fiordland sample was extremely small.

A subjective impression is that the individual variation of several characteristics is at present discordant (Wilson and Brown, 1935). This is supported by the fact that a certain degree of discordance has been shown to exist between the variations in wing-length and those in plumage colour, e.g. *flammea*-type colour characteristics being found below the lower limit of wing-length for that subsp. Theoretically an eventual stabilisation of the ranges of variation within the N.Z. populations would be expected. Interesting possibilities become apparent. Has stability already been attained — after only 100 years? This seems unlikely. Is there a trend to concordance of the variation of separate characteristics, either in N.Z. as a whole or in the different regions; or will the situation finally settle to a stable discordant variation? There is obviously an opportunity here for N.Z. ornithology to make signficant contributions, over the ensuing years, to our knowledge of such phenomena.

IMPLICATIONS OF SEXING AND MEASURING TECHNIQUES

Since *cabaret* is the subspecies of least wing-length, for present purposes it was felt that errors should tend if anything towards reduction in apparent wing-length, in the interests of conservatism. Sexing technique, accordingly, since female wing-length averages less than male, allowed some females to be classed as males (this is known to have occurred in two cases — see above), but no *vice versa*. It is likely then that the individuals below the lower limit of the male range were in fact females, and that there was some depression of the mean of the male wing-lengths. (This sexing technique gave a ratio of 128M/122F in the sample. If 18 of these "males" were in fact females, the resulting

TABLE II

Carduelis flammea males: frequency-distribution of wing lengths, with occurrence of *C. f. flammea* plumage characteristics.

Wing length (mm.)	No. of individuals	No. with *C. f. flammea* plumage			
		Pale upper plumage (a)	Whitish wing-bar (b)	Both (a) and (b)	
65	1				*C. f. cabaret* range
66	7	1	1		
67	14		1		
68	21		3		
69	35		3		
70	31		4		
71	8		1	1	*C. f. flammea* range
72	3		1		
73	6		1	1	
74	1	1			
75	1	1			

TABLE III

Carduelis flammea females: frequency distribution of wing lengths, with occurrence of *C. f. flammea* plumage characteristics.

Wing length (mm.)	No. of individuals	No. with *C. f. flammea* plumage			
		Pale upper plumage (a)	Whitish wing-bar (b)	Both (a) and (b)	
64	5				*C. f. cabaret* range
65	7		1	1	
66	25	2	1		
67	27	1	1		
68	20		2		
69	23		1		*C. f. flammea* range
70	11			1	
71	2		1		
72	1				

sex-ratio, 110M/140F, still appears not unreasonable.) It seems likely that long-winged females might have more chance of being classed as males, since the long-winged subspecies *flammea* has a stronger tendency to red colouration; hence any resulting change in the frequency-distribution of female wing-lengths should tend to support the conclusions of the present study.

The "Handbook" wing-lengths (Witherby *et al., op. cit.:* xxxiv) are "flat" measurements, whereas those of the present study are "curved." As indicated above, it appears that c. 1mm should be added to "curved" measurements to make them comparable with "flat." The "Handbook" measurements, however, are assumed to be measurements of skins; and such measurements have been shown, above, to be on average 0.6 mm less than "live" measurements. It appears, therefore, that on average 0.4 mm should be added to the "live," "curved" wing-lengths of the present study to make them comparable with the "Handbook" measurements. This would tend to result in a further upward shift in the mean wing-lengths of the sample, and would further emphasise the disparity between the New Zealand and pure *cabaret* populations.

POSSIBLE EXPLANATIONS OF THE OBSERVED DATA

1. Neither the "Handbook" nor Salomonsen (1928) gives the size of the samples from which the wing-length ranges of the various subspecies were determined. It is assumed that the samples were sufficiently large for the ranges to be authoritative. The possibility that the data of the present study merely extend the wing-length range of *cabaret* is therefore excluded (v. also below).

2. It is possible that, in c. 100 years isolation in a new environment, evolutionary changes might have been rapid, and that the wing-length range of a pure *cabaret* population might have increased. Against this, however, are:—

(a) In a period of rapid expansion of population, selection pressures should be low, hence both short-winged and long-winged individuals should occur. In fact, there has been a general *increase* in wing-length.

(b) While wing-length is the only characteristic used in this study which is both significant and quantified, conclusions based on this are supported by the data on plumage colouration (c.f. Mayr 1955). No known-pure specimens of *cabaret* or *flammea* were available for comparison, but the colour of upper parts varied from a warm almost chestnut brown to a pale and definitely greyish brown; and, more noticeably, the wing-bars in several specimens were an almost pure white. It appears implausible that two characteristics of another subspecies (longer wings and paler plumage, characteristic of *flammea*) should have evolved in a pure *cabaret* population in a relatively short time; especially since these characteristics are the opposite of those to be expected, if Bergmann's and Gloger's rules were applicable, in an environment generally warmer and probably little less humid than that of the parent populations.

3. The only other explanation is that the New Zealand populations contain a proportion of one of the subspp. longer-winged than *cabaret*. It seems that this is most likely to be *flammea*. Apparently against this conclusion is the fact that no individuals have been obtained from the

upper parts of the *flammea* wing-length ranges. It is suggested, however, that the two subspp. have been interbreeding and that the several wing-length ranges are coalescing about common means (male and female). This supposition would explain the absence of individuals of shortest wing-length from the *cabaret* female range; and is further supported by the presence of *flammea*-type plumage colour in individuals of *cabaret* wing-length range (v. Tables II and III).

ORIGIN OF FLAMMEA COMPONENT

There are alternative explanations of the presence of *C. f. flammea* in the predominantly *cabaret* New Zealand populations:

Either (a) Some *flammea* individuals were included in the original shipments;

or (b) There have been subsequent importations of *flammea* by bird fanciers, and some of these individuals have escaped and mingled with the wild populations.

While the second possibility must remain open — evidence on private importations is obviously difficult to obtain — there is circumstantial evidence in favour of the first. The birds for the original importations were probably obtained from trappers in Britain (or other parts of Europe), who would work mainly on the winter flocks. Since the first liberation in New Zealand was made in 1862, the birds must have been caught in the European winter of 1861-2. Witherby *et al.* (1943: p. 67) record "great numbers" of *flammea* arriving in Britain in 1861. It seems likely that some of these were included in the shipments to New Zealand. The early incorporation of a *flammea* component in New Zealand populations may be supported by the degree of mixing of sub-specific characteristics which apparently has occurred. The possibility of other subspecies besides *cabaret* and *flammea* having been incorporated in the New Zealand populations cannot be ruled out. Redpoll No. 8 of the present study was recorded as a female with wing-length 78 mm. At the time 23/9/58 its possible significance was not realised, and it was released. If measurements and sexing were correct, and since there were apparently no obvious colour differences from *cabaret*, this might have been assignable to the subspecies *islandica* (Hantzsch) 1904 or *rostrata* (Coues) 1861 (Salomonsen, 1928; Witherby *et al.*, 1938). It is felt, however, that no significance should at present be attached to this single and rather doubtful record.

RESULTS

Results are given in the form of frequency-distribution tables of wing-lengths, for males in Table II, females in Table III. The occurrence of pale plumage colouration and whitish wing-bars, at various wing-lengths, is also shown in these Tables.

As will be seen from comparison of Table II and Table III severally with Table I, the wing-lengths of the New Zealand specimens fall (with one exception — see below) within the ranges for the subspecies *C. f. flammea* and *C. f. cabaret*. Several points may be noted:—

(a) The occurrence of individuals of both sexes above the wing-length ranges for *C. f. cabaret*.

(b) A strong shift of the female mean above the theoretical mean for *cabaret*.

(c) The occurrence of individuals below the lower limit of the range for male birds.

CONCLUSION

Recommended Change in Nomenclature

In view of the findings and conclusions outlined above, it is suggested that the use of the subspecific rank be dropped, at least until the situation has been further clarified. It may in the future be possible to define the limits of variability of the New Zealand populations and to distinguish these as a (or as several) new sub-species, on the definition of the subspecies proposed by Mayr *et al.* (1953). It is suggested, however, that for the present it would be preferable to follow the proposal of Wilson and Brown (1953) and avoid the use of the formal subspecific rank, using instead only the specific name with "the simple vernacular locality citation or a brief statement of the [geographical] range involved." The New Zealand Redpoll could then be referred to as: "*Carduelis flammea* L., New Zealand"; further specification of locality within New Zealand being added as warranted.

ACKNOWLEDGEMENTS

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OBSERVATIONS ON A TATTLER AT WAIKANAE ESTUARY

By IAN G. ANDREW

The Grey-tailed Tattler or Grey-rumped Sandpiper, *Heteroscelus incanus brevipes* (Vieillot), breeds throughout northeast Siberia and winters in the west Pacific. Its winter range includes the Malay Archipelago, Celebes, New Guinea, Australia, Micronesia, Bismark Archipelago, and Solomon Islands (Bull 1948, Mayr 1945, Neufeldt et al. 1961, Stickney 1943). In Australia it winters around most of the

northwest, north and east coasts, straggling south to the Swan River on the west and to Port Phillip Bay on the east (Keast 1949). New Zealand is south of its normal range. It is probable that a few reach Parengarenga every year (v. Turbott 1951), but more southerly records are sparse (Sibson 1956, 1961, Turbott and Sibson 1961). The occurrence of a solitary Tattler at Waikanae from 1/10/60 to 22/4/61 aroused considerable interest in Wellington. A few observations on this bird are reported here. Relevant observations in the literature are also discussed.

Waikanae Estuary has never been favoured by Arctic waders wintering in New Zealand. Formerly a few Godwits and Knots stopped for a time during the spring migration (Wodzicki 1946), but the estuary even then was too small to be satisfactory for such species, and now urban sprawl has diminished the extent of the estuary further. The tidal area consists largely of bare silt-sand with a fairly high organic content, especially in the lagoon which constitutes the remnant of a former river course and is now filled with black debris. The more conspicuous animals in the intertidal zone are crabs *(Helice crassa)*, snails (mostly *Amphibola crenata*), various amphipods and isopods, and at times large numbers of fishes which attract flocks of several hundred Black-fronted and White-fronted Terns *(C. albostriatus* and *S. striata)*. With no Arctic waders to deplete the food supply, the invertebrate population is high. Crabs are particularly numerous, the only birds which regularly prey on them being White-faced Herons *(A. novaehollandiae)*. The other bird species feeding regularly in the intertidal zone are Pied Stilts *(H. leucocephalus)*, Banded Dotterels *(C. bicinctus)* and Oystercatchers *(H. finschi* and *H. unicolor)*. Small gulls *(L. scopulinus* and *L. bulleri)* also frequent the estuary.

The Grey-tailed Tattler at Waikanae Estuary was probably present by 1/10/60. On this date, B. Boeson saw a puzzling wader, which now appears to have been the Tattler, but it was not then recognised by him. It first came to my notice on 19/11/60, when I saw it during the course of my first visit to the estuary for the season. The immediate task was then to decide to which sub-species it belonged. Both *H. i. brevipes* and *H. i. incanus* (the Wandering Tattler) have been recorded in New Zealand. *H. i. incanus* breeds in Alaska and winters throughout the Pacific, straggling to Australia. Field identification is difficult but has been given considerable study in New Zealand because of the occurrence of both races here. The identity of the Waikanae Tattler was not confirmed until 25/12/60, when C. A. Fleming was able to determine that the nasal groove ended sharply exactly half-way along the upper mandible, as described by Serventy (1944), not tapering to two-thirds of the way along the bill as in *H. i. incanus*. I saw this very clearly on 15/1/61, using a 60 x 60 telescope in excellent light at about twenty-five yards. It had previously been suspected that this bird was *H. i. brevipes* on account of the call-note, which resembled that described by Keast (1949), Turbott (1951) and Sibson (1956). Additional confirmation of the subspecific identity was obtained by observing the plumage changes during the prenuptial moult, described below.

A brief description of the Tattler's appearance in November follows. About the size of a Knot, but of much slimmer build, and with longer legs and bill, in shape and stance it immediately suggested a *Tringa*. Legs bright yellow; bill straight, blackish brown, yellowish

basally except in the culmen; eye dark; white eye-ring; dark stripe through eye to base of bill; white superciliary stripe; remainder of face and entire upperparts white except for grey-fawn breast; underwing greyish; upperparts including tail uniform brownish grey, darker on outer primaries. This plumage closely resembles that of an immature bird collected by the Galatea Expedition in New Guinea on 30/11/51.

The call-note as first heard (19/11/60) was a soft triple note "too-too-too," the notes somewhat slurred and all on the same pitch. The slurring was noticed more later in the season, so that the note became double or occasionally only a single note, as described by Sibson (1956). A four-note call was also sometimes heard, but confusion with the longer trill reported for the American race would be unlikely. Only rarely was a call heard which could possibly be likened to the "irregular screech not of the same intensity or pitch" described by Hanna (Bent 1929). This was an alarm call induced by my sudden approach, which seemed to have a sense of urgency and was transcribed by me as "too-ew, too-ew."

The Tattler was readily recognised in flight by its arched wings and general grey plumage. Its movements on the ground were characteristic — head wagging backwards and forwards at every step as it ran along the water's edge. When standing still it not infrequently bobbed its posterior half up and down, in the manner of a pipit. When alerted, instead of flying, it sometimes held itself erect like an alerted Mallard and ran on to higher ground to get a better view. The length of its neck could then be appreciated and the *Tringa*-like appearance was accentuated. When disturbed in the company of other birds it usually flew with them.

In the absence of any others of its own species, the Tattler's social instincts were diverted mainly to Pied Stilts, but sometimes to a solitary Banded Dotterel or to the Oystercatchers. Its attempts at fraternisation with the Pied Stilts were sometimes not appreciated and a long aerial pursuit of the Tattler by a Stilt was noted on one occasion. On the ground, too, the Stilts often tended to feint at it. Nevertheless it continued to associate with the Stilts more than with any other species while feeding, and often flew with them, probably because both species had similar feeding habits, preferring the shallow water at the edge of the tide or lagoon. Oystercatchers occasionally made a jab at it, and once when it was alone a Black-backed Gull put it to flight by swooping low over it in a "dive-bombing" attack. It roosted on higher ground on bare sand or in a *Samolus* bed, frequently in the company of Oystercatchers or Banded Dotterels. At other times it resorted to its own company on a protruding branch or snag in the lagoon, or a piece of driftwood, a habit observed also in other Tattlers seen in New Zealand, and distinguishing them from most other waders on the New Zealand list. Their perching habit is also observed in the breeding areas, as shown in photographs by Krechmar (Neufeldt et al. 1961). On one occasion, Dr. Fleming observed it sleeping peacefully on a log projecting above the water at high tide, while speedboats towing water-skiers periodically passed close by, making a wave that threatened to wash it from its perch.

The feeding habits of the Tattler were studied by Dr. Fleming and myself. Most of the time it fed actively along the water's edge — usually in about one inch depth of water — hunting for animal life. It ranged from the present river course to the old lagoon filled with

black organic debris. In the latter, Dr. Fleming watched it on 25/12/60 and noted "it caught many small fish, about the size of a whitebait, and occasional crabs, and sometimes took its prey ashore to get a better grip before swallowing." When I watched it in January, the shallows of the old river mouth abounded with small crustacea, of which isopods appeared most numerous. These possibly formed a substantial part of the Tattler's diet. Once it chased an amphipod out of the water, caught it and ate it. By 4/4/61 its feeding habits seemed to have changed, and crabs formed the major part of its diet during April. Two fresh droppings collected on 4/4/61 contained no large fragments of animals, but the finely divided organic remains present appeared to be all or nearly all of crustacean origin; in particular, no vertebrate or molluscan remains were found. Keast first noticed Tattlers eating crabs in the Hunter River area on 23rd March and the habit continued through April. He also observed the habit in New Britain in April. It appears that a seasonal change in the diet of the Grey-tailed Tattler may take place. This probably merely reflects a seasonal change in the faunal composition of the favoured estuaries, but perhaps crabs are eaten in such large numbers in April in order to stock up a reserve food supply prior to the migration. Certainly the food intake of the Waikanae Tattler appeared to be very high in April.

The manner of feeding on crabs was studied in detail with a telescope on 4/4/61 and 22/4/61, but little can be added to the work of Keast (1949). Wading in the water, the Tattler picked up a crab, sometimes immersing its whole head to reach it — possibly out of a burrow. It then shook the crab vigorously by one leg until it became detached and the body flew off. After swallowing the leg it proceeded to remove the others in a similar manner. It held its head down during operations so that the crab did not fly off far. Each time the crab fell into the water it was washed. Finally, after most of the appendages had been removed, the intact body was swallowed whole. Frequently the Tattler left the water to hunt for crabs, although most hunting was done in shallow water. When it picked up a crab from the exposed mudflat, it ran to the water and carried out the washing, dismembering and eating as above, but if water was not handy it sometimes omitted the washing process. Small crabs it often swallowed whole. Many of these were caught in their burrows.

Plumage changes were observed by regularly examining the plumage with a 30 x 60 telescope, although in the early stages exact feather details were not studied. Changes occurred much more slowly than had been expected. On 15/1/61 the plumage was much as described above; the upperparts were uniform grey and unbarred, primaries brown, chin and belly white, lower throat and upper breast very pale grey, and the cheeks now slightly barred. On 26/2/61, the grey breast feathers were seen to have pale tips (which may have passed unnoticed before), and the grey extended on to the flanks. On 4/4/61 there was still no sign of the dark barring of the breast feather characteristic of nuptial plumage, but new feathers had made their appearance on the upper surface, most of them being very narrowly edged with white. The rump feathers and upper tail coverts had a more noticeable white edging, although only once did I get the impression (using 8 x 30 binoculars) that the rump appeared paler in flight than the rest of the upper surface. I had expected the pale rump

to be more conspicuous. The broad pale tips to the rump feathers in fresh plumage are one of the features distinguishing this race from *H. i. incanus,* which has only a very narrow light edging, if any, to these feathers (Stickney 1943). It is unfortunate that this character proved rather unsatisfactory in the field. Also at this time, the scapulars and upper wing coverts were broadly tipped with a browner shade of grey, with the extreme tip white, giving a flecked appearance; the primaries were also browner, tipped dark, and the outer primaries formed a dark leading edge to the wing, quite conspicuous in flight. The forehead was flecked with white.

On 22/4/61 the upperparts were unchanged, and the underparts had assumed partial breeding plumage. The feathers of the breast and flanks were pale grey, conspicuously barred with narrow V-shaped dark brown bars near their tips, the bars reducing almost to spots on the middle and upper edge of the breast. The cheeks were streaked with dark brown on white, more heavily than on 4/4/61, and the eye-stripe was perhaps blacker. Otherwise the plumage was as before, with throat and belly white.

The plumage on 22/4/61 resembled the full breeding plumage, but the barring on the breast was rather paler than normal for an adult (see photographs by Krechmar); and the white edgings to all the feathers of the upper surface, together with the late completion of the moult, suggest that the bird was immature. According to Bent (1929), the first prenuptial moult is only partial, while in some individuals it is suppressed altogether. Keast, in his study of Tattlers in Australia (Keast 1949), showed that by 5th April all birds of a group of twenty had already acquired a plumage at least as heavily barred on the breast as the Waikanae bird on 22nd April. The immature birds observed by Keast had not acquired any barring on the breast by 30th April.

22/4/61 was the last date on which the Tattler was definitely recorded at Waikanae. P. C. Bull failed to find it on 3/5/61, although some of his companions thought they saw it. It was definitely not present on 7/5/61 or 20/5/61. Presumably it migrated to Siberia, as there have been no further records from the Wellington coast. During its stay it was observed by R. A. Falla, K. Westerskov, M. J. Imber, and others mentioned herein.

In the Hunter River area of New South Wales, the prenuptial migration begins in late March and continues till the second week of May (Keast 1949). The last birds reach their breeding areas in the first week of June (Neufeldt et al. 1961). The return migration begins in mid-August (Neufeldt et al. 1961), and the first birds were recorded in North Queensland by Alexander on 1st September (Bent 1929). Thus the time of disappearance of the Waikanae bird, although later than the departure of most Arctic migrants from New Zealand, was consistent with its having migrated.

The only positive record of this race spending the southern winter in New Zealand is of one recorded on 17th July at Heathcote-Avon estuary (Turbott and Sibson 1961), but the one seen at Aramoana on 13/5/61 (Sibson 1961) probably did not migrate to Siberia. A Grey-tailed Tattler observed at Manukau for several successive seasons (Sibson 1956, and subsequent notes in *Notornis*) was never recorded later than 7th May in winter, or earlier than 29th October in spring. This

would allow ample time for migration. However, if all records refer to the same bird, it probably over-wintered here, perhaps in some other locality where the food supply was better, as it is unlikely that it would every season migrate so far beyond the normal range of its species. Most such over-migrating birds are believed to be immature birds which have not made the journey before. The Tattlers at Waikanae and Aramoana probably fall into this category. Immature Arctic waders often remain in New Zealand during the southern winter. Adult Tattlers seen in New Zealand, including the Manukau bird, would thus normally be individuals which have stayed through the winter unnoticed.

In Australia, Keast has studied habitat preferences in the Grey-tailed Tattler. The ecological separation from other waders noted by him was well borne out at Waikanae, and would merit further study. Habitat preferences have been suggested for differentiating between the two races of Tattler, but insufficient evidence is available on this point. However, the fact that both races have been observed together in Alaska (Bent 1929) and that both often resort to reefs and rocky coasts, and avoid extensive mudflats (Bent 1929, Keast 1949, and others), suggests that such a separation is unreliable.

In conclusion, I wish to thank Dr. C. A. Fleming for helpful discussion, the use of his notes, and the loan of a specimen.

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A WEST COAST, SOUTH ISLAND, SEA BIRD LOG IN WINTER, 1961

By ELLIOT W. DAWSON
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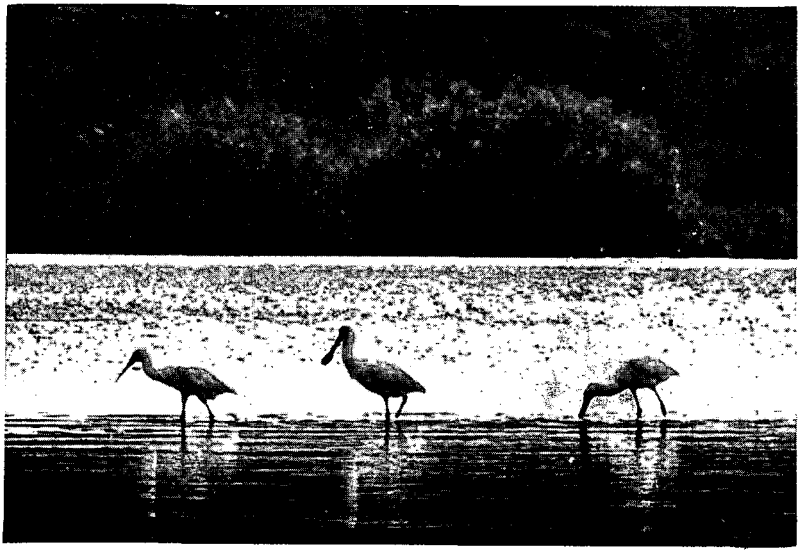
One of the New Zealand Oceanographic Institute's recent winter cruises in the M.V. *Viti* provided an opportunity for noting the birds at sea off the West Coast of the South Island. The purpose of this cruise, from May 31 to June -, 1961, was the investigation of the benthic fauna of the Continental Shelf and the plotting of the bottom topography by echo-sounding. The area covered by these investigations was from Wellington to Foveaux Strait and included some of the fiords of south-west New Zealand. The vessel's track was arranged to cover

V (a) — Sulphur-crested Cockatoo **(Kakatoe galerita)** near Hunterville, where there are said to be 'hundreds' in the back-country. Another flourishing pocket of these big, raucous cockatoos exists between Raglan and the Waikato estuary.

[Photo per John Martin



[Photo by courtesy of Northern Advocate

V (b) — A trio of Royal Spoonbills **(P. regia)** in early May at the Ruakaka estuary, Northland; probably part of the annual dispersal from Okarito, where about a dozen pairs now breed; or possibly, stragglers from Australia.

[Photo by F. C. Kinsky

VI — The Little Owl **(Athene noctua)** was introduced into Otago first in 1906; and is now widely established in the South Island. This photograph was taken near Invercargill.

[Photo by Douglas Galey

VII — Little Owl at its nesting-hole in England. These small owls are less nocturnal than other species of owl, often calling and hunting by day and even deliberately seeking a place in the sun for basking.

[Photo by Douglas Galey

VIII — Little Tern **(Sterna albifrons)** at nest in England. Small terns in freshly moulted plumage, with identical head and beak markings, are seen in New Zealand in March and April (v. p. 91).

a series of stations on lines 40 miles apart extending from close inshore at 10 fathoms to the 100 fathoms line. The following notes relate something of the birds seen during these operations.

OBSERVATIONS

Wednesday, May 31, 1961: Departed Wellington, 8.30 p.m.

June 1: Past D'Urville Island, across Golden Bay, and Farewell Spit (Noon position: 40° 26.7′ S., 172° 50.0′ E.; air temperature, 55°; wind speed and direction, Westerly 16 knots; barometer, 30.11ins.; 24-hour weather, fine and clear to overcast in late evening).

Giant Petrels and Black-backed Gulls were common around the ship. One Cape Pigeon and one Shy Mollymawk were seen during the day, as well as four Storm Petrels (sp.?) in Golden Bay.

June 2: Off Karamea to Cape Foulwind (41° 22.5′, 171° 37.5′; 70°; SW-5; 30.24; cloudy-fine, through fine-clear to overcast with light rain at midnight).

Three White-fronted Terns were noted during the day and two or three Black-backed Gulls kept constant company, including one or more brown juvenile birds. During the afternoon a large petrel very similar in size, shape and colour to the Westland Petrel, whose only known breeding grounds are near here, was seen at 2.05 p.m., and three Gannets came close in at 2.25 p.m. A single Shy Mollymawk was seen from time to time.

June 3: Off Hokitika and southwards (42° 39′, 170° 47′; 54°; W-4; 30.09; cloudy fine ,through cloud-fine and clear to overcast dull with light rain to clear at midnight).

A pair of Buller's Mollymawks were around the ship most of the day, with a solitary Shy Mollymawk and a Giant Petrel. An adult Wandering Albatross appeared at 1.00 p.m., joined at 1.30 p.m. by a completely brown juvenile. Numerous Black-backed Gulls, most of which were brown juveniles, and two or three Red-billed Gulls were also present at various times. At one period, 1.45 to 2.15 p.m., eight Buller's Mollymawks appeared with the Black-backed Gulls to feed on galley scraps (N.Z.O.I. Station B 469).

June 4: Off Jackson's Bay and Cascade Point. (43° 59.8′, 168° 23.2′; 53°; W-7; 30.08; overcast clear to fine and clear).

One adult and one brown juvenile Wandering Albatross were near the ship all day, with a single Buller's Mollymawk, a Giant Petrel and a Shy Mollymawk.

June 5: Thomson Sound, Doubtful Sound to Puysegur Point. (45° 16.8′, 166° 51.3′; 46°; ESE-1; 30.27; fine and clear through cloudy fine and clear to overcast clear at midnight).

Six Cape Pigeons, two Buller's and one Shy Mollymawk were seen in the early morning before entering Thomson Sound. These same species of Mollymawk were present off the entrance to Doubtful Sound.

June 6: Puysegur Point area and to the south-west. (46° 03.5′, 166° 28.5′; 49°; S-15; 30.06; overcast clear through overcast with rain at midnight).

Numerous Cape Pigeons were around the ship all day. Two Buller's Mollymawks and one adult Wandering Albatross were also noted and a lone Skua appeared in the late afternoon.

June 7: Puysegur Bank to approaches of Chalky Inlet. (46° 20′, 165° 22′; 46°; S-13; 29.92; overcast cloudy, overcast fair, fine and clear, to mainly overcast and light rain at midnight).

Two Giant Petrels were near the ship all day, and Cape Pigeons were commonly seen. The same numbers of mollymawks and albatrosses were recorded. Prions of uncertain species were also seen occasionally.

June 8: Through Dusky Sound to Breaksea Sound (45° 40.4′, 166° 45.2′; 46°; N-5; 29.84; overcast with light rain to fine and clear).

Four Buller's Mollymawks, a few Cape Pigeons and Red-billed Gulls were at the entrance to Dusky Sound. During a passage up Wet Jacket Arm a Black Shag was noted flying past at hourly intervals. Black-backed Gulls were occasionally seen and small parties of Blue Penguins and White-throated Shags were feeding near the ship. At the end of this arm a Bush Hawk flew out to the ship, made a quick inspection, circling the bows, and returned to the bush; near here were also two Black Oystercatchers on a rocky shore platform.

At 3.45 p.m., on the seaward journey down Wet Jacket Arm, two large light-coloured swans with brown markings on the wings flew slowly past the ship, keeping low over the water and close to the cliff side. In all respects of size and shape they resembled young Black Swans.

June 9: From sea to head of Milford Sound. (44° 40′, 167° 55.3′; 42°; calm; 29.97; fine and clear, and overcast only at midnight).

In the entrance to the Sound were many Cape Pigeons and Red-billed Gulls, two or three Black-backed Gulls, two Wandering Albatrosses, two Buller's and a Shy Mollymawk.

In the Sound itself, apart from occasional Black-backed Gulls and large numbers of Red-billed Gulls, the only other bird seen was a single Black Shag.

Later in the day, off the entrance to the Sound, there were twelve Buller's Mollymawks (one of which was caught and marked with an O.S.N.Z. ring, No. 0-1151), eight Red-billed Gulls and three Black-backed Gulls.

The return northward voyage to Wellington was made further out to sea and the snowy peaks of the Southern Alps were the only signs of land visible on the distant horizon.

June 10: Okarito to Cape Foulwind. (42° 27′, 170° 12.5′; 54°; E-7; 30.26; partly overcast to fine and clear late in the day).

South of the latitude of Okarito, 4 adult Wandering Albatrosses with a brown juvenile and two Cape Pigeons were seen. Later in the morning the number of albatrosses increased to seven adults and two juveniles. In the afternoon two prions were seen at 2.30 p.m. and the number of albatrosses had dropped to two adults and one juvenile, with a solitary Cape Pigeon.

June 11: Farewell Spit to Cook Strait. (40° 37.5′, 173° 39.0′; 55°; SE-7; 30.48; fine and clear, overcast clear, to fine and clear).

Twenty Black-backed Gulls, including four brown juveniles, together with four Giant Petrels followed the ship across Tasman Bay to Stephen's Island. Red-billed Gulls joined them in Admiralty Bay, and a single adult Wandering Albatross appeared at 5.00 p.m.

The only other bird noted was a single King Shag close to Ranigtoto Island in the late afternoon.

June 12: Berthed at Queen's Wharf, Wellington.

DISCUSSION

These observations include a number of items of immediate interest. Other records, such as the numbers and locations of Wandering Albatrosses, will be of value in filling out a pattern of dispersal and seasonal movement of these birds which will some day become more evident. Similarly the information on the Black-backed Gulls and Gannets adds a little to the knowledge of the distribution of these species. According to Oliver (1955: 609), the Black Swan occurs in "small numbers in the Fiordland region (Doubtful Sound, Caswell Sound, Lake Hauroko)." The record of the two immature birds confirms this.

The records of Buller's Mollymawk are of particular interest since this species still qualifies for Alexander's (1955: 9) title — "the rarest and least known member of the Albatross family." Oliver (1955: 176) also has commented on it: "So far as is known this is a stationary species, it not having been observed in any numbers far away from its breeding grounds." This mollymawk, recognised in 1893 as a distinct species, has been found breeding on the Snares and Solander Islands, and on various islands in the Chathams Group (on the Sisters, Forty-fours, and perhaps Round Rock or Star Keys). Murphy (1936: 525) has given a concise account of it, remarking ". . . its range to westward of its breeding area is so restricted that it has never yet been recorded as a member of the Australian sea-bird fauna." A young bird, "not many weeks out of the nest," was taken near Iquique, Chile, and was described by Reichenow in 1893 as *Diomedea platei,* and Murphy (1930: 6; 1936: 525) later recorded three birds taken twenty miles off the Peruvian coast. Published New Zealand mainland records are sparse, but the Ornithological Society Checklist (1953: 17) summarised them thus: ". . . ranging north to northern New Zealand, south to Auckland Islands . . . and east to Chile and Peru." Plotting the known records shows that several specimens of this mollymawk have been found wrecked on the Auckland west coast; while others have been seen in Cook Strait, on Lake Onoke Spit, off Island Bay, Wellington, in Foveaux Strait and around Stewart Island. No further details of its movements up the east and west coasts of the South Island seem to have been recorded previously. Evidence is provided from the observations of this cruise of the concentration of Buller's Mollymawk at this time of the year, and in these weather conditions, from about the latitude of Hokitika (June 3) and Milford Sound (June 9) to the south-west.

TABLE 1

Scientific names of birds mentioned

Blue Penguin, **Eudyptula minor.**
Wandering Albatross, **Diomedea exulans.**
Buller's Mollymawk, **D. bulleri.**
Shy (or White-capped) Mollymawk, **D. cauta.**
Giant Petrel, **Macronectes giganteus.**
Westland Petrel, **Procellaria westlandica.**
Cape Pigeon, **Daption capensis.**
Prion, undet., **Pachyptila sp.**
Gannet, **Sula bassana serrator.**
Black Shag, **Phalacrocorax carbo novaehollandiae.**
White-throated Shag, **P. melanoleucos.**
King Shag, **P. carunculatus carunculatus.**

Black Swan, Cygnus atratus.
Falcon (or Bush Hawk), Falco novaeseelandiae.
Black Oystercatcher, Haematopus unicolor unicolor.
Southern Skua, Stercorarius skua lonnbergi.
Black-backed Gull, Larus dominicanus.
Red-billed Gull, L. novaehollandiae scopulinus.
White-fronted Tern, Sterna striata.

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COUNTS OF GULLS ON OTAKI BEACH, NORTH ISLAND OF NEW ZEALAND

By KAZIMIERZ WODZICKI
Animal Ecology Division, N.Z. Dept. of Scientific and Industrial Research

Observations made in recent years and the extensive banding of both the Black-backed Gull *(Larus dominicanus)* and the Red-billed Gull *(Larus novaehollandiae)* as reported in the Annual Reports of the Banding Committee, Ornithological Society of New Zealand, and the classified summarised notes in *Notornis,* have provided much information on the distribution and movements of these species. Little is known, however, about their numbers. This note provides some information on the distribution and numbers of the two species in the southern part of the west coast, North Island.

TECHNIQUE USED

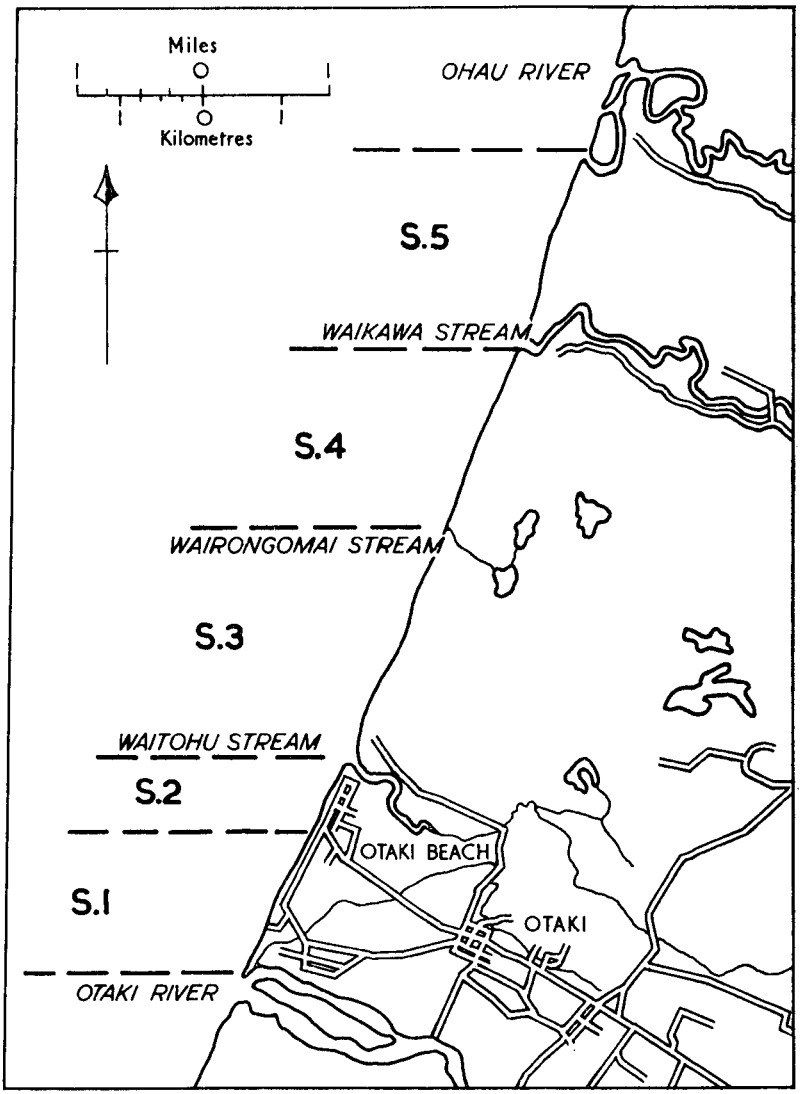
Eleven counts of gulls were carried out between the estuaries of the Otaki and Ohau Rivers, from 20 to 29 March, 1961. The weather throughout this period was mostly fine with light to moderate winds and mild temperatures. A total distance of about seven miles of beach was covered, the area being divided into five sectors (Fig. 1): from the Otaki River estuary to Otaki Beach — one mile, from Otaki Beach to Waitohu Stream — three quarters of a mile, from Waitohu estuary to Wairongomai Stream — two miles, Wairongomai estuary to Waikawa stream estuary — one and two-third miles, and from Waikawa stream to Ohau River estuary — one and a half miles. More counts were made on Sectors 1 and 2 than on the others. When making the counts, the observer walked at a steady pace taking care to avoid double counting. Separate records were kept of Red-billed Gull and adult and juvenile Black-backed Gulls. Gulls at estuaries were also counted separately. Full details of all the counts are deposited in the files of the Animal Ecology Division, D.S.I.R.

RESULTS

Distribution

Gulls in this part of the coast are concentrated at the estuaries with much smaller numbers scattered along the beach. Table 1 shows the mean numbers of gulls observed at Otaki and Waitohu estuaries.

Between the estuaries Black-backed Gulls were distributed along



the surf line, occasionally in small flocks but usually one or two birds every 100-200 yards, and sometimes family groups with a juvenile still attached to its parents. Larger numbers were found on the north end of Sector 1 and on Sector 2 (Fig. 1). Here the relative abundance of shells of Ringed Dosinia *(Dosinia anus),* Kaikaroro *(Spisula aequilateralis),* Tuatua *(Amphidesma subtriangulatum)* and smaller examples of Kuhakuha *(Mactra discors),* all of which are known to be taken by Black-backed Gulls (Dr. R. K. Dell, *in litt.*), would explain

the presence of larger numbers of this gull in these sectors. This was particularly observed at outgoing tide when gulls would break these molluscs by dropping them from the air. On calm mornings Black-backed Gulls would fly past the breakers and appeared to feed together with Red-billed Gulls on passing shoals of fish.

TABLE 1 — Numbers of Black-backed and Red-billed Gulls

Sector	Miles	Mean No. of Gulls		Mean No. per Mile	
		Black-backed	billed Red-	Black-backed	Red-billed
Estuary	—	69	14	—	—
1 Beach	1	22	11	22	11
Mean Sector 1		45	11		
Estuary		31	27	—	
2 Beach	0.75	39	26	52	35
Mean Sector 2		53	40		
Estuary 3 and beach	2.50	20	16	8	6.4
Beach and 4-5 part of estuary	2.75	25	27	9	9.8
Total Beach and Estuary	7	206	121	29	17

The distribution of Red-billed Gulls was in many ways similar. The main differences were smaller numbers congregating at the estuaries, and more gulls found on beaches near settlements where they are often fed by people; in this case they often flock from a few hundred yards. On other sectors single Red-billed Gulls were seen feeding at the edge of the surf.

Age Ratio

Immature birds of both species were seen, but only the young of Black-backed Gulls were recorded separately. Table 2 shows the numbers of both adult and young Black-backed Gulls counted on each sector.

The percentage of gulls in juvenile plumage (i.e., less than three years old) counted in various sectors ranged from 18 to 27 per cent., but at the estuaries and in the total population immature birds amounted to about one quarter of the total population counted.

Numbers of Both Species

Table 1 shows the numbers of Black-backed and Red-billed Gulls counted on various sectors and the mean density per mile in each sector. The counts show that large numbers of gulls congregate at estuaries, particularly at the larger ones and this affects the mean number of gulls per mile of beach. There are also substantial differ-

ences between various sectors of the beach: however, this may not be signficant due to the small number of counts carried out on Sectors 3 to 5.

The Black-backed Gull with an average density on both beach and estuary of 29 birds per mile appeared to be more numerous than the Red-billed Gull with an average density of 17 birds per mile.

TABLE 2 — Age Ratio of Black-backed Gulls

	Total No. of Gulls Counted on Sector					
	1	2	4	4-5	All Sectors	Estuaries
No. of Adult	287	440	66	42	835	344
No. of Juvenile	79	160	14	9	262	108
% Juvenile	22	27	18	18	24	24

DISCUSSION

The observations described give an indication of the distribution and density of the Black-backed and Red-billed Gulls on the west coast of the North Island between Otaki and Ohau Rivers.

The congregation of large numbers of both species throughout the year at the Waikanae River estuary was described previously (1): in late March 1942 and 1943, 200-365 Black-backed and 30-100 Red-billed Gulls were counted. In 1961 the numbers of gulls congregating at estuaries appeared to be proportional to the size of the river and extent of its tidal flats: thus at the Otaki River estuary which is larger than Waikanae River but has less extensive tidal flats 82-133 Black-backed and 30-100 Red-billed Gulls were counted; at the much smaller Waitohu River which also has tidal flats, about 60 Black-backed and 30-40 Red-billed Gulls were counted; and at the small Wairongomai Stream (Fig. 1) only three to four gulls were recorded.

Along the beaches the density of the population of both species varied from sector to sector from eight and six to 52 Black-backed and 35 Red-billed Gulls per mile respectively. The availability of various molluscs, other foods (e.g., refuse) and of fresh water required for bathing are among the important factors determining the local density of both species.

Black-backed Gulls in juvenile plumage amounted to about a quarter of the population. In comparison it is of interest to quote Barnes' (2) results of eight independent counts of the Lesser Black-backed Gull *(Larus fuscus)* carried out in northern winter on the eastern coast of England: the proportion of immature birds varied from nine to 21 per cent., the average being 15 per cent.

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SUMMARY

Eleven counts of Black-backed and Red-billed Gulls were carried out in March, 1961, on a seven miles long beach between the Otaki and Ohau rivers. Juvenile Black-backed Gulls amounted to a quarter of the population and the overall density was estimated at 29 Black-backed and 17 Red-billed Gulls per mile.

SHORT NOTES

SUB-FOSSIL RECORDS OF THE LITTLE GREY KIWI IN THE NORTH ISLAND

Buller, *Birds of New Zealand,* 2nd edition, Vol. II, p. 328 (cf. also *Trans. N.Z. Inst.,* 8, 1876, p. 193) discussing the Little Grey Kiwi, states "A fine specimen, for which I am indebted to Mr. Morgan Carkeek, of the Survey Department, was obtained by that gentleman on Mt. Hector, at the head of the Hutt River, in December, 1875. It was caught by his dog among the snowgrass at an elevation of about 3,000 feet. At a higher altitude, he found the species relatively abundant, and he met with it occasionally below the snow-line, frequenting many places in the bush free from undergrowth."

Since the species has not since been recorded from the North Island, later writers have hesitated to admit the validity of Buller's record. Oliver, in the first and second editions of *New Zealand Birds,* and the *Checklist* each regard the Tararua Range record as doubtful or unconfirmed.

The Canterbury Museum possesses kiwi bones from sub-fossil deposits in the North Island which are indistinguishable from bones from skeletons of *Apteryx oweni* from the South Island. Unfortunately, the material is mainly of leg-bones, and it would invaluable to have a skull as confirmation. However, the bones obtained, some of which are fully adult, are too small to be *Apteryx australis mantelli.*

The list of bones and locations follows:

1. Midden, Akiteo, Wellington. R. tibio-tarsus. Early collection, no date.
2. Midden, Kamo, Whangarei. Proximal end R. tibio-tarsus. Early collection, no date.
3. Moa-hunter midden, Opito, Coromandel Peninsula. Distal end and shaft R. tibio-tarsus. Shafts of R. and L. tarsus-metatarsi. Coll. R. J. Scarlett, January, 1960.
4. Hukanui 7 a. Cave, c. 2,500 feet elevation, about 30 miles from Napier. Proximal end and shaft of sub-mature R. femur. 26. 5. 1959. Coll. W. H. Hartree, R. J. Scarlett an J. C. Yaldwyn.
   Hukanui 7 a. L. tibia. 12. 6. 1961. Coll. W. H. Hartree and R. J. Scarlett.
5. Hukunui No. 5. Cave c. 2,200 feet elevation, about 30 from Napier. Immature R. femur and L. tarso-metatarsus. Mature R. distal, R. and L. distal, R. and L. tibio-tarsi, L. distal, R. and L. tarso-metatarsi, sacrum. 24. 5. 1959. Coll. W. H. Hartree and R. J. Scarlett.
6. Pigeon Bush No. 1. Rockshelter, c. 2,000 feet elevation, about 30 miles from Napier. Sub-mature L. femur. 1958. Coll. R. H. Hartree.

In addition, a Moa-hunter midden below Rangatapu pa, on the Waingongoro River, near Hawera, found by the writer in 1960, and excavated by Mrs. T. L. Canavan, has yielded a mature R. femur, eroded at both ends, and the shaft of a L. fermur. This site is near the locality on the Waingongoro River where Walter Mantell collected many bones of moas and other birds in 1847, and it seems possible that an unlocalised bone of *Apteryx oweni* from the Mantell Collection in the British Museum (Natural History) was from this locality. According to Lydekker, *Catalogue of the Fossil Birds in the British Museum,* 1891,

p. 218, this is a "right tarso-metatarsus, imperfect at the extremities and somewhat weathered; from a superficial deposit in New Zealand. This specimen, which has a length of 0.061, shows all the characteristic features."

R. J. SCARLETT

★

A FIRST RECORD OF THE EXTINCT NEW ZEALAND COOT FROM THE NORTH ISLAND

The Extinct New Zealand Coots, hitherto known as *Palaeolimnas chathamensis* and *P. prisca,* have been recorded from fifteen localities in the South Island as well as in the Chatham Islands (Brodkorb & Dawson, 1961).

In the British Museum (Natural History), there is a collection of bird bones made "in the notorious Rauparaha's kitchen middens by Mr. A. Hamilton" (Forbes, 1892), and amongst these I have identified a tarsometatarsus and a coracoid of "*Palaeolimnas.*" The location of these middens was probably the Taupo *pa* on the present site of Plimmerton beach, Wellington west coast (Dawson, 1961). One or more deposits may be represented in the collection since the bird remains found range from those of the Kakapo *(Strigops habroptilus)* to various kinds of fowl *(Gallus* sp.)

Although remains of Extinct Coots are really only abundant in the Chatham Islands, there are sufficient records to show that a species, identical with or closely allied to the Chatham bird, was once widespread throughout the South Island. In the North Island bones of small subfossil birds have been mainly found in limestone caves, probably isolated from the former habitat of coots, and it may be that further remains of these coots will be found when coastal sand dunes, early middens, and swamps are investigated in closer detail.

Meanwhile, the bones in the British Museum (Natural History), under the temporary registration numbers R6346 and R6404, appear to be the only records of "*Palaeolimnas*" in the North Island of New Zealand.

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ELLIOT W. DAWSON

★

AN EARLY SPECIMEN OF THE KAKAPO *(STRIGOPS HABROPTILUS) FROM STEWART ISLAND*

According to Williams (1956: 39), evidence has been produced from time to time of the occurrence of the Kakapo in Stewart Island but, since birds from the fiordland region of the South Island are said to have been liberated on the island, it is not clear "whether the birds that have been reported since are descendants of these, or whether . . . there has always been a resident population . . ." Later, Williams (1960: 219) stated: "Though Kakapo have recently been recorded from Stewart Island, only two museum specimens appear to exist. However, if it is confirmed that these, now at Leiden, are indeed from the Temminch Collection . . . then the question as to whether the

species is indigenous to that place would appear to be settled, for introductions from the mainland are most unlikely to have been made as far back as the early years of the nineteenth century. Here, then, we are likely to have another subspecies, so far undescribed."

In December, 1847, Pucheran gave an account of the Kakapo based on a specimen sent to the Museum National d'Histoire Naturelle in Paris: "C'est d'apres un individu recemment envoye au Musee de Paris par M. Jules Verreaux, l'un de ses voyageurs, que nous avons emis les reflexions qui vont suivre." Jules Verreaux (1807-1873) was one of a well-known family of natural history collectors (Salvin, 1873) and he spent some time in Australia (Iredale, 1945). It is not certain whether he visited New Zealand but it appears that he did so and that he probably collected this specimen of Kakapo in Stewart Island since Pucheran (1847: 389) noted: "L'individu que possede notre collection nationale, provient de l'ile Steward, au sud de la Nouvelle-Zelande. Mais cette espece habite aussi dans cette derniere localite."

Williams (1960: 225) listed a specimen from the Paris Museum in this way: "Mounted specimens (6) 1 " Otago, S.I. ", 1847, *Verreaux*". M. Christian Jouanin, to whom I am indebted for this favour, sent me a copy of the labels attached to this specimen and the information given is:

> "De la Nouvelle-Zelande (Otago -Mittel Island) par M. Jules Verreaux (Avril 1847. Catalogue General No. 240). Cet individu a ete pris dans l'ile Steward, au sud de la Nouvelle-Zelande."

It is not clear whether Verreaux himself collected this specimen or whether a correspondent living in Otago sent it to him. The important thing seems to be that it is likely that this specimen is a genuine example of the former population of Kakapo in Stewart Island, and, like the Leiden specimens, has considerable scientific value.

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ELLIOT W. DAWSON

★

THREE KINDS OF RAILS AT MEREMERE

An apparently isolated colony of comparatively rare birds, Spotless Crake *(P. tabuensis plumbea)*, Marsh Crake *(P. pusilla affinis)*, and Banded Rail *(R. philippensis assimilis)*, has been discovered within fifty yards of the village at the Steam Power Station at Meremere. The Spotless Crake survives here under conditions different from those thought beneficial to its welfare, i.e., narrow swamps, mostly in hilly country. The Marsh Crake could easily be expected but the Banded Rail is now considered to be rare away from coastal creeks. Nor was their discovery the end result of a painstaking and laborious seach, but came about by mere chance while I was endeavouring to fill an idle hour by stalking a Bittern. The place is readily accessible for study by anyone with transport calling at my house at 6 Herewhini St., Meremere.

I established an observation point on the edge of a more or less permanent shallow pool where the birds are living throughout

the summer months and made all sight recordings from this same spot, being at times almost within touching distance of Spotless Crake. Here are some jottings from my diary:—

3rd March, 1961, 1400 hrs. One Marsh Crake came from rushes to my right and dashed across pool, closely followed, as if being chased, by two Spotless Crakes. Marsh Crake disappeared after about a minute. Spotless Crakes fed around edge of pool for some minutes, then returned to heavy swamp growth beyond pool. Heard typical strident purring rail call and another short pukeko-like, but more clear single "pip," at intervals.

4th March, 1725 hrs. One Spotless Crake appeared after a ten-minute wait, fed for a few minutes, but fled at alarm calls from Pukekos.

5th March, 1410 hrs. Water slightly deeper after rain. One Spotless Crake appeared for five minutes, feeding around edge of the 20ft. pool and making slow, short excursions into the belly-deep water; then disappeared. One Marsh Crake appeared for a couple of minutes. It seems to be the more timid and appeared to be under constant persecution by the Spotless. It left at the sudden arrival of two Spotless which fed about the pool for several minutes. This was the second and last sighting of a Marsh Crake.

March 6 - 18. Spotless Crakes could be seen almost any time in daylight hours except early morning; most often towards evening.

19th March. Cat-killed remains of a Spotless found on old track in tea-tree at edge of swamp close to the hide.

30th March. With H. R. McKenzie went to hide at 1615 hrs. One Spotless came at 1700 hrs. After several appearances we established that there were at least four in the area; having three under observation at once, with a fourth calling from the swamp behind us. We heard a wide range of calls, from conversational chatter to "fightin' talk," the latter already described as being typically rail-like but on a reduced scale from Banded Rail as befitting a bird of smaller stature. This call was quite similar to that of a disturbed clucky hen, indulged in when two came into close contact while feeding, when alarmed, or when aggressive. The aggressor would draw itself up to full height close to the other bird. It was seen that the white barring on the under-tail was stronger on one of the birds. It may have been a parent and the others the young of the spring. While we watched we saw four variations of what we thought were Goldfinch-Greenfinch hybrids. Fern-birds *(B. punctatus)* called near and far.

9th April. G. J. H. Moon, with H. R. McK., came to try to get photographs. From 1100 to 1700 hrs. only poor sightings were had and G.J.H.M. could make only three "desperation" shots; but, while watching, he had a good view of the only Banded Rail seen. A week later Mr. J. Prickett got only sight of one Spotless Crake, but no photograph.

We tried lure calls but found the rails not very susceptible to these or other attempts to attract their attention. They were not worried by our low-pitched talking or seemingly by our presence but would panic at any sudden movement, however small, or at sudden calls of other birds. They are quite indifferent to the general noises of village life as made by a multitude of children, dogs, radiograms, "do-it-yourselfers," motor mowers, "bush mechanics" and the like, which, in a community of shift-workers, reach a level unparalleled in

most cities; as well as the general hubbub of hissing, roaring, etc., from the Power Station and the Main Trunk Railway. But any sharp noise in the immediate vicinity of their pool and the rails are most put out.

Their movement varies from a slow stalk when feeding to quick dashes, a fluttering patter across the surface of the duckweed and rarely, a short flight.

Although the character of the swamp changed with the first heavy autumn rain and was for a time the playground of Grey Duck and Black Swan the Spotless Crake could be heard in the same general area all winter and up to early September, when, it is thought, they may have moved elsewhere to breed. It is hoped that they will return and give more opportunity for pleasant study for all who wish to come.

PETER J. HOWARD

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A CHECK ON WELCOME SWALLOWS IN NORTHERN NORTHLAND

Between 24th and 26th January, 1962, Messrs. A. T. Edgar, N. Messenger and I counted Welcome Swallows *(Hirundo neoxena)* on the Paua-Awanui-Kaeo road. We checked all bridges on this road, and also a few on nearby sideroads, some forty-seven in all.

On 24th January we inspected all bridges from Awanui to Kaimauamau, on 25th January from Kaimaumau to Paua, and on 26th January from Kaimaumau to Kaeo. The results seem to show that the Welcome Swallow is still increasing in range and numbers.

We have been told that Mr. D. V. Merton saw a Welcome Swallow the summer before actually at Paua. Our most northerly record was of two unoccupied nests under a culvert by the Kimberley Road turnoff, some two miles north of Houhora township, and roughly opposite the top of the Houhora Harbur.

At Houhora itself two adult Swallows were seen flying out from a concrete pipe by the rubbish dump about fifty yards from the hotel. The nest contained a single fresh egg. The first bridge north of Waiharara, a wooden culvert, had one nest which contained one egg. The sideroad to Kaimaumau has three bridges. The first, a very small wooden culvert over a ditch is known locally as Shines Bridge. It had two nests underneath. One nest contained two deserted eggs. The second bridge had no sign of Swallows; but the third, yet another small wooden culvert, had no less than five nests underneath it. Four appeared to have been in recent use; one of them had been built underneath the gap between two of the bridge planks and was full of road-dust, which had buried the single egg.

The old jetty or platform at L. Ngatu, where Swallows once bred, is now almost fallen down, and no nests were found. However a single Swallow was seen flitting over the raupo. A steel girder bridge at Waipapakauri, fifty yards south of the Commercial Hotel, had a single nest beneath it, and a pair of Swallows were flitting around. Swallows were not breeding under the Awanui Bridge, where they were first recorded breeding in New Zealand (1958), but two Swallows were seen nearby. Apparently Welcome Swallows quite often frequent an old breeding area, though they no longer nest there. Here the birds were noted on their characteristic "sweeping" flights over the surrounding countryside.

Two concrete bridge at Kaingaroa both had beneath them what may have been the remains of nests. However the first bridge east of Kaingaroa had a Swallow's nest attached to its smooth concrete underwall. Many fresh droppings indicated that the nest was being used very recently.

Two bridges on the Aurere Flat had their Swallows. The first, four miles west of Taipa, was a rough wooden farm bridge, roughly sixteen yards long, which spans the meandering Aurere River, characterised at this point by its mauvish colour and stinking mud. The bridge was 150 yards from the main road, from which it was readily visible. A pair of Swallows were seen. They were just putting the finishing touches to a newly built nest. Two Swallows were also present by the large concrete bridge which crosses the Parara Stream, a tributary of the Aurere. It is not possible to see under all of this bridge, but the extreme agitation of the birds indicated a nest.

No sign of Swallows was found near the next twelve bridges, but, by the thirteenth, near the Pupuke Road turnoff, some four miles before Kaeo, three Swallows were seen sitting on the power lines. No evidence of their breeding was found nearby, but there must be many suitable places such as barns, in the adjacent countryside. Swallows have not previously been recorded in this area.

The nests were of mud compacted with grass stems, scraps of fibrous material and fragments of wood and lined with feathers, usually from some nearby farmyard. Guinea Fowl and Hen feathers were both noted. Some of the old nests had no feather lining. External measurements for eleven nests of normal construction were taken. The breadth (from side to side) varied from 60 to 120 mm., and averaged 80 mm., the width (from back to front) varied from 110 to 145mm., and averaged 130 mm., and the depth varied from 70 to 110 mm., and averaged 80 mm. The depth of the egg-chambers varied from 30 to 50 mm., and was normally 30-35 mm.; but the egg-chamber of one nest at Kaingaroa was 50 mm. deep. At the time we thought the extra depth was probably because of the lack of headroom due to the angle of the wall which sloped forward just above the back of the nest-rim. Height between the rim of the nest and the underneath of the bridge varied from 40 to 80 mm., averaging 50 mm. We formed the impression that the rougher the surface to which the nest was attached, the less deep the area of attachment, and vice versa.

All the nests we found were by streams or rivers; but it should be understood that our search was concentrated on road-bridges. We formed the impression that Swallows favoured as nest-sites the bridges which were so situated that the birds could have a clear sweep through under the bridge, and that bridges, where the clear sweep through was prevented by willows or other vegetation on one or the other side of the bridge, had no nests..

The height above the water varied from four to about fifteen feet. Only one nest was not directly above the water. Droppings examined were noted to contain the shiny wing-cases of some insect.

In the first few years when Swallows were found breeding in New Zealand, all nests recorded were attached to the underside of rough wooden bridges or similar structures, mainly because all the bridges in this original area are wooden. However, as the Swallow's range extends, so does its variety of nesting sites. Although no fewer than eleven of the nests which we examined were on wooden bridges,

some others were in different situations. One nest (Waipapakauri) was attached to the wood and malthoid above a steel girder under a bridge, and another (Kaingaroa) was attached to the smooth concrete wall of the bridge. The Houhora nest was completely different from any previously recorded in New Zealand. Two pipes, roughly four feet in diameter, and made up of various sections, go under the road. One of these sections had sunk slightly, leaving a gap of 70 mm. between the top of this particular section and the malthoid which covered the pipes. Here a small cup-shaped nest, only 30 mm. deep, was built, on top of the pipe and not attached to a vertical surface.

The stage of nesting varied. No nests examined contained young, though in some cases they had obviously left only recently. Almost all the nests had been used in the past few months. The Houhora nest contained one egg, as did the Waipapakauri nest. Evidently laying had just started again. On the Kaimaumau Road one nest contained two eggs and had been deserted, although Mr. R. H. Michie informs us adult birds were present only a fortnight before. A nest on a nearby bridge had been built directly below the gap between two boards in the bridge itself. Dust had come through and filled the nest, burying an egg. Another nest, on the Aurere River, was only just completed.

The eggs are of white ground colour, with a few very light grey undermarkings, and had reddish brown spots or blotches, mostly concentrated at the larger end. Measurements of three eggs were — 18 x 12.5, 17 x 12.5 and 17 x 12 mm.

If in a few years' time another check of all bridges on these roads could be made, some statistical evidence of the Welcome Swallow's status in the far north of New Zealand might be obtained.

P. D. G. SKEGG

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FLOCKING OF WELCOME SWALLOWS NEAR KAIKOHE

Te Iringa

Roger Simpson reports that a flock of 32 appeared on 10/2/62 around the school; mounted to 37 on 20/2/62 and on 22/2/62 a flock of about 100 appeared for a brief time. About the week-end of 11th-12th March, the Welcome Swallows disappeared.

Northland College Farm

3/12/61 2 Swallows flying about wooden bridge. 2 young birds seen roosting under bridge.

5/12/61 3 Swallows flying over bridge, 2 adults, 1 young bird. 2 nests found under bridge. 1 nest (this season's) complete; the other (last season's ?) partly destroyed.

10/2/62 No trace of 2 nests seen last December. 1 new nest built during school holidays — empty, but had been used. Throughout remainder of first school term adults and young birds seen constantly in vicinity of bridge, varying in numbers from 1 to 10; perhaps one pair of parents and two broods raised under bridge.

Second term (last observation 19th June) only two adult birds seen in vicinity of bridge.

Kaikohe Sewage Pond

26/5/62 First swallows seen this year over sewage pond — 6 birds.
9/6/62 As many — or more — as seen flocking over pond from May onwards last year, i.e. 20-30; possibly more, but very difficult to count.

Lake Omapere

24/3/62 A single swallow seen along southern shore. Other parts of lake not visited.

Ngawha

17/2/62 At least 40 swallows, probably 60+, seen over 'Kauri Log' Lake, feeding. (With H.R.McK.)
31/3/62 Five feeding over small lake in front of Spa Hotel.
1/7/62 Many seen on 'Kauri Log' Lake, but could not obtain count as they were resting amongst the sticks on the shore.

MALCOLM ROSS

★

LITTLE TERNS IN THE FIRTH OF THAMES

In 1957 McKenzie and Sibson (*Notornis* VII, 174-182) collated their observations made over several years on certain puzzling terns which appeared every summer in small non-breeding flocks in the Firth of Thames. As most of these very small terns began to assume breeding dress in late summer at a time when adults of those species of tern which breed in New Zealand show worn feathering and are moulting into winter plumage — noticeable especially by the fading of the black cap — it was tentatively concluded that most of these small terns were *albifrons* and not *nereis*, and that they were coming to New Zealand as migrants from breeding grounds which were probably north of the equator.

In the intervening years small dark-billed, short-tailed terns have continued to appear in summer and to stay for some months on the southern coast of the Firth of Thames. The biggest counts made over the last five summers are: 9 on 30/12/57; 5 on 13/12/58; 8 on 6/12/59; 4 on 27/11/60; 7 on 26/11/61 (v. Annual Locality Reports for Firth of Thames). Elsewhere smilar small terns have been widely reported in coastal areas from Rangaunu Bay to L. Ellesmere.

Drawings by C. G. Cathie of heads of Little Tern **(S. albifrons)** and Fairy Tern **(S. nereis)** in breeding dress; based on sketches made in the field and photographs.

On 31/3/62 when we visited the stretch of coast where these terns have most frequently been seen, we found on the tidal flats near Kairito Creek a gray carpet of some 3000 resting Wrybills *(A. frontalis)* among which were some of the rarer arctic waders and also two small terns, perhaps the last of the seven seen earlier in the same summer.

But now they were in freshly moulted breeding dress with glossy black caps and a bright yellow bill with a dark tip. We noted particularly that the recess of white below the crown tapered to a fine point above the eye and was not rounded as in *nereis,* and also that the dark line along the lores reached forward virtually to the bill. The only reasonable conclusion we could draw was that we were examining two adults of *albifrons* in breeding dress and soon about to leave for breeding grounds in the northern hemisphere. We have no doubt that the Little Tern can be safely added to the New Zealand list. In fact the evidence from the Firth of Thames is that it is a regular migrant to New Zealand and that small numbers including first-winter juveniles, arrive about November and that they leave about April, though sometimes yearlings may remain over the winter.

R. B. SIBSON
A. T. EDGAR

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LARGE FLOCKS OF TURNSTONES AT PARENGARENGA

On 25/1/62, with Messrs, A. T. Edgar and N. Messenger, I visited Te Pua peninsula, which lies between the well-known wader-grounds of Raumanawa and Kaiata in Parengarenga Harbour. The peninsula is now being broken in for farmland. The scratchy gumland scrub well known to earlier ornithologists who visited the area has gone; and as the result of a second discing, its place had been taken by a sandy-peaty-clayey expanse, bare of vegetation.

Here on the rough broken ground we found near full tide an impressive flock of Turnstones *(A. interpres)* estimated at not less than 1000 and with them were about sixty Golden Plover *(P. dominicus fulvus).* Mixed flocks of these two species have been noted on roughly ploughed land near the sea frequently in Manukau and the Firth of Thames; but never in recent years have the Turnstones been in such numbers. However, Buller in his account of the Turnstones (2nd edition 1888) says that Mr. Cheeseman — the famous botanist — had informed him that in Manukau Harbour in March 1880 he "met with a flock which must have contained upwards of a thousand birds, besides several smaller ones." When in late January, 1961, a study was made of the birds of Farewell Spit, the 800+ Turnstones recorded were not in one single flock, but were scattered over many miles.

P. D. G. SKEGG

(Parengarenga is known to be a 'good Turnstone harbour.' One point worth noting is that this very big flock in the far north at this date cannot be the result of the gathering-up of Turnstones from other parts of New Zealand just prior to migration; but must represent the local summering population temporarily attracted by a new man-made habitat. In January there are sizable flocks of Turnstones, the biggest usually containing 200-300 birds, in a number of favoured haunts south to the Invercargill lagoons. From two well-watched areas, the Karaka shore of Manukau and the Miranda coast of the Firth of Thames, there is some evidence that the number of Turnstones annually reaching New Zealand has been increasing. This may be the result of a succession of favourable breeding seasons on the arctic tundra; and may indicate a recovery towards such numbers as Cheeseman reported in 1880. — Ed.)

KIWI COURTSHIP

In March, 1942, Mrs. George Brady, now resident in Christchurch, saw, about 3 a.m., in the moonlight, six or seven miles up the Ten-mile River, on the Greymouth-Westport Road, two large kiwis (whether *haasti* or *australis* is uncertain) caressing with their beaks. The action was a gentle rubbing of the beaks together. Mrs. Brady was sitting on a log on the river bank. She heard the harsher call of the female first, then the shriller call of the male, and the two came together, in the bright moonlight, on the river bank, while Mrs. Brady sat still and watched. Later, another female called, and a second male answered. The first pair paused, looked around, and then resumed their beak caress, but soon afterwards stopped, and began feeding in the grass. Mrs. Brady, sitting on the log, watched the display from a distance of eight or nine yards, for at least a quarter of an hour.

R. J. SCARLETT

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PIED SHAGS NESTING IN LOW SHRUBS

Amongst a number of breeding colonies of Pied Shags *(P. varius)* accessible by boat from French Pass, there is one calling for special mention This is situated at the foot of a steep rocky slope running down to the inland margin of the lake at Te Puna Beach, on D'Urville Island, and is remarkable for the fact that the nests are situated practically at ground level. At the date of visit, 27/7/62, there were 22 nests in evidence, from 20 of which the young were already fledged. Of the remaining two, one contained a newly-hatched young bird and a chipping egg, and the other two young about two weeks old. The highest nest in the colony was situated about seven feet above ground level in a dead *Olearia paniculata,* others in small tauhinu and mapou bushes, and the majority on low clumps of *Muhlenbeckia complexa.*

A. BLACKBURN

(A colony of Pied Shags which were breeding in low ngaio trees *(Myoporum laetum)* at the Middle Chicken is briefly described in *Notornis* VI, 154. In the Hauraki Gulf some Pied Shags are nesting at all seasons (VIII, 20-25). The same may be true of Pied Shags in the Cook Strait region. — Ed.)

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POMARINE SKUA AT THE TURAKINA RIVERMOUTH

On 22/2/62, I visited the Turakina rivermouth with J. P. Fahey, of Wanganui. While examining a large flock of White-fronted Terns and a smaller number of Caspian Terns a largish dark brown bird appeared. It chased a White-fronted Tern which was about to join the flock; an aerial dogfight followed, the skua taking the offensive. A masterly display of aerial manoeuvres took place before the skua flew out to sea. I followed its progress through my 25x telescope. It made a wide circle of a half a mile or so and somewhere along the line was joined by another of its kind this time of the light phase. The two flew rapidly towards us, swooped not ten feet above our heads

then dived amidst the White-fronted Terns, Caspian Terns, Pied Stilts, oystercatchers and godwits assembled at the high tide roost. All took to the air and the skuas made off with a few Caspian Terns helping them on their way. They flew out to sea and did not return while we were there.

As the skuas swept low over us we were able to see by the diagnostic spoon-shaped tail plumes that they were Pomarines (*S. pomarinus*). My companion, who had no prior knowledge of the shape of the Pomarine, was able to draw for me the distinctive character which matched exactly the illustration in Pough's Aubudon Waterbird Guide which we had on the spot.

During the next two days reports of skuas at the Wanganui estuary were made by B. Tucker, who was unable to identify them specifically. Possibly two of these could have been the Pomarines seen 12 miles south at the Turakina rivermouth.

DAVID E. CROCKETT

[There are now several records of Pomarine Skuas in the Cook Strait region. Dell and Fleming (*Notornis VII*, 62) stated that when a dark Pomarine Skua chased a Caspian Tern at Waikanae, the white wing-flashes were inconspicuous. — Ed.]

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PERSONALIA

Congratulations to (1) Dr. C. A. Fleming on his election as President of the Royal Society of New Zealand; and also on his election as Corresponding Fellow of the American Ornithologists Union.

(2) To Mr. A. T. Edgar, O.B.E., E.D., on receiving, as recognition of his work in Malaya, the award of J.M.N. (Johan Mangku Negara).

Dr. R. A. Falla, C.M.G., represented the Society at the Thirteenth International Ornithological Congress which was held in America in June, 1962. He then travelled on to Britain, where he was hoping, inter alia, to work on petrels at the British Museum.

During a trip to Europe, Mr. F. C. Kinsky visited several banding stations and also the island of Skomer.

The President, Mr. A. Blackburn, is on a six-weeks bird-trip to Australia, on which he plans to cross central Australia from Melbourne to Darwin, via Alice Springs. He will be accompanied by Mr. D. V. Merton.

Thanks (1) to Miss C. Bernrieder for the long hours she has devoted to cataloguing the Deignan collection of papers on ornithology, now in the library.

(2) To Mr. D. G. Fenwick for the efficient compiling of the Index to Volume IX.

IMPORTANT NOTICE

FULL SETS OF THE JOURNALS OF THE ORNITHOLOGICAL SOCIETY OF NEW ZEALAND (Incorporated) will shortly be available and broken sets can be completed. They will consist of:—

Reports and Bulletins (Reprint in 1953 of cyclostyled issues of the Society) 1939 - Oct. 1942.

N.Z. Bird Notes (Reprinted 1947) Jan. 1943 - May 1946.

N.Z. Bird Notes and New Zealand Bird Notes — July 1946 - April 1948.

New Zealand Bird Notes — July 1948 - April 1950.

Notornis — July 1950 onward.

Sixteen issues which are out of print or nearly so are being reproduced by a photostat process and will be of very good quality.

(Mrs.) HETTY McKENZIE, Journal Despatch Officer
P.O. Box 45, Clevedon

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NOTICES

"**Field Guide to Waders,**" Condon and McGill, Second Edition, Revised 1960.

The Secretary has obtained a limited number of copies of this excellent publication of the Melbourne Bird Observers Club, which are offered to Members on receipt of 3/- per copy to cover cost, postage and a small profit to the Society.

Orders with remittance to: A. T. Edgar, Inlet Road, Kerikeri, Bay of Islands.

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LIST OF REGIONAL ORGANISERS, O.S.N.Z.

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NORTHLAND: Vacant

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Please note the new address for the library —

Ornithological Society of N.Z.,
C/o Auckland Institute and Museum,
Private Bag,
Auckland, C.1.

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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.